

**TENTH ANNUAL
HEALTH SCIENCES CENTER
POSTER CONFERENCE 2005**

**FACULTY OF MEDICINE
HEALTH SCIENCES CENTER
KUWAIT UNIVERSITY**

Tenth Annual Health Sciences Poster Conference 2005

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Special Acknowledgements

- Prof. Abdulla Behbehani
Dean, Faculty of Medicine
- Dr. Eyad Al-Saleh,
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- Mr. Jasem Al-Khorafi
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Photograph of Organizing Committee



From Right to left 1st row

Dr. Fatima Habeeb, Dr. May Al-Maghrebi, Dr. Nasser Behbehani, Dr. Eyad Al-Saleh, Dr. Hanady Amoudy, Mrs. Fatma Hassan, Mrs. Teena Sadan

From Right to left 2nd row

Dr. Salah Al-Humood, Mr. Ram Noor, Dr. Khaled Orabi, Dr. Joseph Longenecker, Mrs. Radha Nair

Members not shown in the picture

Dr. E.O.Kehinde, Dr. Hans Peter Muller, Dr. Salem Al-Shemmari

Best Poster Award Winners -2004

Undergraduate Research

- Al-Fahad TB, Al-Othman Am, Al-Khrayef D, Behbehani N: Establishment of Reference Range for plasma concentration of angiotensin I converting enzyme based on I/D Gene polymorphism
Department of Community Medicine, Faculty of Medicine, Kuwait University

Graduate Basic Science

- Al-Tamimi RA, Al-Mulla F: Investigating status of amplifications in a colorectal cancer cell-line (Colo320) using comparative Genomic Hybridization and micro array techniques.
Department of Genetics and Microbiology, Faculty of Medicine, Kuwait University

Basic Sciences

- Ananthalekshmi KVV, Matowe WC, Parvathy SS, Kombian SB: Cholecystokinin activates CCKB receptors to excite and depress EPSCS in the rat nucleus accumbens In Vitro.
Department of Pharmacology and Toxicology, Faculty of Medicine, Kuwait University
- Mustafa S, Oriowo MA, Khan I: Involvement of Rhoa/Rho-Kinase pathway in cooling-induced contraction of the rat fundus
Department of Pharmacology and Toxicology, Faculty of Medicine, Kuwait University
- Yousif MHM, Benter IF, Abraham S, Cherian A: Signal transduction through Ras-GTPase contributes to development of diabetes-induced abnormal vascular reactivity in the rat perfused mesenteric vascular bed.
Department of Pharmacology and Toxicology, Faculty of Medicine, Kuwait University

Clinical Sciences

- Al-Mulla F, Al-Humood S, Jacob SP: Algorithmic approach to detect B-Cell monoclonality in diffuse large B-Cell Lymphoma (DLBCL) using polymerase chain reaction(PCR).
Department of Pathology, Faculty of Medicine, Kuwait University
- Kehinde EO, Akanji AO, Daar AS, Luqmani Y, Bashir AA, Al-Awadi KA: Do Differences in age specific serum adrenal C₁₉-Steroid hormone levels account for differing prostate cancer rates between Arabs and Caucasians?
Department of Pharmacology, Faculty of Medicine, Kuwait University
- Dashti HM, Mathew TC, Asfar S, Behbahani AM, Al-Zaid NS: Long term effects of ketogenic diet in Obese Patients with high level of cholesterol
Department of Surgery and Transplantation, Faculty of Medicine, Kuwait University
- Mojiminiyi OA, Abdella NA, Mohammedi H, Al Jebely S, Ozairi ES, Al Dahi W: Low Erythropoietin precedes the onset on anemia and nephropathy in patients with type 2 diabetes
Department of Pathology, Faculty of Medicine, Kuwait University

Past Poster Day Keynote Speakers and Lecture

2004

- The Nitric Oxide/Cyclic GMP Pathway: Targets for Drug Development
Prof. Ferid Murad, Chairman, Department of Integrative Biology and Pharmacology, Director, Institute of Molecular Medicine, University of Texas Medical School, Houston, Texas, USA

2003

- The Post-Genomic Era: Global Impact on Medicine and Health Care Delivery
Prof. Seyed E. Hasnain, Director, Centre for DNA Fingerprinting & Diagnostics (CDFD) Hyderabad, India

2002

- Genetics and World Health: Fact or Fantasy
Prof.(Sir) David J Weatherall, Emeritus Professor, Weatherall Institute of Molecular Medicine, University of Oxford, UK

2001

- Genomic View of Human History
Prof. Mary-Claire King, American cancer Society Research Professor, Department of Medicine and Genetics, University of Washington, Seattle, Washington, USA

2000

- Molecular Mechanisms and Biomedical Implications of Apoptotic Cell Death
Dr. Sten Orrenius, Professor and Chairman, Division of Toxicology, Institute of Environmental Medicine, Karolinska Institute, Stockholm, Sweden

1999

- Nutrition, Immunity and Infection: Basic Considerations and Public Health Significance
Dr. Ranjit Kumar Chandra, Professor & Director, Allergy, Asthma and Immunology Centre, Gurgaon, India

1998

- Futurology in Biomedical Research: From Crystallography to Crystal Gazing
Prof. Jasbir S. Bajaj, All India Institute of Medical Sciences, New Delhi, India

1997

- The Impact of Research on the Development of an Academician
Dr. Elia Ayoub, Distinguished Professor of Pediatrics, Department of Pediatrics, Pediatric Immunology and Infectious Diseases, College of Medicine, University of Florida USA.

Faculty of Medicine Dean's Address
10th Annual Health Sciences Center Poster Conference
April 25-27, 2005

As a part of its mission, our Faculty of Medicine remains committed to supporting and encouraging excellent biomedical research for the ultimate benefit of society. It was just 10 years ago that one of our colleagues had the novel idea that the Faculty should establish a forum where staff and other workers in the biomedical field in Kuwait can interact and present their research findings. This idea, implemented only modestly then, has in the interval, not only blossomed but survived the test of time. It has since evolved and progressed to become the principal platform for the exchange of scientific thought and ideas and the prime stimulus for multidisciplinary collaborative medical research in the country. Its success is undoubtedly due to the dedication, talent and untiring effort of the many staff members who have undertaken its organization over the years.

Each year has witnessed innovations, with injection and integration of new ideas such that what we have now is an amalgam of successive fingerprints. Yearly, we have had improved quality and quantity of presentations – this is an objective sign of success, due largely to the enthusiastic reception and feedback of the various researchers and research groups in the country. They have all, over the years, enriched the activity and enhanced its quality. Indeed, I am proud that the Poster Conference now indicates a thriving and healthy atmosphere based on excellent team effort. It fits in very well with the vision and mission of our institution and founding fathers.

As everybody should be aware, our Faculty of Medicine is progressing with multifaceted attempts at reforms in its educational, research support and public service programmes. The anticipated new curriculum will open opportunities for our undergraduate students to undertake research electives and the Poster Conference will be one avenue for presenting their findings for critical review. This can only make them better practitioners in the future.

I am grateful to the Vice Dean Research, Dr Eyad Al-Saleh for his continuing support for the Poster Conference. I also extend my gratitude to the Chairman of the 10th Poster Conference Organizing Committee, Dr. Nasser Behbehani, and the Organizing Committee drawn from his colleagues from the constituent HSC Faculties. They have all worked so hard to ensure the quality we have grown to expect from this important activity. It is also a great pleasure for me to welcome our distinguished guest speaker, Professor Peter Barnes, to Kuwait. I have no doubt, judging from the breadth of his experience in his field of Respiratory Medicine, that his Keynote Speech will enrich us all.

I wish everybody fruitful deliberations and interactions.

Prof. Abdullah Behbehani
Dean
Faculty of Medicine

Faculty of Medicine Vice Dean's Address
10th Annual Health Sciences Center Poster Conference
April 25-27, 2005

Research is an essential component of an academic institution and Kuwait University has been investing heavily in research funding and in fostering scientific skills and expertise. This policy has provided the Faculty members an opportunity to pursue their intellectual aims and ambitions thus generating a rich diversity of expertise. The research at Faculty of Medicine has developed significantly over the years and the resulting information has contributed substantially to serve the needs of the society and people of Kuwait.

Collaboration and Communication are essential for achieving success in research. The research these days cannot be carried out in isolation and the most effective way forward is to foster linkages and collaboration between researchers and scientists both locally and at international level. The idea of holding a Poster Conference at Health Sciences Center was conceived to achieve these two objectives i.e. on one hand it provides an opportunity to local researchers in the health-related fields to present their findings and on the other hand it facilitates in developing collaborative research activities between researchers which is essential for an efficient utilization of resources for mutual benefit.

This year we are holding the 10th Health Sciences Poster Conference. I am confident that it would provide another opportunity for researchers and other Health professionals to come together and obtain maximum benefit from this forum.

This year the Organizing Committee has done a wonderful job; I would like to congratulate the Chairman, Dr. Nasser Behbehani and all members of the Organizing Committee for their hard work, dedication and commitment in making this event possible. I would also like to thank our keynote speaker Prof. Peter Barnes, who as all of us know is a leading figure in Medical Sciences for accepting to join us in this 10th Health Sciences Poster Conference. I am looking forward to a successful event this year as per previous Poster Conferences.

Dr. Eyad Al-Saleh
Vice Dean, Faculty of Medicine

**Message of the Chairman,
10th Annual Health Sciences (HSC) Poster Conference 2005
Organizing Committee**

I would like to welcome you all to the 10th Health Sciences Centre Poster Conference. Thanks to the dedications and effort of everybody involved in the organization of the Poster Conferences over the last 10 years, this event has established itself as a venue for presentation of all kinds of health related research in Kuwait. The number and quality of abstracts have increased steadily over the years. I am proud that in this year we got the highest number of abstracts submitted ever. We received a total of 367 abstracts and out of those 321 were accepted. The abstracts covered almost all areas of medical sciences and there was a good participation from the staff of the four faculties at the Health Sciences Centre. There was reasonable participation from undergraduate student and post-graduate doctor however I feel that we need to find ways to make their participation even greater.

The keynote lecture has always been a focal point of the poster conference. I am very pleased that this year Keynote speaker is of very high caliber and of International Repute. Professor Peter Barnes has more than 1000 publications in peer Reviewed Journals and he is the most cited researcher in the United Kingdom over the last 20 years. His lecture "how corticosteroids work in inflammatory diseases: new molecular insights" will be relevant to almost everybody involved in medical sciences.

The organizing committee of the 10 th HSC Poster Conference will introduce Moderated Poster Sessions for the first time. There will be 9 moderated sessions, 5 each on Monday afternoon and 4 on Tuesday afternoon. We were hoping that all abstracts can be discussed in a moderated poster session format but since this is the 1st time that such activity is done at the poster conference we elected to include selected abstracts from different subjects. We feel that such Moderated sessions raise the discussion among poster conference participants to a higher level. We encourage the poster presenters to participate actively in these sessions. The idea of moderated poster sessions will be evaluated at the

end of this year conference and a recommendation will be made for the coming years.

Finally I would like to thank the faculty administration especially the Dean Prof. Abdulla Behbehani and Vice Dean for research Dr.Eyad Al-Saleh, for their continuing support and encouragement and all the members of the organizing committee for making every possible effort to ensure the success of this year Poster Conference

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Dr. Nasser Behbehani
Associate Professor, Kuwait University
Chairman, 10th HSC Poster Conference Committee 2005

**Keynote Speaker – 10th Annual HSC Poster Conference
2005**

Prof. Peter John Barnes MA, DM, DSc, FRCP, FMedSci



Peter Barnes is Professor of Thoracic Medicine at the National Heart and Lung Institute, Head of Respiratory Medicine at Imperial College and Honorary Consultant Physician at Royal Brompton Hospital, London. He qualified at Cambridge and Oxford Universities and was appointed to his present post in 1987. He has published over 1000 peer-review papers on asthma, COPD and related topics and has edited over 40 books. He is also amongst the top 50 most highly cited researchers in the world and has been the most highly cited clinical scientist in the UK over the last 20 years. He is a member of the Scientific Committee of the WHO/NIH global guidelines on asthma (GINA) and COPD (GOLD) and is Chairman of the National Asthma Taskforce in the UK.

Keynote Abstract

How corticosteroids work in inflammatory diseases: new molecular insights

Peter J Barnes. National Heart & Lung Institute, Imperial College London, UK

Glucocorticoids are by far the most effective anti-inflammatory therapy for asthma and many other inflammatory diseases. Glucocorticoids bind to glucocorticoid receptors in the cytoplasm and translocate to the nucleus, where they interact as dimers with glucocorticoid response elements in the promoter region of steroid-sensitive genes to switch on transcription of anti-inflammatory genes, (such as MKP-1). This involves binding of GR to coactivator proteins and acetylation of core histones, particularly histone-4 through the intrinsic histone acetyltransferase (HAT) activity of these coactivators. But most of the anti-inflammatory effects of glucocorticoids are mediated via suppression of inflammatory genes. These have been activated by pro-inflammatory transcription factors, such as nuclear factor-kB and activator protein-1, through histone-4 acetylation (with a different acetylation pattern from glucocorticoid-mediated activation). Activated GR interacts with coactivators associated with inflammatory genes (such as cytokines) and directly inhibits their HAT activity, but more importantly recruits histone deacetylase (HDAC) 2 to the hyperacetylated inflammatory gene complex and thereby shuts down transcription.

In COPD and asthma patients who smoke glucocorticoids fail to suppress inflammation. This appears to be due to a loss of HDAC2 activity and expression as a result of oxidative and nitrative stress. We are able to restore both HDAC activity and steroid responsiveness in alveolar macrophages from COPD patients by transfecting the cells with HDAC2 and by low concentrations of theophylline, an HDAC activator which markedly potentiates the anti-inflammatory actions of glucocorticoids. This may lead to new approaches in management of chronic inflammatory diseases, particularly in situations where glucocorticoids appear to have lost their efficacy.

References

Barnes PJ, Adcock IM. How do corticosteroids work in asthma? *Ann Intern Med* 2003; 139:359-70.

Barnes PJ, Ito K, Adcock IM. A mechanism of corticosteroid resistance in COPD: inactivation of histone deacetylase. *Lancet* 2004; 363:731-3.

Cosio BG, Tsaprouni L, Ito K, Jazrawi E, Adcock IM, Barnes PJ. Theophylline restores histone deacetylase activity and steroid responses in COPD macrophages. *J Exp Med* 2004; 200:689-9

Abstract List by Subject

Abstract List of Moderated Poster Sessions

Anatomy

Category: Basic Sciences

1: Moderated

Nuclear microtubules and filaments in cisplatin-treated apoptotic C6 glial cells

*Krajci D¹, Mares V², Lisa V²

¹Department of Anatomy, Faculty of Medicine, Kuwait University, Kuwait; ²Joint Laboratory of the Institute of Physiology of the Academy of Sciences and the 1st Medical Faculty, Charles University, Prague, Czech Republic.

Introduction:

Microtubules are typical components of the cytoplasmic cytoskeleton and, under normal conditions, they are never found in the nucleus. When treated with cisplatin the majority of C6 glioma cells die by apoptosis within 48 to 96 hrs. In this experiment we found a subpopulation of cells with atypical condensation and margination of chromatin expressing various amount of microtubules and filaments in their nuclei.

Methods:

Cultures of immature astrocyte-like C6 glioma cells were treated with a 90 min pulse of cisplatin (5-10 mg/ml) and examined by TEM at 24 to 96 h post-treatment intervals (p.t.).

Results:

This type of cells first appeared at 24h p.t. interval and peaked at 48h p.t. They showed various degrees and patterns of accumulation of nuclear microtubules and filaments. Small bundles of microtubules (diam. ~18 nm) were usually arranged along the inner surface of the nuclear envelope and were occasionally attached to the nuclear lamina. The spots of their attachments were located at the bottoms of shallow depressions of the nuclear envelope. Thin strips of condensed chromatin were frequently attached along the bundles of microtubules which kept them in a distance from the nuclear envelope. Accumulations of fibrillar structures (diam. ~ 8 nm) were found in tufts, whorls or fine bundles more deep in the nucleoplasm, often close to nucleoli which showed various degrees of component segregation. In 72-96 h p.t. intervals the cells with nuclear microtubules and filaments disappeared from the culture by execution of apoptosis.

Conclusions:

Formation of microtubules was never reported in cells at advanced stages of apoptosis, characterized mainly by dense condensation and margination of chromatin, nuclear lobulation and cell fragmentation. We conclude that the cisplatin treatment initiates translocation of tubulin into the nucleus followed by reorganization of the nuclear matrix in a subpopulation of C6 glial cells at early stages of its effect.

Key Words: Nucleus; Microtubules; cisplatin;

Funding Agency: KU, Shared Facility, Project No. GM 01/01.

2

The 3-D computing picture sets combined with plastinated specimens used as a background for study of the dislocated fractures of the mandibular condylar process.

Klepáček I¹, Schutz P², Helekal I³

¹Department of Anatomy, Kuwait University, Kuwait

²Oral and Maxillofacial Surgery Unit, Al-Adan Dental Center, Kuwait

³Higher Professional School of Applied Art, Prague, Czech Republic

Introduction:

A full understanding of the mechanisms of the mandibular fractures suppose the excellent 3-D imagination of the fracture region. 3-D demonstration appears as an efficient method to establish useful background for the preoperative instructions as well as lecture presentation (based on our curriculum materials) oriented to our postgraduate students. At this study the drawings and radiographic findings are combined to study the mechanisms of mandibular condylar fractures to show dislocation trends.

Methods:

Original pictures of the head and neck regions were made using method of the American retouch. The plastinated specimens (Kuwait and Prague anatomy collections) and dissected organs served as master models. Nomenclature of the fractures follows classification adopted by Strassbourg Osteosynthesis Research Group. Clinical material and its radiological examinations were collected in the Oral and Maxillofacial Surgery Unit, Al-Adan Dental Center, Kuwait over 2 years period. Following computer equipment and digital audio/video system the animated series of pictures and 3-D imagination using software (Adobe-Photoshop, 3-D Anamaker) were realized.

Results:

The “dissolving picture sets” (per 10 pictures each) were arranged displaying positions and eventual dislocations of the mandibular head and neck inside the infratemporal region. The following fractures were illustrated: a) The diacapitular fracture (through head of the condyle). b) The fracture of the condylar neck. c) The fracture of the condylar base (subcondylar fracture).

Conclusions:

Particular relations among bone fragments found after mandibular fractures are shown using picture sets, which are made as are seen by physician’s eyes (if he is leaning towards patient). This seems to be crucial to understanding of the mutual relationships between skull bones even if they are dislocated.

Key Words: Computed Pictures ; Mandibular Condylar Fractures; Animation;

Funding Agency: None

Anatomy

Category: Clinical

3

Effect of aseptic technique for venflon insertion and development of superficial thrombophlebitis

*Mallick PN, Singh RKA, Naik AK, Alexander G
Al Jahra Hospital.Kuwait

Introduction:

Thrombophlebitis is a common complication following intravenous catheter insertion. Although the exact incidence in our hospital has not been reported, there has been lots of complain about the intravenous catheter pain and various other complications. We compared the conventional method of I V line insertion and more aseptic technique .

Methods:

This study is a double blind study undertaken in Al-Jahra Hospital, Kuwait. 30 patients were taken for this study, divided in two groups. Patients undergoing laparoscopic surgery were taken for this study. In both the groups 18-gauge venous catheter were used. Group I 18 G. I/V line was inserted using Ethyl Alcohol (spirit) for asepsis. Group II 18 G. I/V line was inserted using Chlor Hexidine rub), betadine & ethyl alcohol (spirit) for asepsis. Patients were observed for 72 hours for development of pain, redness, swelling and blockage (Signs of thrombophlebitis). Patients in-group I & II having pain during injection to antibiotics were assessed using 10 points V A S score. The data were compared using student -t test.

Results:

We found a very statistically significant result using a simple aseptic technique which can be implemented in day to day practice. Group I patients had a mean duration of 23.24 ± 3.34 hours for development of pain or signs of thrombophlebitis (V A S score of more than 6). In group II the mean duration of development of pain was significantly delayed. The average duration of pain was 46.34 ± 7.24 hrs (V A S score of more than 6) It was statistically significant with p-value < 0.05 .

Conclusions:

Using aseptic technique for intravenous line not only delays the superficial thrombophlebitis with significant duration but it avoids one more catheter insertion, which is painful.

Key Words: Venflon-cannula; thrombophlebitis

Funding Agency: None

Anatomy

Category: Clinical

4

Interpleural analgesia for multiple fractured ribs

*Singh RKA, Naik AK, Mallick P, Reddy GK, Alexander G
Department of Anaesthesia &ICU .Al Jahra Hospital.

Introduction:

Interpleural analgesia (IPA) which is simple and safe can provide relief of pain for the patient with multiple fractured ribs. To prove that IPA can be the proper technique for rapid and consistent pain relief with maintenance of normal pulmonary functions for the patient with multiple fractured ribs

Methods:

20 patients who were involved in road traffic accidents (RTA) with multiple fractured ribs were admitted to ICU. 8 patients were conscious whereas 12 patients whose Glasgow coma scales G/S were 5-6 were put on ventilator. An 18-gauge Touhy needle was inserted through the weal raised 8cm lateral from the midline at the 5th intercostal space till it contacted the 5th rib. The needle walked off until it slid off the upper border of the rib. The stylet was removed and a glass syringe was attached to the hub of the needle and the needle was advanced steadily till loss of resistance to air was felt as the parietal pleura were penetrated. The epidural catheter was inserted freely through the needle for about 5-7cm. The catheter was fixed firmly. A bolus dose of 20 ml of 1% lignocaine was given slowly followed by infusion of 0.125% of bupivacaine and fentanyl 2mg/ml at the rate of 5-8ml/hr. Pain evaluation was carried out with VAS (visual analogue scale) before and after IPA.

Results:

Pain scores before IPA were high (7-9) but after IPA the scores were significantly less after the bolus dose as well as the infusion of the solution. The patients got pain relief in deep breathing and coughing out and patients on ventilators could wean off the ventilator earlier.

Conclusions:

Comparing with narcotic analgesia IPA is more effective in relieving pain for patients with multiple unilateral fractured ribs providing consistent analgesia and maintaining the normal pulmonary functions of the patients. It is safe and easy alternative technique to thoracic epidural analgesia as a "post blunt chest trauma pain relief technique" for RTA patients in ICU.

Key Words: *Interpleural analgesia; Multiple rib fractures*

Funding Agency: *None*

Anatomy

Category: Clinical

5

The effect of progesterone therapy on serum progesterone levels in pregnancy

*Diejomaoh FME^{1,4}, Kombian SB², Abdel-Hamid ME³, Al-Azemi MK^{1,4}, Jirous J⁴, Gupta M⁴, Assiya M¹

¹Department of Obstetrics and Gynaecology, Faculty of Medicine, Kuwait University;

²Departments of Applied Therapeutics and Pharmaceutical Chemistry³, Faculty of Pharmacy, Kuwait University; ⁴Department of Obstetrics and Gynaecology, Maternity hospital, Kuwait.

Introduction:

Pure progesterone and progestins (including 17alpha-progesterone and duphaston) have been used for treating a variety of pregnancy disorders including luteal phase deficiency and recurrent spontaneous miscarriages with conflicting and controversial results. Recent studies have demonstrated that antenatal intramuscular 17alpha-hydroxy progesterone or vaginal progesterone suppositories significantly reduced the incidence of preterm delivery; no estimation of blood progesterone levels were performed in those patients. The objective of this study was to quantify the impact of progesterone therapy on serum progesterone levels in pregnancy.

Methods:

Blood was extracted from fasting antenatal subjects (study group) in Maternity hospital, Kuwait, who were on progesterone/progestin therapy for a variety of indications; the blood tests were performed cross-sectional in the three trimesters of pregnancy. Blood was also extracted from subjects (control group) who were not on progesterone therapy at the same gestational ages with the study subjects. Serum was extracted, processed and 20 microlitres injected into a mass spectrophotometer to detect ionization peaks for progesterone. Such peaks were matched against standard progesterone peaks to quantify the progesterone levels in the subjects. Statistical analysis was done by two tailed student t test and alternate Welch t test.

Results:

Twelve study and ten control subjects were studied. There was no significant difference in the age (31.67 ± 5.12 vs 30.70 ± 6.67) and parity (2.17 ± 1.75 vs 2.30 ± 2.5), $p > 0.05$ of the study and control subjects. Although the serum progesterone levels were higher in study vs. control subjects in all trimesters, first trimester: 105.22 ± 74.16 vs. 50.38 ± 18.46 micromols/l, the differences were not significant, $p > 0.05$.

Conclusions:

Antenatal progesterone therapy does not alter serum progesterone levels in pregnancy and should suggest that such therapy be discouraged. Larger studies are required.

Key Words: Antenatal; Progesterone

Funding Agency: None

Anatomy

Category: Clinical

6: Moderated

Heat inactivation can differentiate between IgG and IgM antibodies in renal cross match.

*Mansour MM , Al-Muzairai I

Department of Immunology, Hamed Al-Eassa Organ Transplantation Centre, Ministry of Health, Kuwait.

Introduction:

For successful renal transplantation, the recipient should not have donor specific IgG antibodies (DSA). IgM is inconsequential .Therefore the technique for renal cross match (XM) should be able to differentiate between DS IgG and IgM antibodies. Ordinarily three methods are available: (a) flow cytometry cross match (FCXM) (b) Dithiothreitol (DTTXM) and heat inactivation (HIXM).

Methods:

This study is based on 300 cases for whom renal XM was performed during the year 2004 with all the three techniques. Efficiency of HIXM to differentiate between DS IgG and IgM was evaluated against the other two techniques and the outcome of renal transplantation. HIXM was done using two patient sera. One normal (NXM) and the other is heat inactivated (HIXM). HI is done by incubating patient serum at 63°C for 10 minutes. Cases with positive NXM, negative HIXM were reported as negative XM.

Results:

In the last year we had 50 cases of positive B cell XM .Thirty nine became negative after heat inactivation while 11 remained positive. While only 34 cases became negative after DTTXM and 16 remained positive. HIXM was exactly comparable with FCXM. No hyperacute, accelerated or acute rejection (within 3 months) happened after transplantation of these 39 cases.

Conclusions:

Our study shows that HIXM is highly effective in excluding DS IgM antibodies. Not only that the results of HI are fully comparable with FCXM that detects only IgG DSA, but also all the patients testing negative with this technique had successful renal transplantation. HI that is simple, cheap, speedy, and easy to perform and does not involve any extra-equipments or cost is highly recommended.

Key Words: Heat Inactivation; Renal Cross match

Funding Agency: None

7

Effect of total intravenous Anesthesia with Propofol with or without N₂O on the prevention of nausea and vomiting after laparoscopic Gynecologic surgery in patients treated with Ondansetron

*El-Zeini MN, Al-Refaai AR, VEDI HJ, Al-Mutawaa M
Department of Anesthesia, Maternity Hospital, Kuwait

Introduction:

The efficacy of anti-emetics for the prevention of postoperative nausea and vomiting (PONV) is affected by the type of anesthetic used. The use of nitrous oxide as an inhalation anesthetic supplement seems to increase the incidence of postoperative nausea and vomiting. Study Objective: To evaluate the effect of adding nitrous oxide (N₂O) supplement on the incidence of (PONV) after laparoscopic gynecologic surgery performed under total intravenous anesthesia with Propofol in patients treated with intravenous Ondansetron before induction of anesthesia.

Methods:

50 ASA physical status I, II healthy, consenting women undergoing laparoscopic gynecologic surgery procedures were randomly allocated into two groups: Group A (n= 25), to receive total intravenous anesthesia with Propofol alone, or Group B (n= 25), Propofol supplemented with 65% N₂O. Ondansetron 4 mg IV was administered to all patients before induction of general anesthesia. Interventions: After Prophylactic anti-emetic; i.v. Ondansetron 4 mg administered to all patients before induction in both groups, a standard Propofol induction (1.5 mg /kg IV), anesthesia was initially maintained with Propofol, 100 micro g / kg/ min IV, in combination with either air or N₂O 65% in oxygen. The Propofol infusion rate was subsequently varied to maintain an adequate depth of anesthesia. All patients received local anesthetic infiltration prior to the suturing of surgical incision. Incidence of PONV was recorded during the early first 2 hours of recovery after surgery.

Results:

None of the patients vomited or received anti-emetic medication during the 2 hours recovery period in-group A. In the group B; three patient (12%) experienced nausea prior to discharge and 2 patients (8%) vomited in the recovery room.

Conclusions:

In women undergoing laparoscopic gynecologic surgical procedures administration of 65% N₂O increased incidence of PONV. Therefore, use of Propofol alone in patients treated with Ondansetron may be better than propofol-65% N₂O for laparoscopic gynecologic surgical procedures in augmenting the effect of prophylactic Ondansetron administration in decreasing incidence of PONV.

Key Words: N₂O; Postoperative Nausea and Vomiting (PONV); Ondansetron;
Funding Agency: None

Biochemistry

Category: Clinical

8

Phadiatop test in clinical practice

Al-Ansari S, *Al-Kuthairi Z, Al-Mosawi A

Clinical laboratory department, Armed forces hospital, Kuwait

Introduction:

Phadiatop was designed to be a test for atopic allergies with its main use for patients with respiratory symptoms in order to find out which patients do not require allergen specific testing. This means that common inhaled allergens form the base. The allergy specialists participating in the clinical trials of Phadiatop were very concerned that some kind of therapy might be administered in a similar manner on the basis of Phadiatop results alone.

Methods:

We have studied the secretion of both total IgE and eosinophil cationic protein (ECP) as a measure of atopy in a total of 126 patients (86 females, 40 males) in whom Phadiatop was tested using unicap 100.

Results:

With mean control range from 0.72-18.4 kU/L, only 11.1% had total IgE above Kuwaiti adult reference range 3.2-602.5 kU/L. Median total IgE 144.5 kU/L (I.Q.R 46.5-419) and median ECP 17.6 ug/L (I.Q.R 8.1-31.7) and only 23.8 % showed positive Phadiatop test. We found significant differences ($p < 0.001$, Mann-Whitney) in the levels of total IgE (median 246 kU/L; I.Q.R 65.7-594 vs. median 70.9 kU/L; I.Q.R 32.9-205.5) and ECP (median 17.6 ug/L; I.Q.R 7.9-32.9 vs. 7.1 ug/L; I.Q.R 7.2-32.9 vs. median 7.1; I.Q.R 7.2-28.3) when the subjects were divided into those with positive and negative Phadiatop test. However, no correlation was found between total IgE and ECP ($r = 0.3$; $p = 0.1$, Spearman's correlation).

Conclusions:

We conclude that Phadiatop test is a simple test that can be used for screening and guiding therapy in patients with allergy, however, larger studies are needed.

Key Words: *Phadiatop; Total IgE; Eosinophil cationic protein (ECP);*

Funding Agency: *None*

Biochemistry

Category: Basic Sciences

9: Moderated

Superoxide dismutase protects the aerobic cells against unstable Glycolytic intermediates

*Benov LT, Sequeira F

Department of Biochemistry, Kuwait University Faculty of Medicine

Introduction:

Increase in the production of triosephosphates has been considered an important factor leading to diabetic complications. It might be expected that triosephosphates easily autoxidize, producing superoxide radical and alpha,beta-diketones. Since superoxide can also initiate the oxidation of such metabolites, free radical chain reactions are possible. If such reactions occur in vivo, triosephosphates would be more deleterious to cells lacking superoxide dismutase (SOD) than to normal cells. The main objective of our study was to test this hypothesis.

Methods:

DL-Glyceraldehyde-3-phosphate (GA3P) and dihydroxyacetone phosphate (DHAP), dilithium salt, were obtained from Sigma. SOD-deficient *E. coli* was used as a model system. GA3P or DHAP were added to cell suspensions which were incubated for 2 hours before enumeration of surviving cells. Methylglyoxal was assayed by using 1,2-diaminobenzene as derivatizing reagent, followed by HPLC separation. Mutagenesis was monitored by assaying the frequency of thymine-negative (Thy-) mutants.

Results:

At 2.0 mM GA3P and DHAP increased the number of the Thy- mutations in the SOD-deficient cells and at higher concentrations caused loss of viability. Analysis of the intracellular dicarbonyl content revealed that after incubation with GA3P or DHAP the SOD-deficient cells accumulated more methylglyoxal than did parental cells. These effects were oxygen-dependent and were suppressed by aminoguanidine.

Conclusions:

Triosephosphates autoxidation leads to superoxide production and release of toxic dicarbonyls. Among the important functions of superoxide dismutase is to prevent the conversion of unstable glycolytic intermediates into highly reactive, toxic compounds. On the other hand, oxidative stress can stimulate the accumulation of triosephosphates and their oxidation.

Key Words: *Diabetic complications; Triosephosphates; Superoxide;*

Funding Agency: *Kuwait University Grant*

Biochemistry

Category: Graduate (Basic Sciences)

10

Molecular mechanism of reduced contractility in inflammatory bowel diseases: Roles of SERCA-2 and Rho Kinase

Al-Jarallah AA¹, Khan I¹, Oriowo MA²

Department of Biochemistry¹, Pharmacology², Faculty of Medicine, Kuwait University, Kuwait.

Introduction:

Inflammatory bowel diseases are associated with reduced colonic contractility, the underlying mechanism of which remains poorly investigated. Ca²⁺ ion concentration determines several cellular functions including contraction-relaxation. SERCA-2 is an internal Ca²⁺ -pump isoform which sequesters Ca²⁺ from contracted cell cytoplasm into endoplasmic/sarcoplasmic reticulum. Thus SERCA is important for refilling this intracellular Ca²⁺ sink. Objectives: In this study we investigated the mechanism of reduced contraction in rat colon inflamed by trinitrobenzenesulphonic acid (TNBS) by examining the level of SERCA-2 and RhoA kinase using ECL western blot analysis. Effects of thapsigargin and Y27632, inhibitors of SERCA and ROCK were examined by measuring the level of contraction.

Methods:

Colitis was induced by intra-rectal administration of TNBS in rats and followed for 5 days. Rats were sacrificed; colon was taken out and cleaned. Colonic smooth muscle was collected and used in this study.

Results:

Colitis caused a reduction in the inhibitory effects of thapsigargin, an inhibitor of SERCA-2 on carbachol-induced contraction. In zero Ca²⁺ Krebs medium carbachol-induced contraction was more reduced in inflamed colon as compared to the non colitis control rats. Rat colon expresses only SERCA-2 protein isoform, whereas both ROCKI and II isoforms were detected in the colonic smooth muscle. There was a significant reduction in the expression of SERCA-2 pump protein in the inflamed rat colonic smooth muscle. Interestingly, ROCK1 protein was significantly increased, whereas ROCKII remained unchanged following colitis. Effect of Y27632, a ROCK inhibitor on contractility was not different in the two groups.

Conclusions:

These findings demonstrate a defect in SERCA-2. Incapacitation of SERCA-2 will deplete intracellular Ca²⁺ sink leading to lower level of intracellular Ca²⁺ concentration and thus reduced contraction, which seems to be independent of Rho kinase.

Key Words: Colitis; Ca-pump; Rho-kinase;

Funding Agency: College of Graduate Studies for financial support

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Mechanism of Alpha-Interferon mediated reversal of fibrosis in liver cirrhosis

*Al-Bader A¹, Mathew TC^{2,4}, Abdeen S¹, Jacob SS¹ and Dashti H^{2,3}

Departments of Pathology¹, Anatomy² and Surgery³

Faculty of Medicine, Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences⁴, Health Science Center, Kuwait University

Introduction:

Cirrhosis results from progressive fibrosis of the liver. Previously we have shown that alpha-interferon has a significant effect in reversing cirrhosis. However, the exact cellular mechanisms of this effect are not well understood. It is known that trace elements such as Cu, Zn, Se and Mn are integral components of the antioxidant enzymes present in the body. This study, therefore is focused on the role of Cu, Zn, Se and Mn in interferon mediated reversal of fibrosis in liver cirrhosis

Methods:

30 male Wistar rats were used in this study. The animals were divided into three groups, consisting of 10 animals in each group. Animals in Group I served as control. The remaining animals were provided with 0.5 g/L of thioacetamide (Sigma) in water in order to induce liver cirrhosis. The cirrhotic animals were divided into groups II and III. Group II animals served as cirrhotic control whereas group III animals received 100,000 units of alpha-interferon/day/rat subcutaneously in 0.5 ml distilled water for 30 days. After 30 days the animals were sacrificed under anaesthesia and the hepatic tissues were used for histological analysis using routine H and E and special staining and trace element analysis and the serum was used for trace element analysis and liver function tests.

Results:

Histological analysis and liver function tests showed the effectiveness of alpha-interferon in reversing fibrosis. Serum level of Cu and Zn and hepatic level of Cu and Se were increased in alpha -interferon treated animals as compared to the cirrhotic controls.

Conclusions:

These findings suggest that Cu, Zn and Se may be involved in alpha-interferon mediated reversal of liver cirrhosis.

Key Words: Hepatic Toxicity; Thioacetamide; Alpha-interferon;

Funding Agency: This project is supported by a Research Grant

12

Role of trace elements in Vitamin-E mediated reversal of fibrosis in liver cirrhosis

*Mathew TC^{1,4}, Dashti H^{1,2}, Abdeen S³, Jacob SS³ and Al-Bader A³

Departments of Anatomy¹, Surgery² and Pathology³

Faculty of Medicine, Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences⁴, Health Science Center, Kuwait University

Introduction:

Vitamin E, a lipid component of the biological membranes is a highly effective antioxidant. Previous studies in our laboratory have shown that Vitamin E is quite effective in reversing fibrosis and cirrhosis in experimental animals. The aim of this study was to understand the underlying mechanism of Vitamin E effect in reversing hepatic fibrosis and cirrhosis.

Methods:

30 male Wistar rats were used in this study. The animals were divided into three groups (10 in each group). Animals in Group I served as control. The remaining animals were provided with 0.5 g/L of thioacetamide (Sigma) in water in order to induce liver cirrhosis. The cirrhotic animals were divided into group II and III. Group II animals served as cirrhotic control whereas group III animals were injected with 100mg of Vitamin- E, intraperitoneally for 30 days. After 30 days the animals were sacrificed under anaesthesia and the hepatic tissues were used for histological analysis using routine H and E and special staining and trace element analysis and the serum was used for trace element analysis and liver function tests.

Results:

Similar to our previous studies, thioacetamide induced definite cirrhotic changes in all the animals. Histological analysis and liver function tests showed the effectiveness of vitamin- E in reversing cirrhosis. Serum level of Cu ($p < 0.005$; $1.6\mu\text{g/L} \pm 0.1\text{SEM}$, 2.6 ± 0.3), Zn ($p < 0.05$; $0.75\mu\text{g/L} \pm 0.1\text{SEM}$, 0.8 ± 0.1) and Mn ($p < 0.05$) and hepatic level of Cu ($p < 0.05$) and Se ($p < 0.05$) were increased in Vitamin- E treated animals as compared to the cirrhotic controls. The level of hepatic Cu in control, cirrhotic and vitamin E treated rats are $3.1\mu\text{g/g} \pm 0.1\text{SEM}$, 2.5 ± 0.1 and 3.6 ± 0.3 respectively. The level of Se in the liver of control, cirrhotic and Vitamin E treated rats are $0.9\mu\text{g/g} \pm 0.03\text{SEM}$, 0.5 ± 0.01 and 0.6 ± 0.03 respectively.

Conclusions:

These findings suggest that Cu, Zn, Se and Mn may be involved in Vitamin E mediated reversal of liver cirrhosis.

Key Words: Hepatic Toxicity; Thioacetamide; Vitamin E;

Funding Agency: This project is supported by a Research Grant

Biochemistry

Category: Graduate (Basic Sciences)

13: Moderated

Reduced nucleoside transport activity and lowered hENT-1 protein in beta-thalassemia.

*Al-Massaeid AL¹, Das KC², Al- Wazzan HJ², Abu Baker KC³, Craik JD¹.

¹Department of Biochemistry, ²Department of Pathology, Faculty of Medicine, Kuwait University, ³Pediatrics Department, Al-Sabah Hospital, Kuwait.

Introduction:

Hemoglobinopathies are relatively common in Gulf populations. In beta-thalassemia, reduced expression of the beta-hemoglobin chains leads to precipitation of beta-hemoglobin chains in a process that is associated with a complex series of secondary metabolic changes resulting in shortened red cell survival and severe anemia that is a major characteristic of beta-thalassemia patients. It has been reported that the influx of purine nucleosides, including adenosine, are reduced in erythrocytes from beta-thalassemia major patients studied in Myanmar. The transport of nucleosides across human cell membranes is facilitated by a specific protein, the nucleoside transporter protein. In human erythrocytes nucleosides permeability is mediated by the hENT-1 transporter isoform. Objective: Measurement of uridine permeability and quantification of nucleoside transporter protein hENT-1 in erythrocytes from beta-thalassemia patients in Kuwait.

Methods:

Fresh blood samples were collected from beta-thalassemia and control subjects. Radioisotopic flux of ³H-uridine [700 micro-M uridine] was used to study nucleoside transport rates over short time periods (5-20 sec) at room temperature. Erythrocyte membranes were prepared by hypotonic lysis. Membrane proteins were separated by SDS-PAGE and hENT-1 and glucose transporter (GLUT-1) proteins were detected by immunoblotting and quantified using densitometry.

Results:

Nucleoside uptake was substantially reduced for two beta-thalassemia patients studied (>95%). Expression of hENT-1 showed (92%) reduction in comparison with control, the glucose transporter protein was not substantially reduced (<15%).

Conclusions:

This is the first demonstration that beta-thalassemia patients in the Middle East have reduced red cell permeability towards uridine and that this is probably associated with reduced expression of nucleoside transporter, hENT-1. This metabolic defect may play a role in creating membrane instability of the red cells in beta-thalassemia.

Key Words: *Thalassemia; Nucleoside transporter protein; Uridine transport;*

Funding Agency: *None*

Biochemistry

Category: Graduate (Basic Sciences)

14

Glycolaldehyde induce lipid peroxidation and cell cycle arrest in MCF7 Breast cancer cell

Soud K, Akhalaf M, Benov L

Department of biochemistry, Kuwait University, Faculty of Medicine

Introduction:

Short chain aldehydes are produced in various pathological conditions including diabetes, atherosclerosis, and during phagocytosis. These compounds are highly reactive and can bind to and modify proteins and nucleic acids. In addition, they easily auto oxidize in air producing superoxide. The aim of the present study was to investigate the mechanisms of aldehyde-induced cell damage using glycolaldehyde (GA) as a typical aldehyde representative and MCF7 breast cancer cells as a model system.

Methods:

Viability was assessed using trypan blue exclusion method after incubation with GA. SOD, aconitase and rhodanese activities were assayed in cell free extract. Superoxide production was assayed fluorimetrically by following hydroethidine (HE) oxidation. Lipid peroxidation was assessed by measuring malondialdehyde (MDA) using HPLC. Direct assay for lipid peroxidation in intact cells was performed with the fluorescent probe diphenyl 1pyrenylphosphine (DPPP).

Results:

Aconitase and rhodanese are sensitive biomarkers for in vivo superoxide production. Both enzymes were inhibited in GA treated cells. Increased superoxide production in these cells was further confirmed by the HE assay. This increased superoxide production triggered induction of SOD as a physiological response aimed to diminishing superoxide induced-cell damage. This response however, seems to be either too late or not sufficient and peroxidative destruction of membrane lipids followed. In addition, GA caused a cell cycle arrest.

Conclusions:

Short chain aldehydes are capable of inducing oxidative stress and oxidative damage in vivo. Since many of them are also produced as a consequence of oxidative stress, a vicious cycle can take place, which sustains and spreads the oxidative cell damage.

Key Words: Glycolaldehyde; ROS; Lipid Peroxidation;

Funding Agency: This study was supported by the collage of graduate Studies

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Opinion and attitude of health care providers regarding Accreditation program in Kuwait

Abdel Kader HZ, Okasha G, Al-Naqi R

Accreditation and Quality Assurance Directorate, Ministry of Health, Kuwait

Introduction:

The Kuwait National Accreditation Program (KNAP) started in 2002. It aims primarily to improve the quality and safety of care provided through the provision of standardized services that could be objectively assessed. The study was conducted to assess the knowledge and attitude of hospital staff about accreditation program; and to identify the positive impact of the program on the provided services as well as its benefits and drawbacks from hospital staff perspective.

Methods:

The study was conducted in 10 Kuwait governmental hospitals involved in accreditation program, The total participants were 336. A self administered, pre-coded questionnaire was designed for data collection.

Results:

The study revealed that 71.6% of hospital staff with current knowledge about accreditation have positive attitude towards the program whereas 27.6% of hospital staff without enough information about accreditation showed positive attitude.

Conclusions:

Improved documentation of all departmental activities, improved coordination between departments and administration, and preparation of operational policies were some benefits of the program. Higher authority support and increasing awareness about the program were recommended by the study

Key Words: Accreditation; Attitude; Kuwait;

Funding Agency: None

16

Complete quality competency Kuwait Central Blood Bank experience

Bayari B, Aljafar MA, Al-Sanea D, Al-Omar H
Kuwait Central Blood Bank, Ministry of public Health

Introduction:

Competency assessment is more than just watching someone performs an antibody screen once a year. Complete quality competency involves such resources components as job description, standard operating procedures, training, documentation and corrective actions. In addition, it is an objective measurement of an individual's ability to perform specific tasks closely related to job description and daily duties, applied as closely as possible to every level of personnel in the organization. Kuwait Central Blood Bank (KCBB) has established the competency program in 1998 as part of the resources of the quality system essential (QSE).

Methods:

Once the employee hired, complete initial training program which cover all departments of the facility using training checklist in scheduled time table. To maintain the level of the employee, competency assessment is performed annually to all staff including top level seniors. Tools used in the competency assessment include direct observation of test performed, written evaluation, problem solving, review of work records or results, and testing unknown samples.

Results:

Objective trainer evaluations of each assessment tool of the competency on the entire period of training are divided into 3 categories: 1. Trainee scoring degree (60 – 69) , 2. Junior scoring degree (70 – 79), and 3. Senior scoring degree (80 – 89).

Conclusion:

Competency assessment exposes the employee to the latest technology and raises the standard of service provided to all services.

Key Words: Kuwait Central Blood Bank; Quality system essential (QSE); Competency

Funding Agency: None

Doctors & Nurses views on the reporting of adverse events. A survey in six general governmental hospitals Kuwait 2004

Al-Mudaf BA, Hoda Z, Abdel kader HZ, *Al- Naqi R.
Accreditation & Quality Assurance Directorate,
Ministry of Health, Kuwait

Introduction:

Reporting of adverse events (AE) is important to improve patient safety by gathering, analyzing and disseminating lessons learned from adverse events, including human and organizational errors. The study was conducted to introduce concepts about adverse events, medical errors and different types of reporting systems. As well as to identify the health care workers' opinion about the preferred reporting system and to identify the barriers preventing reporting adverse events.

Methods:

The study was conducted in the six general governmental hospitals in Kuwait. The study population included all doctors working in the studied hospitals and a systematic random sample of nurses. The total participants were (2773). A questionnaire was introduced in the GCC Quality Committee by Bahrain representative. Kuwait got the permission of using the same questionnaire from Bahrain and the original author. Necessary modifications had been done. Arabic and English versions of questionnaire were developed.

Results:

Knowledge about the current practice of reporting AE is variable among doctors and nurses. Fear of blame or punishment as well as disclosure of events were the main causes for not reporting. While, workload and obsolete or missing procedures are the most agreed upon causes of occurrence of adverse events.

Conclusions:

The study revealed that confidential and conditionally confidential models of reporting of AE were the preferred models.

Key Words: Safety; Adverse events; Reporting system;

Funding Agency: None

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Physical activity among adult Kuwaiti diabetics in Capital and Jahra Governorates

Al-Basheer D, Qbandi S, Sumait A, Kanderi S
Medical Students and Dept of community medicine

Introduction:

To assess the level and type of physical activity among adult Kuwaiti diabetics in Jahra and Capital governorates, to examine the above according to socio-economic class, and to compare physical activity among Kuwaiti diabetics with CDC/ACSM recommendations.

Methods:

Cross sectional survey was conducted among 308 diabetics (165 in Capital and 152 in Jahra using a face-to-face interview questionnaire. It included questions about socio-demographics, onset, control and complications of diabetes and physical activity assessment using the IPAQ.

Results:

52.6 and 91.4% in Capital and Jahra were classified as "physically inactive" according to the IPAQ scoring scheme ($p < .001$). Health enhancing physical activity was carried out by 18.6% of diabetics living in Capital and 0.7% of those in Jahra ($p < .001$). Out of the active patients, 34.6% met the CDC/ACSM criteria in Capital, and only 0.7% did in Jahra ($p < .001$). In capital, those who earned higher income ($p < .001$), younger ($p < .001$) and currently working diabetics ($p < .001$) tended to practice more physical activity. In Jahra, younger ($p < .001$) and female diabetics ($p = .029$) did. Higher amounts of physical activity correlated with lower levels of HbA1C, and hence better glycemic control (pearson correlation coefficient -0.41 in capital, -0.728 in jahra, $p < .001$). Complications of diabetes were more prevalent in capital than in Jahra, visual complications were the most frequent in the two governorates.

Conclusions:

Diabetics in capital reported much higher amount of physical activity than those in Jahra. The overall prevalence of inactivity was high in both governorates. The percentage of those who met the CDC/ACSM criteria was reasonable in capital but extremely low in Jahra. Thus, public health programs must be implemented to promote physical activity, especially in Jahra and among older diabetics.

Key Words: *Physical activity; Diabetes; Community medicine;*

Funding Agency: *None*

19: Moderated

Factors associated with type 1 diabetes in Kuwaiti children

*Moussa MAA¹, Al-Saeid M², Abdella NA³, Refai TMK⁴, Al-Sheikh N⁵, Gomez JE¹

¹Department of Community Medicine and Behavioural Sciences, ²Department of Paediatrics, ³Department of Medicine, Faculty of Medicine, Kuwait University, Kuwait, ⁴Department of Clinical Pathology, Al-Amiri Hospital, Kuwait; Ain Shams University Hospital, Cairo, Egypt, ⁵Department of School Health, Ministry of Health, Kuwait

Introduction:

Type 1 diabetes is a common chronic disease in childhood, and is the outcome of environmental, genetic, and immunologic interactions. The study aimed to investigate the social, metabolic risk factors for coronary heart disease (lipids, lipoproteins, apolipoproteins, lipoprotein (a), and total sialic acid), and family history of Kuwaiti children with type 1 diabetes.

Methods:

A total of 348 (131 males, 217 females) school children with type 1 diabetes were pair-matched in a case-control study by age and gender to 348 non-diabetic children as controls. Diabetic children were identified, according to the WHO and the American Diabetes Association criteria, at 182 randomly selected schools in the 5 governorates of Kuwait. Serum lipids (total cholesterol, TC; triglycerides, TG; high-density lipoprotein cholesterol, HDL; apolipoproteins A1 and B, Apo A1 and B; lipoprotein(a), Lp(a); glycated haemoglobin, HbA1C; total sialic acid, TSA were measured.

Results:

Significantly higher proportion of children with type 1 diabetes reported exercising lighter physical activity ($p < 0.001$), and more school absence days ($p < 0.001$) than non-diabetic controls. Diabetic children had significantly higher mean level of TC, Apo A1, and Apo B than controls, $p < 0.001$. The logistic regression analysis showed that family history of type 1 ($p < 0.001$) and type 2 diabetes ($p < 0.001$) and thyroid disease ($p = 0.036$) were significant associated factors with type 1 diabetes after adjusting for demographic and social variables. The significant correlations of Lp(a) and TSA with HbA1C ($p = 0.012, 0.002$ for Lp(a), TSA respectively), lipoproteins (TC and TG), and Apo B partially explain reporting Lp(a) and TSA as possible markers for coronary heart disease.

Conclusions:

The study showed adverse metabolic changes in children with type 1 diabetes. Since these changes are associated with early onset atherogenesis, preventive measures are recommended to correct these changes

Key Words: Diabetes; Pair-matched case-control study;

Funding Agency: Kuwait University Research Administration Grant

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Gender differences in self-reported compliance to antihypertensive Treatment among Kuwaitis

*Al-Houti AM, Al-Roudhan DM, Al-Humaidan AH
Department of community Medicine, Kuwait University Faculty of Medicine

Introduction:

Hypertension is a common long-standing illness. It is one of leading causes of morbidity among Kuwaitis. We are aiming to assess the compliance to antihypertensive treatment among Kuwaiti male and female hypertensive patients. In addition, to measuring the degree of difference between men and women with examining the reasons behind it.

Methods:

The sample was 202 subjects attending the medical out patients of Amiri and Mubarak hospitals of whom 194 were successfully interviewed by us. The response rate was 96%.

Results:

Females reported a significantly higher compliance score to antihypertensive treatment than males (mean score= 75.8% and 69.7% respectively). Compliance with medication increased in both sexes according to age and decreased in terms of education and income. Most patients did not comply due to forgetfulness and multiple doses of the drug. The majority (80-90%) were given information on diet and exercise instructions. Less than 20% were given information on the side effects of medications. Compliance was higher among those with less serious condition. There was no clear pattern between duration of disease and compliance.

Conclusions:

It might be expected that compliance with treatment regimens would improve by providing better packaging of antihypertensive drugs and more health education aimed at both men and women about the nature of the disease, complications and side effects of medication.

Key Words: Hypertension; Treatment; Compliance;
Funding Agency: None

Community Medicine

Category: Clinical

21: Moderated

A prospective study of obesity and risk of coronary heart disease in Women

Al-Assomi F

The Surra Health Center, Ministry of Health, Kuwait City, Kuwait

Introduction:

We examined the incidence of nonfatal and fatal coronary heart disease in relation to obesity in a prospective cohort study of 6000 Kuwaiti women who were 30 to 55 years of age in 2000 – 2004 and free of diagnosed coronary disease, stroke, and cancer.

Methods:

During 5 years of follow-up we identified 605 first coronary events, including 306 nonfatal myocardial infarctions and 216 cases of confirmed angina pectoris. A higher Quetelet index (weight in kilograms divided by the square of the height in meters) was positively associated with the occurrence of each category of coronary heart disease. For increasing levels of current Quetelet index (<21, 21 < 23, 23 < 25, 25 < 29, and > 29), the relative risks of nonfatal myocardial infarction and fatal coronary heart disease combined, as adjusted for age, obesity and cigarette smoking, were 1.0, 1.3, 1.3, 1.8, and 3.3 (Mantel-extension chi for trend = 7.29; P less than 0.00001).

Results:

As expected, control for a history of hypertension, diabetes mellitus, and hypercholesterolemia--conditions known to be biologic effects of obesity--attenuated the strength of the association. The current Quetelet index was a more important determinant of coronary risk than that at the age of 18; an intervening weight gain increased risk substantially.

Conclusions:

These prospective data emphasize the importance of obesity as a determinant of coronary heart disease in women. After control for eating habits, cigarette smoking, which is essential to assess the true effects of obesity, even mild-to-moderate overweight increased the risk of coronary disease in middle-aged women.

Key Words: Coronaray Heart Disease; Obesity;;

Funding Agency: Ministry of Health, Kuwait

The Epidemiology of the Cardiovascular Diseases (CVD) Risk Factors.

Al-Assomi F

The Surra Health Center, Ministry of Health, Surra, Kuwait City, Kuwait

Introduction:

The rapid changes modern lifestyles in the worldwide, particularly in Kuwait causing a number of chronic diseases, such as hypertensions (HPT), Coronary Heart Diseases (CHD), Diabetes Mellitus (DM) and Obesity. The CHD is a leading cause of the death in Kuwait. Our epidemiological study was to assess and predict the prevalence of key CHD risk factors in Kuwait.

Methods:

11000 volunteers ages between 30 -79 years old living in Surra District, Kuwait took part in this community-based epidemiological survey study. The major risk factors were recorded, according WHO guidelines and the laboratory data to determine blood serum levels of cholesterol and triglyceride. The SPSS package and Chi – square test were used for statistical analysis. The value of $P < 0.05$ was considered to be statistically significant.

Results:

The number of subjects with risk factors was exceptionally high, especially in the 40 – 49 ages group. Obesity was the most occurring risk factor with 44 % of the samples having a BMI greater than 30 kg/ m²; followed by high blood cholesterol; 38 % surpassing the acceptable levels. 29 % of the subjects have had an elevated DABP and 26 % have had a high SAPP. The laboratory data results show that the blood triglyceride levels were raised in 26 % of the subjects. Less incident risk factors was smoking habit – 11 %. In a large number of patients the BMI was shown to be correlated to HPT ($P < 0.001$), dyslipidemia ($P < 0.01$) and DM ($P < 0.01$) respectively.

Conclusions:

We concluded that Kuwaiti women, like men, have high risk epidemiological risk factors of CHD and should receive equal attention in the future programs to prevent CHD death among Kuwaitis population. A family history and obesity had been proven to be a strong epidemiological indicator in assessing individual's susceptibility to developing CHD.

Key Words: *Cardio-Vascular Diseases (CVD); Obesity; Triglycerides*

Funding Agency: *Ministry of Health and WHO*

Bottle sterilization and baby's health

*Bourisli E, Boulian E, Al-Naimi T, Al-Qattan Z.
Faculty of Medicine, Kuwait University

Introduction:

While breast feeding is the most ideal way to feed babies, many women in Kuwait, as in other parts of the world, tend to use bottle feeding. There are possible consequences of bottle feeding on baby's health especially in terms of hygiene habits related to bottle feeding. Babies in general tend to have low immunity and susceptible to diseases. So proper sterilization is likely to have positive effect on the baby's health. Objectives: To study the association between sterilization of baby bottle and socio-demographic characteristics of mothers and to examine the relationship of bottle sterilization with baby's health in terms of diarrhoeal morbidity.

Methods:

The Kuwaiti mothers of children aged two years or younger were targeted as population in our study. We chose self-administered questionnaire as the instrument for data collection. 306 Kuwaiti mothers were approached in immunization centres of polyclinic. Of them 285 completed the questionnaire and 21 mothers refused to participate, resulting in a response rate of 93%.

Results:

In this sample the mother's median age was 29.2 years. About 2/3 were highly educated, currently working, non-Bedouin and living in urban areas. About 67% of Kuwaiti women were exclusively bottle-feeding their babies. About 95% of them said that they usually sterilized their baby's bottle. Although most of mothers were responsible for sterilizing (66.9%) and feeding (79.3%) their babies, a larger percentage of the highly educated mothers left sterilization to housemaid. There was no statistically significant association between baby's sterilization and occurrence of diarrhea.

Conclusions:

The high prevalence of bottle-feeding use among the educated, working Kuwaiti mothers raises an important public health concern. While a very large majority sterilizes the bottles, mothers should pay greater attention to storage place of baby's sterilized bottles.

Key Words: Bottle sterilization; Baby's health; Bottle feeding;

Funding Agency: None

Community Medicine

Category: Undergraduate

24: Moderated

The prevalence of astigmatism and associated factors among Kuwaiti Employees in Kuwait ministries complex

*Atyani SM, Al-Jutaili ME, Al-Hadhood FK, Al-Bannai ZI, Longenecker JC
Kuwait University Faculty of Medicine

Introduction:

1. To estimate the prevalence of astigmatism and its associated factors among Kuwaiti employees in Kuwait Ministries Complex. 2. To assess the proportion of participants with astigmatism and other refractive errors who are not currently using any corrective measure.

Methods:

This cross-sectional study enrolled a multi-stage cluster sample of 410 Kuwaiti employees in Kuwait Ministries Complex, out of a total 439 employees approached, yielding a response rate of 93.4%. A questionnaire including socio-demographic characteristics, self-reported ophthalmic history and level of restriction of daily life activities, in addition to eye testing by autorefractometer were implemented. Astigmatism was defined as >0.50 diopters (D) and >1.00 D.

Results:

The prevalence of astigmatism was 46.8% in the right eye and 64.6% in the worst eye using the cut off of >0.50 D compared to 19.8% and 30%, respectively, using the cut off of >1.00 D. Astigmatism (>1.00 D in the worst eye) was significantly associated with gender, presence of any chronic disease or visual problem, or use of any corrective measure, and myopia. It was also significantly associated with level of restriction of various daily life activities such as watching TV or driving a car. 31% of those with severe astigmatism alone were using corrective measures, compared with 90% if it was associated with myopia and 50% if it was associated with hyperopia.

Conclusions:

These data suggest that the prevalence of astigmatism confers a significant modifiable public health burden among Kuwaiti employees in Kuwait Ministries Complex. A large percentage of those who can potentially benefit from corrective measures do not use any. A population-based vision screening program would likely be cost-effective in improving the vision, quality of life, and safety of the studied population, and possibly the Kuwait population in general.

Key Words: *Astigmatism; Diopter;*

Funding Agency: *None*

Community Medicine

Category: Undergraduate

25: Moderated

Etiology of Psoriasis

*Oriowo B¹, Al-Saleh H¹, Mohammed R¹, Boushari A¹, Radovanovic Z²

¹Undergraduate Students, Kuwait University Faculty of Medicine; ²Department of Community Medicine, Kuwait University, Faculty of Medicine.

Introduction:

To investigate the role of consanguinity, some other genetically related factors and certain environmental exposures (stress in particular) in the etiology of psoriasis.

Methods:

A case-control study, individually matched for age, sex and nationality, was carried out in September, 2004. Cases were obtained from the only tertiary level dermatology clinic in the country, while controls consisted of visitors to major hospitals in Kuwait. Information regarding exposures were obtained through a face-to-face interview. Only events taking place prior to the disease occurrence were taken into account. For each control a corresponding year of pseudodiagnosis was established.

Results:

A total of 74 cases and 74 individually matched controls were interviewed. Positive family history was strongly associated with psoriasis (OR = 15.6, lower 95% CI = 3.62), but both the overall consanguinity rate and frequency of different levels of consanguinity were equal among cases and controls. Negative Rhesus factor appeared to have a protective effect (p = 0.03). No time clustering associated with major social disturbances was observed. Individually experienced stressful life event was the only environmental factor associated with the occurrence of psoriasis (OR = 4.2, lower 95% CI = 1.63).

Conclusions:

Positive family history and Rhesus factor positive were predictors of psoriasis. Out of several environmental influences, exposure to a major stress was the only risk factor for the disease identified in this study.

Key Words: Etiology; Psoriasis; Stress;

Funding Agency: None

26

Body mass index and the level of fatness among Kuwaiti intermediate School adolescents aged 10-14 years

Al-Isa AN

Department of Community Medicine, Kuwait University, Faculty of Medicine

Introduction:

The purpose of this cross-sectional study was to assess the levels of overweight and obesity among Kuwaiti intermediate school adolescents aged 10-14 years. The study comprised a multistage stratified random sample of 14659 (7205 males and 7454 females) which constitute approximately 17% of the target population of this school level.

Methods:

Weights and heights of the adolescents were measured, from which the body mass index (BMI), which is the weight in kilograms divided by the height in meters squared (kg/m²) was calculated. Overweight and obesity were defined as BMI > 85th and > 95th percentile, respectively, of the National Center for Health Statistics (NCHS) reference data.

Results:

Overweight was found to be 29.9 and 31.9% among males and females, respectively. Obesity was found to be 15.7 and 13.1% among males and females, respectively. Significant differences were noted in the mean BMI of males and females, with one exception (10 years of age). Overweight and obesity were significantly ($p < 0.001$) higher and lower among males than females, respectively. There was significant association between age, overweight and obesity among males ($p < 0.001$) and among females ($p < 0.001$ and $p < 0.01$). There were significant ($p < 0.001$) associations between genders.

Conclusions:

When compared to the NCHS reference population, the BMI of Kuwaiti adolescents exceeded that of the Americans in each centile categories > 50th centile. Their BMI also exceeded those of the Saudis. Health education programmes should be instituted to control this syndrome in order to prevent future risk of obesity related diseases.

Key Words: Adolescents; Kuwait; Overweight;

Funding Agency: None

Titanium in Tahini: inductive coupled plasma (ICP) and Spectrophotometric methods for Titanium determination

Abbas AB*, Al-Joha W, Al-Mufty S

Food Chemical Lab., Public Health Laboratories, Ministry of Health, Kuwait

Introduction:

Titanium oxide may be well absorbed from gastrointestinal tract and titanium induced toxic effect on all organisms tested at concentration 40 mg/l. Titanium can cause the estrogenic differential of human bone marrow. The hazards of titanium as a food contaminant have emerged in relatively recent times based on individual's daily intake of titanium dioxide and food portion size, and could exceed 200 mg for just one product. On the other hand, most of Tahini production factories are operating with no quality assurance system and the Arab specification of Tahini prevent the addition of titanium dioxide. Literature methods of titanium determination are lacking many adjustments.

Methods:

A developed spectrophotometric method was carried out by reaction of titanium with hydrogen peroxide solution in diluted sulphuric acid where the optimum concentration of both H₂SO₄ and H₂O₂ were studied with average recovery is 90- 94.5%, detection limit is 5 µg/ml and linearity is 5 – 80 ppm. Also Inductive Coupled Plasma (ICP) optimum condition for titanium determination was developed with average recovery is 98- 102%, detection limit 40 ng/ml and linearity 0 – 30 ppm.

Results:

The result of 100 sample collected revealed that 48% of marketed Kuwaiti Tahini were contaminated with TiO₂ where, 24 % of samples more than 200 ppm, 16 % ranged from 50 – 200 ppm, and 8 % from 5 – 20 ppm.

Conclusions:

Tahini is an Arabian product, so no Tahini international specification is known. Titanium dioxide cannot be used as a food additive at levels greater than the necessary to perform its function. In spite of the local Arab specification prevent the addition of TiO₂ in Tahini, the study showed that 48 % of marketed Kuwaiti Tahini was contaminated with titanium. Both developed ICP and Spectrophotometry techniques were comparable over 5 ppm ranges, but lower than this limit ICP is recommended.

Key Words: *Titanium; Tahini; Food colour;*

Funding Agency: *None*

28: Moderated

**Awareness of Osteoporosis and its preventive measures among
Kuwaiti women**

*Al-Saqabi AH¹, Al-Salem K², Hussain T³

¹North Sabah Al- Salem Clinic; ²British Medical Center; ³Al-Shaab Clinic

Introduction:

Osteoporosis is recognized as a major public health problem. A lack of awareness was perceived in the Kuwaiti community which is our overriding concern. A high awareness of the condition will help in the management of the illness. The objectives of the present study were 1) to measure the awareness of osteoporosis risk factors and their perceived susceptibility to it among Kuwaiti women aged 45-54 years, 2) to ascertain the sources of information and awareness regarding the diagnostic test and its local availability.

Methods:

A structured questionnaire was administered to 2051 Kuwaiti women in the age group of 45-54 years in selected health centers, schools and social gatherings etc. in the six governorates.

Results:

About 63% of the women knew the correct definition of osteoporosis. Questions regarding knowledge of risk factors, warning signs and preventive measures of osteoporosis were converted into scales comprising of 13, 5 and 11 questions respectively (coded as a 0=no and 1=yes). The mean score for the above scales were 7.0, 2.7 and 8.5 respectively. Only 36% knew that femur bone fracture is a serious problem. 42% did not know about the diagnostic laboratory tests and about 36% did not know about its local availability. The biggest source of information was mass media (34.6%) and the lowest was from medical professionals and lectures (around 9%). Urban, highly educated and retired women seemed to have a better knowledge.

Conclusions:

This study revealed a low degree of awareness and knowledge of osteoporosis among Kuwaiti women. There is a serious need for more effort to create public awareness. The areas and groups of women with weak awareness were identified and focused education must be given to them. Medical professionals should take more active participation in awareness creation.

Key Words: *Osteoporosis; Kuwait; Awareness;*

Funding Agency: *Kuwait Foundation for Advancement of Sciences (KFAS)*

Dentistry

Category: Clinical

29

Perceived effectiveness and side effects of intermaxillary fixation for Diet control.

*Behbehani F¹, Al-Aryan H¹, Al-Attar A¹, Al-Hamad N²

¹Faculty of Dentistry - Kuwait University, Kuwait;

²Ministry of Health, Kuwait

Introduction:

Before the advent of rigid fixation, intermaxillary fixation (IMF) was the method of choice to achieve immobility of bony segments during the healing period following orthognathic surgery or jaw fractures. Weight loss was one of the major and most documented side effects associated with IMF. Recently, many dentists have used IMF treatment to control patients' diet in order to loose weight. Intermaxillary fixation for diet control (IMFDC) has spread in Kuwait very rapidly which generated controversial public arguments regarding its effectiveness and side effects. IMFDC was prohibited by the Ministry of Health in Kuwait, but few months later it was re-allowed.

Methods:

The data was collected based on phone interview with patients treated by IMFDC. Information regarding the perceived effectiveness of the technique and the frequency of possible side effects associated with IMFDC were collected and analyzed.

Results:

IMFDC significantly reduced a mean of 6.8Kg immediately after IMFDC removal and a mean of 4.1Kg after a minimum of one month of IMFDC removal ($P < 0.0001$). Only 32.5% of the patients complied with the planned period of IMFDC treatment while 70% of the patients were satisfied with the IMFDC treatment results. The most common side effects of IMFDC were speech problems and oral-facial pain with a prevalence of 52.5% and 32.5% respectively.

Conclusions:

Our findings may serve as base line information to acquire an informed consent from patients for treatment or for future clinical trials.

Key Words: Intermaxillary Fixation; Diet Control; Teeth ligation;

Funding Agency: This research was supported by Kuwait University Grant

Dentistry

Category: Clinical

30: Moderated

Variance Components of gingival thickness

*Muller HP, Kononen EI

Department of Surgical Sciences, Faculty of Dentistry, Kuwait University, Kuwait

Introduction:

Distinct periodontal phenotypes have been identified by cluster analysis which is an explorative method with very low external validity. The aim of the present study was to investigate variance components of facial gingival thickness in young adults with mild gingivitis.

Methods:

33 nonsmoking females, 18-23 yr of age, with mild or moderate plaque-induced gingivitis participated. Gingival thickness (GTH) was measured at every tooth present by use of ultrasound technology to the next 0.1 mm with a lowest measurement of 0.5 mm. Periodontal probing depth (PPD) and clinical attachment level were measured with a pressure-controlled probe. Gingival bleeding index (BI) was assessed after probing on a 0-2 scale, where 1 was slight, and 2 profuse bleeding on probing. The Silness-Löe plaque index (PI) was recorded. Multilevel variance components and random intercept models were built.

Results:

A 2-level (subject, tooth) variance component model of GTH without any explanatory variable revealed an intercept (mean) of 0.93 ± 0.02 mm. Subject variation of GTH amounted to 4.2% of the total variance. Addition of tooth- and subject-related covariates to the model revealed, after adjusting for tooth type, an association with PPD (0.067 ± 0.025 mm), and considerable association with average BI (-0.395 ± 0.149) and PI (0.125 ± 0.048). Variation at the tooth level was drastically reduced; subject variation amounted to 5.2%.

Conclusions:

GTH is mainly associated with tooth-related variables. Bleeding tendency is higher if gingiva is thin. Subject variability related to periodontal phenotype may add to the total variance, however, to a very low extent.

Key Words: Gingival thickness; periodontal phenotypes; Multilevel variation;

Funding Agency: Kuwait University Research Administration, Grant

Dentistry

Category: Clinical

31

Alveolar bone loss in an adult population as assessed on panoramic Radiographs

*Muller HP¹, Ulbrich M², Heinecke A³

¹Department of Surgical Sciences, Faculty of Dentistry, Kuwait University, Kuwait;

²German Armed Forces' Medical Center, Dental Unit, Bonn, Germany; ³Institute for Biostatistics and Medical Informatics, University of Münster, Germany

Introduction:

The aim of the present study was to delineate factors influencing severity of bone loss parameters in randomly selected orthopantomograms of a predominantly male adult population of patients seeking treatment in the dental service of the German Armed Forces.

Methods:

A total of 240 panoramic exposures was available for analysis, 60 in each of age groups <30 yr, 30-39 yr, 40-49 yr, and >50 yr of age. At each tooth, distances between the coronal land mark (CL) cemento-enamel junction or margin of restoration, and alveolar crest (AC), as well as bone level (BL) were measured with a caliper to the next 0.1 mm.

Results:

Multilevel models revealed that bone loss increased by 0.05 mm each yr of life, on average. Bone loss was more pronounced in the maxilla, especially at molars. Infrabony lesions were strongly associated with deficient restorations and periapical lesions. Periapical pathology was also associated with radiographic evidence for furcation involvement.

Conclusions:

In this predominantly male population, periodontal bone loss gradually increased with age, but prevalence of infrabony defects was very low. Multilevel modeling indicated strong associations between infrabony defects and insufficient restorations and periapical pathology.

Key Words: *Periodontal bone loss; Infrabony pockets; Panoramic radiographs;*

Funding Agency: *Kuwait University Research Administration, Grant*

Dentistry

Category: Undergraduate

32: Moderated

Reliability of gingival bleeding on periodontal probing in gingivitis

*Al-Asfour F, Abdullah T

Department of Surgical Sciences, Faculty of Dentistry, Kuwait University

Introduction:

In general, attempts to assess the reliability of gingival bleeding on periodontal probing (GBP) yielded controversial results. The aim of the present study was to determine reliability of both the proportion of sites with GBP in an individual as well as site-by-site assessment of reliability after different time intervals for repeat probing.

Methods:

13 adult volunteers (18-49 yr of age, 1 male) with plaque-induced gingivitis participated. Repeat probing was done at 6 sites of each tooth in random quadrants immediately after the first probing (T0), after 1 h (T1), 4 h (T4), and 24 h (T24).

Results:

The mean differences of the GBP proportions were close to 0 only at T0 and T1 (between +0.002 and -0.027). The 95% coefficients of agreement (2x the standard deviation of differences) were 0.116 at T0, 0.196 at T1, 0.158 at T4, and 0.160 at T24. Site-specific analyses revealed the highest kappa values at T0 and T1 (0.493 ± 0.044 , and 0.460 ± 0.050). After 4 and 24 h kappa was considerably lower (0.271-0.308).

Conclusions:

If reliability of GBP is to be tested prior to a main study on gingivitis patients, repeat probing has to be done immediately after the first probing or at most 1 h later.

Key Words: *Periodontal probing; Bleeding on probing; Reliability;*

Funding Agency: *None*

33: Moderated

Tooth brushing habits among intermediate schoolchildren in Kuwait

*Honkala S, Honkala E, Al-Sahli N, Behbehani JM
Faculty of Dentistry, Kuwait University

Introduction:

The aim of this study was to describe tooth brushing habits among Kuwaiti schoolchildren and to find out whether the children receive oral hygiene instructions while visiting a dentist.

Methods:

A randomly selected sample of 2,312 schoolchildren between 11- and 13-year-olds filled a structured questionnaire anonymously in school classrooms during the school year 2002/2003. Samples of children from all six governorates of Kuwait were drawn into the study. Only government schools were included. Questionnaire of the Health Behaviour in School-Aged Children, a WHO Collaborative Study (HBSC study) was used after modification to Kuwait and translated and back-translated from English to Arabic.

Results:

More than half (58%) of the children reported to brush their teeth more than once a day, 23% once a day and 19% not even daily. The children who lived in a capital area brushed more frequently than children in the other governorates (OR 2.9, 95% CI 1.86-4.47), girls brushed more often than boys (2.0; 1.55-2.32), 11-year-olds more often than 13-year-olds (1.6; 1.33-2.01), and those performing very well at school (1.7; 1.31-2.19) or well (1.4; 1.04-1.78) more often than children with an average school performance. Majority (77%) of the children had visited a dentist during the last 2 years, and 76% of them remembered having received oral hygiene instructions during that visit.

Conclusions:

Only about half of the children reported to brush their teeth according to recommendations and every fourth reported not to brush even on a daily basis, which is alarming while at the age of 11-13-years tooth brushing frequency has been shown to be already an established habit. Even though a big proportion of children had received oral hygiene instructions from their dentist, it does not seem to have a favourable effect on their behaviour.

Key Words: Tooth brushing; Schoolchildren; Questionnaire;

Funding Agency: This study was supported by Kuwait University Research

Dentistry

Category: Graduate (Basic Sciences)

34: Moderated

Reduction of pain from needle stick by topical anaesthetics: A Comparative study between lidocaine/prilocaine (EMLA) and Benzocaine

*Abu Al-Melh M¹, Andersson L², Behbehani E³

Department of Oral and Maxillofacial Surgery, Kuwait University, Faculty of Dentistry

Introduction:

Pain associated with needle stick injections is a source of patient discomfort and anxiety. Topical anaesthetic agents using Benzocaine gel are usually used in the clinic to reduce pain associated with needle insertion. The aim of the study was to compare the analgesic effect of a topical gel of Benzocaine with a topical creamy mixture of Lidocaine/Prilocaine (L/P).

Methods:

Forty individuals volunteered to take part in the study. Topical anaesthetics were applied bilaterally in the maxillary vestibule lateral to the canine. On one systematically selected side, a mixture of 2.5% Lidocaine/2.5% Prilocaine (EMLA, AstraZeneca, Sodertalje, Sweden) was applied. On the opposite side, 20% Benzocaine (Sultan Topex, Sultan Dental Products, Englewood, NJ, USA) was applied as control. The patient had no knowledge on which side each agent was applied. A 27-gauge needle was inserted through the mucosa to bone contact every minute during a 7 minute period in each area of application. The subjects recorded which side was the least painful and also registered the grade of pain on a 100mm Visual Analogue Scale (VAS). Comparisons were made estimating the group difference using Wilcoxon rank sum test.

Results:

After one minute 87.5% reported the L/P side being least painful. After 2-4 minutes 97.5-100% reported the L/P side least painful. After 5-7 minutes 90-95% reported the L/P side least painful. The VAS grading of the pain showed that L/P was significantly better in eliminating or reducing the pain.

Conclusions:

Topical anaesthetics based on a combination of 2.5% Lidocaine and 2.5% Prilocaine is significantly more effective than 20% Benzocaine in reducing pain from needle stick in the maxillary vestibular mucosa.

Key Words: Pain; Anaesthesia; Needles;

Funding Agency: None

Prevalence of oral Streptococci in normal and disabled Kuwaiti Children.

*Salako NO¹, Rotimi VO², Philip L¹, Preeta R¹

¹ Department of Developmental & Preventive Sciences, Faculty of Dentistry, Kuwait University; ² Department of Microbiology, Faculty of Medicine, Kuwait University.

Introduction:

The aim of the study was to compare the qualitative and quantitative frequency of isolated oral Streptococci at two different sites from normal and disabled children in Kuwait.

Methods:

A total of 50 individual children, 25 healthy and 25 disabled, were studied. Plaque samples were collected from the tooth and tongue surfaces. The samples were collected, using sterile curettes into vials containing 0.3 ml pre-reduced transport media. Serially-diluted samples (10⁻¹ – 10⁻⁸) were inoculated onto Blood Agar plates (Oxoid) supplemented with 5% horse blood and Mitis Salivarius Agar plates (Difco). The plates were incubated in CO₂ incubators at 37°C for 24 hours. Viable counts were made and expressed as colony-forming units (CFU/ml). Representative colonies of isolates were identified by colonial and gram staining morphology and confirmed by specific reaction on API 20 Strep (Biomurieux).

Results:

A total of 218 isolates were cultivated from both groups, with an isolation rate being significantly higher (58.7%) in the disabled compared to the normal children (41.3%) (P<0.0001). Isolation from teeth in both groups was significantly higher than from tongue (P<0.001). Site-specific variation was observed among various species in two groups. From teeth, *S. sanguis* was the commonest (48%) in normal children, whereas in the disabled, it was *S. mitis* (60%). From tongue, *S. salivarius* was the most frequently isolated *Streptococci* in both groups, with a higher isolation rate from the disabled (72%) compared with 56% in normal children. *Streptococcus mutans* was isolated with equal frequency on teeth of both groups, but a higher frequency on tongue of disabled children (20%) compared with normal children (8%).

Conclusions:

The present study shows a significant variation in the prevalence of oral *Streptococci* from normal and disabled children.

Key Words: Oral Streptococci; Children; Kuwait;

Funding Agency: Kuwait University, DP01/01

Dentistry

Category: Undergraduate

36: Moderated

Profile of the candy shop customers

Al-Saiegh F, Al-Ali W

Faculty of Dentistry, Kuwait University, Kuwait

Introduction:

This survey aims to describe the profile of the candy shop customers and their purchasing pattern and the amount they buy during one visit to a candy shop in Kuwait.

Methods:

The data were collected by observing 500 customers in two candy shops (between 11 a.m. and 2 p.m., and 5-10p.m.) during June 26th - July 7th, 2004. The other shop was in the city and the other one outside the city. The aspects observed were: gender, age, accompanying persons, type of sugar products, amount of the purchasing and the money spent during this visit.

Results:

The mean age of the customers was 29.6 (SD=13.8) years. There were more females (58%) than males (42%) among the customers. The mean payment of purchasing was 1.533 KD (SD 2.350); 2.000 KD in the city and 0.500 KD outside the city. Chocolate was the most common choice (71%), and the other ones as follows: candies (36%), chewing gum (29%), jelly (26%), and biscuits (13%). Only 10% bought sugar-free products. The distribution of the estimated amount was: small amounts (1-2 products) 29%, average (3-5) 21%, large (5-10) 37%, extra large (>10) 13%. Females were buying more often bigger amounts (>5, 56%) than males (42%), but there was no difference in the money spent for purchasing. The amount of purchasing by the children was 1.447 KD, when they were buying alone, 1.085 KD when with adults and 1.640 KD when they were with a maid.

Conclusions:

Middle-aged females were more common customers in candy shops and they were buying larger amounts than males did. Chocolate seemed to be the most common sugar product bought from a candy shop. Acknowledgements: This was part of our Elective Study Project and supervised by Eino and Sisko Honkala.

Key Words: Sugar products; Candy shop customers; Kuwait;

Funding Agency: None

Dentistry

Category: Clinical

37: Moderated

Risk factors for congenitally missing teeth in permanent dentition Among disabled schoolpopulation in Kuwait.

*Shyama M¹, Al-Mutawa SA¹, Honkala S², Honkala E²

¹ National School Oral Health Program, Ministry of Health, Kuwait; ² Faculty of Dentistry, Kuwait University, Kuwait.

Introduction:

The purpose of this study was to find out the risk factors for congenitally missing teeth in the permanent dentition among the disabled schoolpopulation in Kuwait.

Methods:

The study involved 702 subjects (383 males and 319 females) with visual impairments, hearing impaired, physical or developmental disabilities attending the special needs schools in Kuwait between the ages of 8-29 years (mean = 13.3 years). Recordings were carried out according to the WHO criteria. A tooth was registered as congenitally missing when it was confirmed that the tooth had not been extracted because of caries, orthodontic reasons, periodontal disease or trauma. Multivariate analysis was used to test the associations of various socio-demographic and other factors for the occurrence of the congenitally missing teeth.

Results:

The prevalence of congenitally missing teeth was 11.8%. The most frequent condition was the absence of 1 tooth (6.3%), followed by the absence of 2 teeth (3.1%), 3 teeth (0.6%) and 4 teeth (1.3%). The most severe cases had congenital absence of 5 or 6 teeth (0.6%). None of the subjects had severe hypodontia. The maxillary lateral incisor was found to be the most frequently missing tooth. There were no differences according to the gender and nationality. Our results confirm the high prevalence of congenitally missing teeth in the Down syndrome group (29%). The Down syndrome group also had higher risk for occurrence (OR = 4.1; 95% CI = 1.5-11.1) of congenitally missing teeth. In the Down syndrome group, the teeth most often missing were the upper lateral incisors (15.4%), followed by the lower laterals (9.9%), upper second premolars (8%), lower second premolars (6.8%) and lower centrals (5.6%).

Conclusions:

Congenitally missing teeth were most common among the subjects with Down syndrome compared with the other disabled groups.

Key Words: Congenitally missing teeth; Disabled; Schoolpopulation;

Funding Agency: Ministry of Health, Kuwait

Dentistry

Category: Clinical

38: Moderated

Restorative care among schoolchildren in Kuwait

*Al-Mutawa SA¹, Shyama M¹, Al-Duwairi Y², Soparkar P³

¹ National School Oral Health Program, Ministry of Health, Kuwait; ² Dental Administration, Ministry of Health, Kuwait; ³ Forsyth Institute, Boston, USA.

Introduction:

The aim of this dental survey was to determine the restorative care among primary and intermediate schoolchildren in government schools in the five different governorates (Ahmadi, Farwaniya, Hawally, Jahra, Capital) in Kuwait.

Methods:

Altogether 4,588 schoolchildren aged 5 to 14 years were clinically examined for dental caries according to WHO criteria. The restorative care in the primary and permanent dentition was measured as the percentage of the filled teeth and surfaces from all caries affected and filled teeth and surfaces.

Results:

In the primary dentition, the restorative care proportion (f/dft%) increased from 12.8% at age of 5 to 35.2% at the age of 8 and then declined to 18.2 at the age of 13. The percentage of restorative care was the highest, over 30% in the Capital, Ahmadi and Farwaniya. In Hawally, the percentage was 26.2%, while in Jahra the percentage was distinctly lower (17.6). In the permanent dentition, restorative care proportion (F/DMFT%) was more evenly distributed among all the age groups. The percentage of restorative care in Farwaniya was over 50%. In the other governorates it ranged from 8.1% in Jahra to 21.2% in Capital. Clearly more restorative care was rendered in the schools with the dental clinics compared to the schools without them. The rates over the age range of 6-10 varied from 17% to 33% in the tooth index in the schools with the clinics. The surface index rates ranged from 31% to 39% in the schools with the clinic and from 2% to 20% in the schools without the clinic.

Conclusions:

It is evident from this study that the restorative care has increased considerably compared to earlier surveys. It also showed differences in the delivery of restorative care between the governorates.

Key Words: Restorative care; Schoolchildren; Kuwait;

Funding Agency: Ministry of Health, Kuwait and the Forsyth Institu

Dentistry

Category: Clinical

39: Moderated

Lateral cephalometric norms for adolescent Kuwaitis

Al-Jame B¹, Artun J², *Al-Azemi R¹, Behbehani F²

¹ Ministry of Health, Kuwait; ² Kuwait University, Faculty of Dentistry, Department of Developmental and Preventive Sciences

Introduction:

Cephalometric normative values must be derived from a large group of subjects with acceptable occlusion and of relevant age to be valid. Few norms have been calculated according to these principles, and only limited information is available for Kuwaitis. The purpose of this study was to establish lateral cephalometric norms for adolescent Kuwaitis of age comparable to common start of comprehensive orthodontic treatment.

Methods:

Digital lateral cephalograms were made of 82 Kuwaiti boys and 80 Kuwaiti girls of mean age 13.27 & 13.21 yrs (SD 0.42 & 0.43), respectively, with ideal dental occlusion. Anatomic landmarks were identified directly on the digital computer images. Linear and angular measurements were calculated electronically using the Dolhin version 9 software package.

Results:

The maxilla was more prognathic and the dentition more protrusive than in Caucasians. Only minor differences were detected in the vertical relationships. While boys had more prognathic maxilla than girls, no gender differences were detected in mandibular prognathism, vertical relationships, or dentoalveolar measurements. The individual variation was larger than previously documented, with mandibular incisor inclination ranging from 82.8 to 115.8 deg relative to the mandibular plane, and mandibular incisor position ranging from 0.1 to +10.3 mm relative to the APg line. Similarly, the ANB angle ranged from -2.0 to +8.3 deg, and the angle MP/SN from 18.0 to +55.0 deg.

Conclusions:

Our findings suggest that Kuwaiti adolescents with ideal occlusion are more dentally protrusive than Caucasians. This finding is of direct clinical significance for the orthodontic treatment planning. Our finding of a larger than expected individual variation of most cephalometric parameters may not be uncommon also in other racial group, and is therefore likely to be confirmed in future studies provided appropriate sampling procedures are followed.

Key Words: *Cephalometric norms; Kuwait; Adolescents;*

Funding Agency: *Acknowledgements: This research was supported by Kuwait University Research Grant*

Evaluation of bone heights around dental implants using two different radiographic methods and two independent observers.

*Al-Asfour AA, Kullman L, Andersson L

Faculty of Dentistry, Kuwait University.

Introduction:

The objective of this study is to compare the measurability and usefulness of two x-ray methods commonly used in dental implantology and to compare the reliability between and within two different observers.

Methods:

115 dental implants placed in 21 patients (mandible), were used for evaluation. Both intraoral (periapical) and panoramic radiographs were taken 3 years after the implant installation. Two observers one OMF radiologist, and the other is OMF surgeon assess the bone level from the two methods of radiographs. A light box and a magnifying viewer are used during reading. The implant thread at which the marginal bone seems to be attached is registered at the distal and mesial surfaces of all the implants.

Results:

The agreement rate is good (weighted kappa 0.72 to 0.82) when same observer repeats his assessment, while it is moderate (weighted kappa about 0.62) between the two observer. 133 (8%) out of 1707 sites of the dental implants could not be assessed radiographically” not accessible sites”. Both observers score the same number of not accessible sites when intraoral radiographs assessed, while more not accessible sites were found by the radiologist when assessing the panoramic radiographs, 86% of these differences were found in one patient who had 6 implants with poor bone support.

Conclusions:

This study supports that panoramic radiographs can substitute intraoral ones in implantology given they have acceptable quality, but we need to be aware of errors within observers and even more between observers and if possible should several observers/evaluators be used a radiologist can be useful.

Key Words: Dental implants; Intra-oral and panoramic radiographs; Bone level;

Funding Agency: None

Field trial with Xylitol candies among the disabled schoolchildren

*Honkala E¹, Shyama M², Honkala S¹, Al-Mutawa SA²

¹ Department of Developmental and Preventive Sciences, Faculty of Dentistry, Kuwait University, ² National School Oral Health Program, Ministry of Health, Kuwait.

Introduction:

High caries level was determined among the physically disabled schoolchildren in Kuwait, by a survey in 1999. Objectives: Xylitol candies field study was planned for improving caries situation of the children in these two special schools.

Methods:

The WHO criteria were used in recording caries according to surfaces (the third molars were excluded) by two calibrated examiners (EH, SM). Altogether 176 children were examined in October-November, 2002 and 145 (105 in xylitol group and 40 in the control group) after 18 months intervention. The children were allocated to the xylitol group only, if the parent/caregiver returned the informed consent form. However, some children with positive consent were kept in the control group, when there were several refusals in the same classroom for the practical and ethical reasons. Xylitol candies were distributed to the children by the school health nurses three times during the school day (after the breakfast, after the lunch and before leaving from the school).

Results:

There were significant differences in the number of new caries surfaces as well as in caries experience surfaces between the study and the control groups. In the control group the increments of DS and DMFS were 0.6 and 3.5 respectively. There were several reversals in the study group and reductions of DS and DMFS were 2.6 and 1.2.

Conclusions:

Xylitol seemed to have a strong preventive and a clear rematerializing effect on caries.

Key Words: Clinical trial; Cariology; Xylitol;

Funding Agency: Kuwait University Grant No. DI 02/01.

Dimensions of metal framework components of metal-ceramic fixed Partial dentures constructed in a dental school setting

*Omar R¹, Abduljabbar T², Al-Ali K², Smyth M², El-Agouri R²

¹ Department of Restorative Sciences, Faculty of Dentistry, Kuwait University;² Department of Prosthetic Dental Sciences, College of Dentistry, King Saud University, Riyadh, Saudi Arabia

Introduction:

This study measured the dimensions of connectors and retainer copings of metal-ceramic fixed partial denture (FPD) frameworks, and explored the factors that technicians regard as important in determining such dimensions.

Methods:

Using two calliper devices, measurements were made of 66 consecutive FPDs under production in a dental school-based laboratory. The dimensions of 176 connectors and 124 retainers were analysed with reference to FPD length and number of pontics in a span. All 14 technicians working in the fixed prosthodontics section of the laboratory completed questionnaires about their work methods.

Results:

Largest mean vertical connector dimensions were in the anterior regions of both arches, while the largest mean horizontal dimensions were in the posterior regions. Dimensions were unrelated both to FPD size, and length of inter-abutment span. Minimum thickness of retainer copings as generally below optimal recommendations. Available space was the factor most commonly cited by technicians as dictating the dimensions that they applied.

Conclusions:

Dimensions were generally smaller than current recommendations, which the questionnaire responses indicate are largely due to space constraints, and could present an increased risk for technical failures.

Key Words: *Fixed partial denture; Metal-ceramic restoration; Framework dimension;*

Funding Agency: *None*

LED curing modes and cusp deflection of composite restorations

Al-Omari QD

Kuwait University, Faculty of Dentistry

Introduction:

This in vitro study measured cusp deflection associated with MOD resin composite restorations in maxillary premolars with different curing light modes. Soft-start polymerization may reduce cusp deflection by reducing the polymerization shrinkage stress.

Methods:

Forty maxillary premolars were mounted in stone and slot MOD cavities were prepared. Teeth were randomized into four groups. Group A: cavities were etched, bonded and restored with two increments of Z100 composite. Each increment was cured with LED curing light (fast curing mode). Group B: similar to group A except that LED curing light with pulse curing mode was used. Group C: similar to group A except that LED curing light with stepped curing mode was used. Group D: a visible curing light was used for curing of the composite. The distance between indexed cusp tips was measured before the restorations, five minutes after, 24 hours after and two weeks after the restorations were completed.

Results:

The mean contraction of the cusps in μm at 5 minutes, 24 hours, and two weeks, respectively, for each group was A: 25.4, 16.2 and 8.2, B: 6.4, 3.4 and 2.2, C: 11.6, 7.0 and 4.4, D: 33.0, 21.6 and 15.8. Group D resulted in the highest deflection, A was intermediate and B and C were the lowest.

Conclusions:

Using pulse or stepped curing modes with LED to cure MOD resin composite restorations decreased the polymerization-induced cusp deflection

Key Words: LED curing light; Cusp deflection; Resin composites;

Funding Agency: None

Dentistry

Category: Clinical

44: Moderated

Shaping ability of K3, profile, Nickel-titanium and stainless steel Hand instruments in simulated canals

*Barrieshi KM, Behbehani JM

Department of Restorative Sciences, Kuwait University, Faculty of Dentistry

Introduction:

To overcome the existing shortcomings due to the use of the traditional stainless steel files, nickel titanium both hand and engine driven files were developed. The purpose of the study was to evaluate and compare the shaping ability of K3 and ProFile rotary nickel titanium systems and stainless steel and nickel titanium hand instruments using acrylic resin blocks.

Methods:

Forty simulated curved root canals were randomly divided into 4 groups. Group A and B were instrumented with K3 0.04 taper and ProFile 0.04 taper rotary nickel-titanium instruments (NiTi) in crown-down technique, respectively. Group C and D were instrumented using NiTi hand files and stainless steel (SS) files in step-back technique, respectively. The pre and post preparation canal images were recorded and then assessed with an image analysis program. Amount of resin substance removed at inner and outer canal walls was measured at 14 measuring points beginning at 1 mm from the apex. Preparation time and changes of working length were also recorded. Kruskal-Wallis test was used for statistically significant difference between the groups. Also Post-hoc analyses (Scheffe test) were used.

Results:

There were statistically significant differences in the amount of resin removed from inner and outer canal walls at different canal levels between the groups ($P < 0.001$). NiTi rotary systems provided more centered preparation, better canal taper and less canal transportation compared to hand preparation. NiTi rotary instruments were significantly faster in canal preparation than hand files ($P < 0.001$). Rotary NiTi instruments maintained better working length after instrumentation compared to hand instruments ($P < 0.001$).

Conclusions:

Under the conditions of the study, rotary K3 and ProFile 0.04 taper instruments maintained the original curvature of the canals, the original working length and were faster in canal preparation in comparison to hand instrumentation.

Key Words: *Nickel titanium; Shaping root canal system; Engine driven instruments;*

Funding Agency: *Kuwait University, Grant # DR 01/03*

First application of resorbable fixation plates in craniofacial Reconstruction in Kuwait

*El-Bassuoni K¹, Mustagrudic D¹, El-Massry M², Hamed HH¹, Schutz P¹, Ashoor A¹

¹Adan dental center, oral and maxillofacial surgery unit

²Amiri dental center, oral and maxillofacial surgery departement

Introduction:

Resorbable fracture fixation devices made of synthetic polymers have been clinically tested since 1983. Unfortunately complications arising due to osteolytic change responses in the tissues adjacent to the plates, and the late cellular reactions delayed its general acceptance. Recently resorbable devices made of materials having as few crystalline and as many amorphous components as possible showed easy applications, safe degradation products, and complete absorption. The purpose of this report is to record the first application and initial experience of resorbable plates in cranio facial reconstruction in Kuwait

Methods:

The plating system used in this study is made of tripolymer material in the form of plates with holes and sheets which could be easily trimmed and manipulated after heating and softening. Since our first application in 2004, 5 patients were operated on, 3 males & 2 females aged 10 to 40 years. All cases have been documented with radiographs and photographs. The technique is described in detail and can be used as a guide for using the system.

Results:

Patient follow up included immediate post operative clinical and radiographical examinations after 1, 4, 12, 24, and 48 weeks. The system had been used for reconstruction of : Frontozygomaticomaxillary fractures (1 case), Orbital floor fractures (1 case), Frontal bone fractures (2 cases), Mandibular fractures in a child (1 case), There have been no complications except that in case of fracture Mandible where we kept arch bar for extra fixation. Our findings show that resorbable fixation plates are well tolerated by soft tissue and bones in addition to easy manipulation and application.

Conclusions:

Initial use of resorbable plates in oral and maxillofacial surgery in Kuwait, have had successful outcomes, and our results confirm the clinical applicability of this type of resorbable osteosynthesis plating system

Key Words: *Craniofaciomaxillary surgery; Resorbable plates; Direct osteosynthesis;*

Funding Agency: *None*

Factor V Kuwait: A new point mutation in the coagulation factor V gene found in Kuwait

*Jadaon MM, Dashti AA

Department of Medical Laboratory Sciences, Kuwait University, Faculty of Allied Health Sciences

Introduction:

Blood coagulation is one of the natural haemostatic processes carried out in the body to prevent bleeding. Many genetic abnormalities has been identified to affect the clotting factors leading to diseases like venous thromboembolic disorders (VTE). The prevalence of the above abnormalities has been found to vary indifferent populations. While testing for HR2 haplotype in Arabs, we discovered a new point mutation we called Factor V Kuwait.

Methods:

Testing for HR2 haplotype was performed using PCR and RFLP techniques. A new point mutation has been identified, which was further justified by DNA sequencing.

Results:

The prevalence of HR2 haplotype in the Arab population and VTE patients living in Kuwait was found to be 7% and 16.5% respectively. While testing for HR2 haplotype, an unexpected new restriction site was observed accidentally in two of our patients. Upon reviewing the factor V gene sequence, a possible restriction site could hypothetically start at nucleotide number 3935, provided the presence of guanine nucleotide at that nucleotide position instead of the wild type adenine. Such a point mutation (A3935G) has not been reported previously. To justify our hypothesis, we performed DNA sequencing for these two samples, and found that both have the expected new mutation.

Conclusions:

This missense point mutation causes a Histidine to Arginine change in the amino acid number 1254 of the factor V molecule (His1254Arg; we call it Factor V Kuwait), which may affect the function of this protein. To our knowledge, none of the studies published so far on HR2 haplotype has reported such a mutation. This study is the first to study HR2 haplotype in Arabs, and thus it is very possible that Factor V Kuwait maybe present only in the Arab population. This new mutation has been submitted to the GeneBank and registered with the accession number AY881018.

Key Words: *New mutation; Factor V; Kuwait;*

Funding Agency: *None*

47: Moderated

ABO blood group in Kuwaitis: allele frequency distribution and Identification of novel alleles

*Luqmani YA¹, Yip SP², Choi PS², Abraham G¹, El-Zawahri MM³

¹Department of Pharmaceutical Chemistry, Kuwait University Faculty of Pharmacy;

²Biomedical Science section, Faculty of Health & Social Sciences, Hong Kong Polytechnic University; ³ Department of Biological Sciences, Kuwait University Faculty of Science.

Introduction:

The ABO antigens are clinically the most important blood group system in transfusion and transplantation medicine. Cloning and sequence analysis of the ABO gene locus has facilitated the identification of polymorphisms distinguishing the numerous allelotypes. This has led to development of methods for genotype analysis which yield more useful and accurate information than traditional phenotyping. In this study we used one such technique to look at allelic frequency of ABO subtypes in a sample of the Kuwaiti population.

Methods:

Blood samples (n=166) from a random population of male Kuwaiti blood donors were phenotyped by standard serological techniques for the ABO blood group, and genotyped for the ABO locus by a multiplex PCR protocol followed by single strand conformation polymorphism (SSCP) analysis. Three PCR fragments were amplified from exon 6, the 5' end and the 3' end of exon 7. Non-standard SSCP patterns were investigated by DNA sequencing of exons 6 and 7 of the ABO gene, and intron 6 if necessary.

Results:

The 7 classical alleles were each characterized by a set of 3 haplotype-specific SSCP patterns produced by the 3 amplified fragments. Standard SSCP patterns identified 6 classical alleles in this population: A101 (0.1115), A102 (0.0181), A201 (0.0301), B101 (0.1627), O101 (0.3103) and O201 (0.2500). One A, one B and 8 O variant alleles were identified (total frequency = 0.1175). All variant alleles were each present in one or two chromosomes (<0.0060) in our samples except O109 (0.0813). Five of these 10 variant alleles were novel alleles defined by newly identified single nucleotide polymorphisms in exon 7 (527G>A, 649C>T, 687C>T, 689G>A and 1116G>A). Three new base substitutions result in amino acid changes.

Conclusions:

This is the first study reporting the detailed distribution of ABO sub-alleles and genotypes in Kuwaitis. Sixteen alleles were identified, including five novel alleles not previously described.

Key Words: ABO blood group; PCR-SSCP; Genotyping;

Funding Agency: KU Grant SZ01/00 and Hong Kong Polytechnic University

48: Moderated

Differential molecular diagnosis of Prader-Willi and Angelman syndromes: Validation of methylation-sensitive PCR assay

El-Shafey A, Rabee S, Abou Al-Hassan S, Bastaki L, Al-Awadi S
Kuwait Medical Genetic Centre, Ministry of Health, Kuwait

Introduction:

Prader-Willi (PWS) and Angelman (AS) syndromes are complex and distinct mental retardation syndromes caused by genetic lesions in a common chromosomal region, 15q11-13. This region is differentially methylated and subject to genomic imprinting. High complex laboratory tests are required for the diagnosis as the disorders are caused by several genetic mechanisms. Methylation-specific polymerase chain reaction (MS-PCR) can provide accurate and rapid diagnosis for nearly all PWS and 70-80% of AS syndromes.

Methods:

DNA was digested by methylation-specific endonuclease enzymes followed by PCR amplification. PCR primers were designed to amplify 1.08 kb fragment from the undigested chromosome. Depending on the PCR amplification results the presence of only paternal, only maternal or both paternal and maternal contribution can be easily confirmed.

Results:

Complete concordance was observed during the clinical validation of previously characterized, by in situ hybridization, PWS and AS samples.

Conclusions:

We have optimized and validated an MS-PCR assay that is technically easy and can be used as a screening assay for suspected PWS/AS patients.

Key Words: Prader-Willi (PWS); PCR; Methylation;

Funding Agency: None

49: Moderated

Non-invasive detection of survivin, a sensitive novel marker in bladder cancer diagnosis

*Al-Maghrebi M¹, Kehinde EO², Anim JT³, Kapila K³, Abraham V², Varadharaj G³
³ Department of Biochemistry;² Department of Surgery;³ Department of Pathology;
Faculty of Medicine, Kuwait University.

Introduction:

Novel cancer-specific markers have been identified. They may aid in early diagnosis of cancer and help to differentiate between malignant and benign growth. Survivin, an apoptosis inhibitor, is amongst the highest expressed transcripts in common cancers. The aim of this study is to describe a real time RT-PCR assay, recently developed by us, based on TaqMan technology, for accurate and reproducible determination of survivin mRNA expression in voided urine samples of patients with various categories of transitional cell carcinoma (TCC) of the bladder.

Methods:

We quantified survivin gene expression in pre-cystoscopy voided urine samples from patients with: no bladder cancer (healthy patients/control), newly diagnosed TCC of bladder, recurrent TCC of bladder and those with TCC of bladder in remission. Total RNA was purified and reversely transcribed into cDNA. Primers and TaqMan probes for the cDNA-specific real-time quantitative PCR assay were designed for survivin and GAPDH. The level of GAPDH expression was measured in all samples to normalize for sample-to-sample differences in RNA input, quality, and reverse transcription efficiency.

Results:

Survivin was detected in the urine of all 4-sample groups. Preliminary real-time measurement of normalized survivin expression was 17-fold higher in urine from patients with newly diagnosed TCC than in urine from healthy patients. Urine from patients with recurrent TCC showed a 99-fold increase in survivin expression as compared to urine from healthy patients. Urine from patients with TCC in remission had below baseline levels of survivin mRNA.

Conclusions:

The present preliminary study demonstrates that accurate quantitative measurement of survivin expression has high potential for identification of tumor cells in urine. This non-invasive and sensitive method may prove to be of interest for molecular tumor diagnostics.

Key Words: Survivin; Bladder Cancer; Urine;

Funding Agency: Kuwait University-Research Grant MS 02/03.

Regulation of elongation factor-1 expression by vitamin E in diabetic Rat kidneys.

*Al-Maghrebi M¹, Cojocel C², Thomson MS²

¹ Department of Biochemistry; ²Department of Pharmacology and Toxicology; Faculty of Medicine-Kuwait University, Kuwait.

Introduction:

Translation elongation factor-1 (EF-1) forms a primary site of regulation of protein synthesis and has been implicated amongst others in tumorigenesis, diabetes and cell death. To investigate whether diabetes-induced oxidative stress affects EF-1 gene expression, we used a free radical scavenger, vitamin E.

Methods:

The following groups of rats (5/group) were studied: control, vitamin E control, diabetic and diabetic treated with vitamin E. Markers of hyperglycemia, kidney function, oxidative stress, and kidney hypertrophy were elevated in diabetic rats. Increased urinary protein excretion indicated early signs of glomerular and tubular dysfunction. The mRNA and protein levels of the three EF-1 subunits (A, B alpha, and B gamma) were determined in renal cortex extracts using semi-quantitative reverse transcription-polymerase chain reaction (RT-PCR), northern blot analysis and western blotting.

Results:

EF-1A mRNA expression in renal cortex extracts was significantly increased by at least-2 fold ($p < 0.002$) in diabetic rats; however, there was no change in the mRNA levels of EF-1B alpha and EF-1B gamma subunits. Similar results were observed at the protein level. Treatment of diabetic rats with Vitamin E for 10 days suppressed both glycemic and oxidative stresses in renal cortex and kidney hypertrophy. EF-1A mRNA and protein levels were also reduced to control levels.

Conclusions:

EF-1A but not EF-1B alpha and EF-1B gamma gene expression is significantly enhanced in the renal cortex of diabetic rats. Normalization of enhanced EF-1A expression by vitamin E treatment suggests a role for EF-1A during diabetes-induced oxidative stress.

Key Words: mRNA Expression; Kidney Hypertrophy; Translation Elongation Factor-1;

Funding Agency: Grant MB01/01 from Kuwait University- Research Administration

51: Moderated

Genetic analysis of the Interleukin-1 β single nucleotide polymorphism +3953 in alopecia areata: susceptibility and severity association.

*Al-Fadhli SM¹, Nanda A², Raju JV¹, and Al-Muzairai I³.

¹ Faculty of Allied Health Sciences, Department of Medical Lab Sciences. ² Asa'd AlHamad Dermatology Center and ³ Hamad AlEssa Organ Transplant Center.

Introduction:

Alopecia areata is a predominant skin diseases in Kuwait. The disease is hypothesized as cellular type autoimmune disease, organ specific T-cell mediated reaction against the human hair follicle. With some evidence of its heritability, its genetic is not fully understood. Several studies have linked the disease with some immunogenetic markers, but not all studies revealed a significant association. One locus that was proven to associate with various autoimmune diseases is the Interleukin 1 cluster genes in chromosome 2q13-21 including the IL1- β gene. Aim: To investigate the relationship between SNP +3953 C/T of IL1- β and the susceptibility and severity of alopecia areata.

Methods:

Genomic DNA extracted from 50 alopecia patients classified clinically according to the disease severity as Patchy (P) (<25% scalp hair loss), semiuniversalis (SU) (? 50% scalp hair loss), Universalis (U) (100% scalp hair loss) and totalis (100% body hair loss) (34% male and 66% females) and 50 healthy controls. PCR-RFLP analysis using TaqI restriction enzyme and direct DNA sequencing were used for genotype screening. Chi-square test was used to study the phenotype genotype correlation.

Results:

The frequency of IL1- β (SNP+3953) genotypes CC, CT, and TT in patients with alopecia were for (P) 50%, 42% & 8%; (SU) 37%, 58%, and 5%; (U) 27%, 55%, and 18%; while in normal controls 44%, 48%, and 8% respectively. The results showed a significant association between the genotype CT and susceptibility to the severe form of the disease (U), where Chi-square was 8.39 at $p < 0.025$. In addition to that a significant association was observed between the low frequency of CC genotype and the disease severity as Chi-square was 12.46 at $p < 0.01$.

Conclusions:

There is an association between the IL1- β SNP+3953 and susceptibility to the severe form of alopecia areata. Subjects with lower frequency of genotype CC are more susceptible to the severe form of the disease.

Key Words: Alopecia Areata; SNP+3953; IL1 β gene;

Funding Agency: None

Utility of magnetic resonance urography in the evaluation of Urinary tract diseases.

*Gupta R¹, Hussain AYT², Naik VGN², Sinan T¹, Al-Eisaa A¹, Kehinde EO¹, Sharma P¹

¹ Departments of Radiology, Paediatrics, Surgery and Computer Center, Faculty of Medicine, Kuwait University; ²Department of Radiology, Mubarak Al-Kabeer Hospital, Kuwait.

Introduction:

Since long, intravenous venous urography (IVU) has been the gold standard for the evaluation of the urinary tract. It should be avoided in the patients with hypersensitivity to iodinated contrast media, renal failure, pregnant women and in children. Magnetic resonance urography (MRU) is emerging as newer and safer imaging technique to study the urinary system without hazards of ionizing radiation and iodinated contrast. Aim of this study was to establish protocol for MRU and study clinical utility of MRU as an alternative or complementary to other imaging modalities.

Methods:

A total of 53 patients underwent MRU at Mubarak hospital from January 2003 till date. These patients were divided in four groups comprising of patients with renal failure, hypersensitivity to contrast media, pregnant women and children. Static un-enhanced heavily T2-weighted sequences were followed by T1-W (excretory MRU) using intravenous gadolinium and imaged in early and delayed phase mimicking conventional IVU. 3D-GRE maximal intensity projection (MIP) images were post processed to obtain an overview of urinary tract. MRU findings were correlated with other imaging techniques such as IVU, Ultrasound and Nuclear scan.

Results:

A total of 20 kidneys showed complete obstruction on IVU. MRU could detect presence and level of obstruction in 96% of cases and delineate the cause of obstruction in 92% of cases. Common causes of obstruction were calculi followed by strictures and bladder outlet obstruction. Small calculi at ureterovesical junction and calyceal region seen on plain KUB could not be detected on MRU. MRU was able to differentiate physiological hydronephrosis from calculus obstruction in the group of pregnant women.

Conclusions:

MRU proved to be superior and safer imaging technique to the gold standard IVU to obtain anatomical and functional information of urinary tract without exposing patients to the risks of ionizing radiation and iodinated contrast media.

Key Words: *Intravenous Venous Urography (IVU); Magnetic Resonance Urography (MRU);*

Funding Agency: *Kuwait University; Grant Number: MT 01/02*

53: Moderated

Filtered images replace SPECT studies in DMSA scans

*Mohammed AM^{1,2}, Naddaf SY^{1,2}, Omar AM², Khalil MM^{1,2}, El-Gazzar AH^{1,2}

¹ Department of Nuclear Medicine, Faculty of Medicine, Kuwait University, Kuwait.

² Department of Nuclear Medicine, Mubarak Al-Kabeer Hospital, Kuwait.

Introduction:

The study evaluates filtered planar images as a possible substitute of 360 degree single photon emission computed tomography (SPECT) imaging in renal cortical scanning using ^{99m}Tc-dimercaptosuccinic acid (DMSA) to shorten imaging time in pediatrics and reduce motion artifacts.

Methods:

Two hundreds and four patients (aged from 28 days to 58 years) with urinary tract infection (UTI) and clinical and/or laboratory suspicion of acute pyelonephritis (APN) were retrospectively studied. Planar images were smoothly filtered using Butterworth filter. The kidneys were divided into three zones: each was graded as positive, negative or equivocal for renal defects. Each scan was read in a double-blind fashion by two nuclear medicine physicians to evaluate inter-observer agreement.

Results:

Renal cortical defects were found in 49 patients (66 kidneys and 101 zones) with planar and SPECT images and 51 patients (72 kidneys and 109 zones) with planar and filtered planar images (McNemar's test, $p= 0.149$ for kidneys and 0.099 for zones). Inter-observer agreement was 0.887 for planar and SPECT images, and 0.885 for planar and filtered planar images.

Conclusions:

Planar and filtered planar images of renal cortex are comparable to planar and SPECT images and can be used to shorten imaging time in pediatrics in order to improve service, image quality and reduce motion artifacts.

Key Words: *DMSA; Single photon emission computed tomography (SPECT); Planar;*

Funding Agency: *None*

Effect of image processing on estimation of differential renal function

*Abbas AA, Al-Awadi ES, Mohammed AM, Ziada G

Department of Nuclear Medicine, Faculty of Medicine, Kuwait University, Kuwait

Introduction:

Radionuclide renography, a nuclear medicine procedure used in evaluation of differential renal function, is a simple and non-invasive procedure. It involves a small dose of radiation and helps in assessment of both tubular function and patency of the excretory system. The procedure involves drawing regions of interest over each kidney for calculation of the uptake ratio, and regions over the background for correction and normalization of the kidney uptake. Objective: Whether changing the shape and size of such regions affects differential renal uptake ratios was investigated.

Methods:

Twenty renogram studies were processed several times after changing the size and shape of drawn regions of interest. The results were statistically analyzed using non-parametric Wilcoxon signed ranks test.

Results:

Changing background ROIs from routinely placed inferior to the kidneys to a superior location significantly reduced the mean differential renal function from 49.1 ± 4.77 to 43.5 ± 5.28 ($p = 0.005$). Changing background ROIs to surround the kidney significantly reduced the mean value to 47.3 ± 4.78 ($p = 0.058$). However, changing the kidney ROIs did not result in statistically significant change ($p > 0.05$).

Conclusions:

Only shape and location of background ROIs affect the differential renal uptake values as estimated by radionuclide renography. Consistent selection of background ROIs to be placed inferior and lateral to the kidneys yields reproducible and reliable uptake values.

Key Words: Renogram; Differential renal function; Region of interest;

Funding Agency: None

Correlative imaging in detecting post renal transplant urine leak

Gawish AE¹, Al-Mousawi M¹, *Omar AM², Samhan M¹, Moniri S¹, Kumar A¹,
El-Gazzar AH³

¹ Hamad Al-Essa Organ transplantation Center, Kuwait.

² Department of Nuclear Medicine, Mubarak Al-Kabir Hospital, Kuwait.

³ Department of Nuclear Medicine, Faculty of Medicine, Kuwait University, Kuwait.

Introduction:

Post transplant urinary leak is a common complication after kidney transplantation. There is no consensus on its most appropriate diagnostic and therapeutic methods. The objective of this study is to evaluate multiple imaging modalities in detecting symptomatic and asymptomatic urine leak.

Methods:

Seventeen cases of proven urine leak after renal transplantation were encountered and treated in our institution between November 1993 and September 2001. Diagnosis was made 7 to 41 days post transplantation. Ten cases were symptomatic and seven asymptomatic. Ultrasonography and radionuclide renography were performed for all patients. Contrast cystography was also performed in 7 patients. Radionuclide renography was obtained after injection of 10 mCi (370 MBq) of Tc99m-MAG-3. Flow study was acquired every one second for 60 seconds followed by sequential images obtained every 30 seconds for 29 minutes. Post void static image was then obtained. All studies were obtained while the urethral catheter is clamped to enhance the yield of the studies.

Results:

Sixteen out of the 17 cases of leak were detected by radionuclide renography while only 8 were detected by ultrasonography. Among the 7 cases who had cystography leak was diagnosed in only 3. The case that was not detected by renography, was not detected by ultrasonography, was diagnosed by analyzing the wound leaky fluid in the laboratory and was further confirmed when treated surgically. Among the 7 asymptomatic cases only 3 had positive ultrasound findings while all were positive by radionuclide renography. Additionally, the findings of perigraft- fluid collections on ultrasosnography were not as specific as those of the radionuclide renography for urine leak.

Conclusions:

Our experience suggests that radionuclide renography with clamping the urethral catheter is the modality of choice to detect both symptomatic and asymptomatic post renal transplant urine leak.

Key Words: Renal transplant; Urine leak; Radionuclide;

Funding Agency: None

Lymphocytic thyroiditis: Correlative study of diagnostic modalities

*Marafi FA, Sheikh Z, Kapila K, Syed GM

Departments of Nuclear Medicine and Pathology, Kuwait University Faculty of Medicine and Mubark Al-Kabeer Hospital, Kuwait

Introduction:

Lymphocytic Thyroiditis (LT) is a common sub-type of thyroiditis. Thyroid scanning, status of thyroid hormones and antibodies do help reaching a diagnosis in an appropriate clinical set up. However, a definite diagnosis is reached on cytology and is graded according to the type and number of white cell infiltration. We studied correlation between various diagnostic parameters.

Methods:

21 patients, who presented with clinical suspicion of thyroiditis and had FNA diagnosis of LT was established, underwent Tc-99m pertechnetate thyroid scan. Scan was acquired 20 mins after the injection of radiotracer. Images were graded for background and uptake in thyroid.. Thyroiditis was reported when background activity was high and uptake in thyroid gland was either absent or reduced. Cytodiagnosis of LT was graded as mild, moderate or florid based on the cellularity of inflammatory response. Thyroid function status of the patient was determined based on clinical presentation and thyroid function tests (TFT). Non-parametric correlations were studied using SPSS software V 12.

Results:

There were 20 females and 1 male with mean age of 37 ± 7 years. On cytology all were labelled as LT with 5 mild type, 9 moderate and 7 florid. Scan findings were suggestive of thyroiditis only in 7 patients (3 with florid LT, 3 with moderate LT and 1 with mild). There was no statistically significant association between scan and cytology. However, both parameters showed statistically significant correlation with thyroid function status ($r = 0.557$, $p = 0.005$ for cytology and $r = 0.615$, $p = 0.004$ for scan findings).

Conclusions:

Scan findings in LT represent functioning status of thyroid gland resulting from the inflammatory process. However, the extent of inflammatory process graded on cytology had no correlation with scan findings.

Key Words: *Lymphocytic Thyroiditis; Cytology; Thyroid;*

Funding Agency: *None*

57: Moderated

Resting left ventricular ejection fraction: Comparison between quantitative gated cardiac SPECT (QGS) and emory cardiac toolbox (ECTb)

*Marafi FA, Abbas AR, Khalil MM, Ziada G

Department of Nuclear Medicine, Faculty of Medicine, Kuwait University, Kuwait

Introduction:

Resting Left Ventricular Ejection fraction (LVEF) is a clinically valuable piece of information that can be obtained from gated Single Photon Emission Computed Tomographic (gSPECT) imaging. Two famous programs that are routinely used for EF estimation, Quantitative Gated SPECT (QGS) and Emory Cardiac Toolbox (ECTb). Evaluating both methods in comparison to a well established technique such as Gated Blood Pool (GBP) is important in nuclear medicine institutions. The objective of the study was to search for clinically relevant differences between QGS and ECTb considering GBP as a reference for EF estimation.

Methods:

Among the routinely referred patients for myocardial perfusion SPECT imaging, ten patients (5 males and 5 females) were retrospectively selected. Tc-99m Tetrofosmin gated SPECT and GBP were performed for all patients within one month to each other. QGS and ECTb software programs were used for EF calculation. All data were recorded and tabulated for comparison. Pearson correlation coefficient was used to study the association between GBP and the gated SPECT methods. Paired t-test was used for means comparison. A p value of <0.05 was considered statistically significant.

Results:

QGS and ECTb showed good correlations with GBP study ($r=0.857$, $p=0.002$) for QGS and ($r=0.898$, $p<0.000$) for ECTb. The mean EF calculated by ECTb was significantly higher than that by GBP ($61.6\pm 16.6\%$ vs. $52.9\pm 16.6\%$, $p<0.005$). QGS was not statistically significant from GBP ($54.6\pm 16.4\%$ vs. $52.9\pm 14.7\%$, $p<0.544$).

Conclusions:

The currently available Gated SPECT software programs are correlating well with the routinely established GBP Technique. However, EF overestimation by ECTb in comparison to GBP should be clinically understood. Interchangeability between QGS and ECTb is warranted for further research in a large patient cohort.

Key Words: *Gated SPECT; Quantitative Gated SPECT (QGS); Emory Cardiac Toolbox (ECTb);*

Funding Agency: *None*

The effect of changing ROI on measurements of LVEF in MUGA scan

*Al-Shutti A, Al-Kazemi O, Hegazy E, Ziada G

Department of Nuclear Medicine, Faculty of Medicine, Kuwait
University, Kuwait

Introduction:

Radionuclide Multigated acquisition (MUGA), or gated equilibrium blood pool study (GBPS), is a procedure in which the patient's red blood cells (RBCs) are radiolabeled and electrocardiographically (ECG) gated cardiac scintigraphy is acquired. The data is processed and measurements of left ventricular ejection fraction (LVEF) are obtained. Processing involves drawing regions of interest (ROIs) around the LV at end-diastolic and end-systolic phases. Objective: The objective of this study is to evaluate the effect of changing the boundaries of the ROIs on the measurements of the LVEF obtained by GBPS.

Methods:

Ten studies (5 normal and 5 abnormal) were retrospectively and randomly selected and re-analyzed using manual processing after modifying the ROIs around the left ventricle and for background subtraction to include all possible errors in identifying the ill-defined contour of the LV. The results were compared to the semi-automated processing protocol where a large ROI is drawn manually around the left ventricle and used in automatic detection of the LV boundaries. The data were analyzed for statistically significant difference using Wilcoxon test.

Results:

Manual modification of ROI around the left ventricle showed significant change in estimation of LVEF in both groups ($p < 0.05$) (table 1). Changing ROI for background subtraction resulted in significant change in estimated values of LVEF of the abnormal studies but not of the normal group ($p > 0.05$).

Table 1. Mean EF \pm SD.

	Abnormal EF	Normal EF
Optimal	27 \pm 6.08	62.6 \pm 6.56
EDV over-est.	44 \pm 10.31	74.8 \pm 6.72
EDV under-est.	10.4 \pm 10.85	51.8 \pm 4.32
ES over-est.	9 \pm 4.41	33.6 \pm 10.59
ES under-est.	45 \pm 6.63	68 \pm 2.91
BKG including of spleen activity	34.4 \pm 8.08	76.2 \pm 10.03

Conclusions:

GBPS produced estimates of the LVEF are highly sensitive to the shape and location of the drawn ROIs. For such values to be reliable and reproducible semi-automated approach is the best choice.

Key Words: *Multigated acquisition (MUGA); Gated Blood Pool; Processing;*

Funding Agency: *None*

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Assessment of left ventricular ejection fraction by four different methods in patients with severe perfusion defects: Relative accuracy determination using regression without truth technique.

Khalil MM¹, Khalil W², Omar AM¹, El-Saeed T³, El-Feeli M³, Higazy E¹, El-Gazzar AH¹

¹ Nuclear Medicine Department, Faculty of Medicine; ² Biophysics Department, Faculty of Science, Cairo University. ³ Mubrak Al-Kabeer Hospital, Ministry of Health

Introduction:

One limitation of the available Gated SPECT programs is delineating myocardium with severely diminished uptake. Quantitative Gated SPECT (QGS) and Emory Cardiac Toolbox (ECTb) are edge-based techniques. Left ventricular Global Thickening Fraction (LVGTF) is a different method that utilizes the systolic count change to compute the EF. Another method uses the prolate spheroid coordinate system and determines the layer of maximum counts (LMC) to derive the EF. The aim of the study was to compare the four methods in the assessment of EF in patients with severe perfusion defects using the recently developed Regression Without Truth (RWT) technique.

Methods:

Seventy four patients with wide range of severe perfusion defects and locations were selected. Tc-99m tetrofomin gSPECT was performed for all patients. The four methods were used for functional parameters estimation. The comparison was performed using (RWT) technique which estimates the regression slope (a), intercept (b), and noise (s) for each method using the maximum likelihood estimator, and uses the term (s/a) as a figure of merit for ranking the methods.

Results:

	QGS	ECTb	VGTF	LMC
EDV(ml)	123±53	121±49		
ESV(ml)	71±48	59±45		
EF (%)	47±15	55±17	57±17	45±10
a Tn. D.	1.001	1.200	0.748	0.500
B. D.	0.951	1.145	0.711	0.500
b Tn. D.	-0.298	-0.368	-0.006	0.067
B. D.	-0.232	-0.293	0.0425	0.081
s Tn. D.	0.046	0.038	0.131	0.086
B. D.	0.046	0.037	0.131	0.086
s/a Tn. D.	0.046	0.032	0.175	0.172
B. D.	0.049	0.032	0.184	0.173

Tn, B. D: Truncated normal and Beta Distribution.

Conclusions:

There is a considerable variation among all methods in EF estimation. ECTB was found to give the best performance over the other methods, however it was slightly better than QGS. LMC and LVGTF revealed similar results but LMC was a little bit better.

Key Words: *Gated SPECT; Hypoperfused Myocardium; Quantitative Gated SPECT (QGS);*

Funding Agency: *None*

A Novel adaptation of radionuclide myocardial perfusion imaging for concurrent evaluation of coronary macro- and microvascular circulation

Loutfi I¹, Nair MK¹, Custodio JJ², Essam H¹, Shehab F²

Departments of Nuclear Medicine,¹ Faculty of Medicine Kuwait University and² Mubarak Al-Kabeer Hospital, Ministry of Health, Kuwait

Introduction:

Abnormal coronary blood flow regulation due to microvascular disease may cause ischemia in addition to disease of large epicardial coronary arteries leading to angina. A Limited coronary vasodilatory reserve (CVR) is a recognized feature of this condition. The objective of the study is to apply a novel approach to measure this parameter (CVR) in patients undergoing standard radionuclide myocardial perfusion study.

Methods:

Ten patients were selected at random from a pool of patients referred for stress-rest Tc-99m tetrofosmin (Myoview) myocardial perfusion studies for evaluation of coronary artery disease. Stress was performed using dipyridamole infusion. Myocardial SPECT was performed about 1 hour post injection (PI) of the radiotracer (stress and rest). In addition, whole body scans in anterior and posterior projections were acquired at 15 min (PI). Analysis of the studies included region of interest selection around the heart, liver, abdomen without liver and whole body. The geometric mean and percentage uptake in each organ to whole body radioactivity were calculated.

Results:

Percentage cardiac uptake ranged from 3-8%. Liver uptake 9-21% while abdominal radioactivity 23-85%. The cardiac stress uptake (mean 3.5%) was higher than rest uptake (mean 2.6%), the difference was statistically significant ($p < 0.05$) by paired t-test. The ratio stress/rest was in the range of 1-1.7. The presence of perfusion defects on the images did not correlate with the ratio of stress/rest calculated from the whole body scan.

Conclusions:

Using the simple addition of whole body scan to the standard SPECT myocardial perfusion studies, quantitative assessment of the coronary vasodilatory reserve is possible adding independent information on the status of the coronary microvasculature. This would be useful especially in patients in which anginal symptoms are associated with no obvious perfusion defects or with normal coronary arteries by coronary angiography.

Key Words: *Coronary artery disease; Myocardial perfusion; Coronary reserve;*

Funding Agency: *None*

Radionuclide bone imaging of obese patients; potential pitfalls of Steatopygia and role of single photon emission computed tomography (SPECT)

*El-Gazzar AH¹, El-Said M², Omar AM³, Al-Maskery IB²

¹ Department of Nuclear Medicine, Faculty of Medicine, Kuwait University, Kuwait.

² Department of Radiologic Sciences, Faculty of Allied Health, Kuwait University, Kuwait.

³ Department of Nuclear Medicine, Mubarak Al-Kabir Hospital, Kuwait

Introduction:

Body habitus influence the quality of bone scintigraphy. Steatopygia (steato: fat, pygia: buttocks) may affect the quality of bone scan since it may lead to diagnostic pitfalls. Objective: The objective of this prospective study is to evaluate the effects of steatopygia on the appearance of the lumbar spine on bone scan and the role of SPECT in overcoming this fat attenuation artifact.

Methods:

Bone scintigraphy, including whole body bone scan, spot views and SPECT of the lumbar spine, using a dual head gamma camera, were performed on thirty adult obese patients (13 males, 17 females) with an average weight of 90 kg. referred to the department for routine bone scan. Each patient was injected intravenously with 0.25 mCi/kg (9.25 Mbq of Tc-99m MDP, and the weight and height of each patient were recorded. Whole body scan was performed using 256X1024 matrix size and a meter/8 min speed. Planar spot views of the lumbo-sacral regions were acquired using 256X256 matrix size for 1000 Kcounts. SPECT was performed using 128X128 matrix size, 20 second-32 projections and elliptical orbit around the lumbar spine.

Results:

Twenty patients (67%) (6 males, 14 females) showed steatopygia with attenuation at the lower lumbar vertebrae. Diminished uptake in the lower lumbar spine and edge effect artifacts of variable degrees were noted on planar images mimicking abnormalities. SPECT, especially in the sagittal axis, clarified the nature of the findings caused by these artifacts.

Conclusions:

Steatopygia should be considered in the interpretation of bone scans of obese patients to avoid diagnostic pitfalls. Adding SPECT of the lumbar spine improves the diagnostic accuracy in obese patients by overcoming the effect of steatopygia seen on whole body and spot planar images.

Key Words: Single photon emission computed tomography (SPECT); Steatopygia; Attenuation;

Funding Agency: None

Radionuclide bone imaging of pediatric patients; pitfalls in patient positioning

*Omar AM¹, El-Said M², Al-Sheikh MO¹, El-Gazzar AH³

¹ Department of Nuclear Medicine, Mubarak Al-Kabir Hospital, Kuwait.

² Department of Radiologic Sciences, Faculty of Allied Health, Kuwait University, Kuwait.

³ Department of Nuclear Medicine, Faculty of Medicine, Kuwait University, Kuwait

Introduction:

Handling pediatric patients during imaging is not an easy task and requires additional care and experience. Proper patient positioning as well as modifications of the technique are crucial for adequate bone scanning and proper interpretation. Objectives: The aim of this study is to evaluate the pitfalls in positioning pediatric patients for bone scintigraphy.

Methods:

Retrospective analyses of 55 pediatric patients (27 male, 28 female) with age (15 day to 16 years) old with positioning problems of bone scan were studied. Whole body image was obtained using 256X1024 matrix size with a speed of 8 min/ meter three hours after I.V injection of 2.5 mCi/Kg of the child body weight of Tc99m-MDP. Spot views were performed using 256X256 matrix size, collecting 1000 K counts per view for the pelvic, sternum, rib cage and chest, 500 K counts for the extremities. The acquisition time was 5 minutes, 15 minutes when using the parallel hole and pinhole collimators respectively.

Results:

Improper positioning was most frequent in the lower extremities followed by upper extremity, skull, chest and pelvis respectively. The major cause of lower limb abnormality mal-positioning was due to absence of proper internal rotation of the feet in 39 patients, patient motion in one and missing feet in 2 patients. Upper limb mal-positioning was noted in 26 patients due to raised hand or shoulder in 25 patients and patient motion in one. Skull mal-position was either due to tilting in 6 patients or patient motion in 3 patients. The skull was not completely included in the field of view in 1 patient. In 9 patients chest was tilted and in a similar number the pelvis was also tilted.

Conclusions:

Improper positioning for bone scintigraphy is common in pediatric age group. This is most frequent in the extremities among our patients. Additional care must be taken in positioning pediatric patients for bone scanning to avoid diagnostic pitfalls

Key Words: Bone scintigraphy; Pediatrics; Tc99m-MDP;

Funding Agency: None

Combination of bone, Tc99m HMPAO leukocyte and marrow scan in evaluation of diabetic foot complication

Nath SDS, Al-Mohanadi S, Samhan M, Al-Mousawi M, Al-Mutairi A,
Tamer A

Nuclear medicine Dept, Organ transplant centre, Ibn Sina hospital,
Kuwait

Introduction:

Diagnosis of osteomyelitis in diabetic foot is crucial as this condition is the most common cause of non traumatic lower extremity amputation. We need an imaging modality to differentiate between bone infection and soft tissue infection as diabetic foot ulcers are frequently associated with pedal osteomyelitis.

Methods:

Ten adult diabetic patients with clinical suspicion of foot or ankle infection were prospectively evaluated using radiography, Tc-99m MDP (methylene -diphosphonate) bone scanning, leukocyte and marrow scanning to determine the presence of clinically suspected osteomyelitis. Mean age of patients was 62.24 (SD \pm 9.10). There were 6 males and 4 females patients. All the patients were diabetic had undergone renal transplant and were being followed up in our hospital.

Results:

We had 4 patients who did not have any foci of infection in the foot . In all these patients Leukocyte scan was negative when the bone scan was positive. In 6 patients with biopsy proven osteomyelitis .Three patients showed positive bone and leukocyte scan with negative marrow scan and the rest 3 patients showed all three scans to be positive.

Conclusions:

The sensitivity and specificity in this pilot study was 100% and 80% respectively for all the three scans in combination to detect osteomyelitis. The combined leukocyte, MDP and marrow scan can be used in selective patients when radiology and clinical findings cannot diagnose osteomyelitis.

Key Words: *Diabetic foot; Osteomyelitis; Leukocyte Scan;*

Funding Agency: *None*

Technical innovation: Wire guided ductography

*Ovais AM, Ramadan S, Petkovska L, Hussein FM

Department of Radiology, Al-Adan Hospital

Introduction:

Ductography is an examination performed for patients with unilateral, single-pore, spontaneous nipple discharge to identify intraductal abnormalities. Objective :To introduce an easy and improved (innovative) technique for performing ductography using an I/V cannula. The authors have experience of performing ductography with blunted fine butterfly needles. Difficulty in cannulating the duct represents the most discouraging obstacle in performing ductography (Slawson and Johnson Radiographics 2001). In our department sialography is being performed with 'wire guided sialography' technique described by Aslam M.O et al, Clin. Rad. 1991 with high success rate therefore we thought to use this technique for ductography.

Methods:

15 patients with single nipple discharge referred for ductography underwent a wire-guided technique during 2003 to 2004. A 33 (0.2 mm) or thinner blunt flexible steel spring wire or 2-0 / 3-0 Prolene / Surgipro (polypropylene monofilament non-absorbable suture) is inserted into a single duct. A 26 G intravenous cannula is then passed over the wire into the duct while removing the guide wire. The Cannula is made of plastic and is flexible therefore it can easily be manipulated during the procedure.

Results:

With the guide wire technique, we successfully cannulated all the patients. The procedure was well tolerated by the patients and the length of time taken to cannulate the duct was considerably reduced as compared to fine blunted needle technique.

Conclusions:

A successful, innovative and easy technique for performing ductography is presented. The material required for the technique is freely available in the market and is present in most of the Radiology Departments. It produces less anxiety for the patients as plastic I/V cannula is used instead of metallic blunted needle. Therefore, it can be more widely used by the radiologists.

Key Words: Ductography; Breast Cancer; Nipple discharge;

Funding Agency: None

Mammaographic findings in asymptomatic women in Mubarak Hospital, Kuwait

Roberts OM¹, Gupta R², Al-Bader I³, Sinan T²

¹ Clinical Imaging, Mubarak Hospital; ² Department of Radiology, Faculty of Medicine, Kuwait University; ³ Department of Surgery, Mubarak Hospital

Introduction:

Screening mammography has been shown to reduce breast cancer mortality by up to 24-30% because of early detection. In Kuwait where there is no screening program, majority of patients present with clinically-palpable masses, at which time the disease is more advanced. The aim of this study is to document the mammographic findings in asymptomatic women with special reference to mammographic features of detected cancers.

Methods:

The patients were referred to the Clinical Imaging Department of Mubarak Hospital for mammography prior to starting hormone replacement therapy or for routine check up at patient's request. None had any breast symptoms or palpable mass. Mammography was done using the GE Senographe DMR. Imaging findings were classified using American College of Radiology ACR, Breast Imaging Reporting and Data System, (BI-RADS) categories 1-5, indicating level of suspicion of malignancy. Surgical excision was done for detected suspicious

Results:

Complete data was available for 2,400 patients who were screened between January 2001 and June 2004. The age range was 32 to 80 years with a mean of 48.4 ± 6.7 years. The majority, 1,794 (74.8%) were Kuwaitis and 606 (25.2%) were non-Kuwaitis. There were 1,892 (78.8%) normal (Category 1), 316 (13.2%) benign (Category 2), 145 (6%) probably benign (Category 3), 42 (1.8%) suspicious (Category 4) and 5 (0.2%) highly suggestive of malignancy (Category 5). Cancers were confirmed in 14 patients, two of whom had multifocal and one with multicentric cancer.

Conclusions:

There were 348 (21.2%) abnormal findings at mammography of asymptomatic women in this study, although most were benign, 14 sub-clinical cancers were confirmed. This study underscores the need for a mammography screening program in Kuwait.

Key Words: Breast Cancer; Mammography screening; Kuwait;

Funding Agency: None

66: Moderated

Patient's tolerance and early complications of trans rectal ultrasound guided prostate biopsy : prospective study on 300 patients

Sheikh M¹, Al-Saeed O¹, Kehinde EO², Hussain AYT¹, Ali Y², Anim JT³
Departments of Radiology¹, Surgery² Pathology³, Faculty of Medicine,
Kuwait University, Kuwait.

Introduction:

To determine the degree of pain or discomfort and complications associated with transrectal ultrasound (TRUS) guided biopsy of the prostate.

Methods:

Three hundred consecutive men referred as part of investigation to exclude prostate cancer were studied. The reasons for referral were patients with increased serum PSA level (> 4 ng/ml), suspicion of cancer on DRE or the finding of a suspicious area of neoplasm of the prostate on TRUS of the prostate. The biopsies were performed as an out patient procedure without anaesthesia. Ciprofloxacin prophylaxis was used in all patients before the biopsy, tolerance of the procedure was recorded immediately after the examination and graded 0 - 4 as follows : 0 = no pain, 1 = very mild pain, 2 = moderate pain, 3 = severe pain, 4 = intolerable pain. Complications from the procedure included mild ones such as mild pain, self limiting hematuria, hematospermia or rectal bleeding and significant complications that necessitated active management, such as, severe hematuria, septicemia, severe hemorrhage per anus or vasovagal reaction.

Results:

Out of 300 TRUS guided biopsies, 10 early complications were recorded. The most frequent was septicemia in 5 cases (1.7%). Hematuria occurred in 29 patients of which 3 cases were severe. Rectal bleeding and vasovagal attack occurred in one patient each. All the patients made full recovery with appropriate conservative management. Ten cases (3.33) of severe pain (grade 3) and intolerable pain (grade 4) were observed. Three out of these 10 patients completed the procedure. The procedure was terminated in one and 6 patients required local anesthetic on account of perianal disease.

Conclusions:

TRUS - guided prostate biopsy is a valuable diagnostic procedure with minimal morbidity even without anaesthesia.

Key Words: *Transrectal ultrasound; Prostate biopsy; Patient tolerance ;*

Funding Agency: *None*

Radiation doses for CDH patients undergoing hip fixation surgery

*Baron K

Department of Radiologic Sciences, University of Kuwait, Faculty of Allied Health Sciences

Introduction:

The number of children with Congenital Dislocation of the Hip (CDH) in Kuwait has increased markedly in the last years. Most of which will undergo a hip fixation surgery. During this surgery the hip area of the child is exposed to radiation via the use of fluoroscopy as a monitoring device. As dose accumulation during childhood leads to an increased risk of radiation – induced cancers¹, radiation protection measures are especially important in pediatric patients. Thus, the objective of this study is to measure the radiation doses delivered to CDH patients during surgery to ensure their safety.

Methods:

These measurements were performed for 12 CDH patients using thermo-luminescent devices (TLDs), which were placed in the hip region during surgery.

Results:

The determined range of the accumulative effective doses (E) was from 20 Micro-Sievert to 42 Micro-Sievert (± 6 to 4) per one surgery. These results were found to fall within the range of values reported in literature [2-5] (21.9³, 33⁴, and 30-46⁵ Micro-Sieverts). Using risk factors of 2.8×10^{-2} to 13×10^{-2} / Sievert for the development of childhood cancers from child exposure as published in ICRP report60⁶ and these E –values, the estimated upper limit of risk for developing childhood cancer was 0.64×10^{-6} / each surgery. Thus, the risk of developing childhood cancer from each surgery is less than six per million.

Conclusions:

Since the estimated radiation doses during the hip fixation surgery fall within the accepted published data [2-5], one can conclude that the benefits of using fluoroscopy exposures in these surgery is greater than the radiation risks.

Key Words: Radiation protection and risk factors; Radiation doses; CDH patients

Funding Agency: Research Administration, Kuwait University, grant

68: Moderated

Use of a copper filter to reduce skin dose in computerized radiography for pediatric imaging

*Haidar S^{1,2}

¹Diagnostic Imaging Department, Hospital of Sick Children in Toronto; ²University of Toronto

Introduction:

Using computerized radiography (CR) we investigated whether skin radiation dose could be reduced by the addition of a copper filter to the X-ray beam without compromise to image quality.

Methods:

Using two identical portable x-ray machines, a copper filter (0.1mm) was installed in the collimator port at the x-ray source of one of the two machines. The two units were tested before filter installation to ensure identical radiation output. After filter installation, each unit was checked for radiation output using an ionization chamber. Radiographic density was documented as well using a step wedge. A series of exposures were performed with and without copper filtration for 20 cadavers undergoing routine skeletal survey prior to autopsy. TLD disks were placed in the beam for 4 exposures i.e. head, chest, abdomen and lower limb and skin dose was measured for each exposure. Blind evaluation of image quality and resolution was performed by 3 pediatric radiologists.

Results:

Our results show that copper filter was successful in reducing the radiation dose by 15-20% ($p < 0.05$). In addition, the readers agreed in 68% that the images performed using copper filters are equal or better to those without copper. The interobserver variability using intraclass correlation method was 89%. Overall, none of the images were evaluated as poor or non-diagnostic studies.

Conclusions:

Use of a copper filter is efficient in reducing the radiation dose by 15-20% without significant image quality degradation. This simple technique can be easily applied and appears effective and considering the accumulative radiation dose in the life span, this reduction is believed to be significant especially in pediatric population.

Key Words: Pediatric radiation dose; Copper filter; Computed radiography

Funding Agency: None

**Re-use of charcoal canisters used for measuring radon
Concentration indoors**

Sayed AM², *Sakr MA¹, El-Gazzar AH¹, Abdelaziz SS³

¹Department of Nuclear Medicine, Faculty of Medicine - Kuwait University; ²Radiation Protection Department, Ministry of Health, Kuwait; ³Faculty of Sciences, Cairo University, Egypt

Introduction:

Radon is colorless, odorless, tasteless, radioactive novel gas. It is considered as a second reason for causing lung cancer after smoking. Charcoal canisters –Filters (F) - became one of the most familiar radon passive monitors all over the world. The technique of these monitors depends on the adsorption of radon gas particles on the surfaces of activated charcoal grains. Charcoal grains can be reused again to adsorb another amount of radon after being reactivated. Reactivation process can be achieved by applying certain annealing heat regime. The aim of this research is to find out the suitable heat regime in order to reactivate charcoal canisters to be reused for several times to reduce the cost of scanning radon.

Methods:

Six activated identical charcoal filters (F1, F2, F3, F4, and F5& F6) were used. Their background activities (Bk.G.) were determined by scanning them with gamma ray spectrometer. Then they were irradiated with radon and rescanned again. The total counts per second (CPS) were determined for both Pb-214 and Bi-214 (Radon daughters which indicates the adsorbed radon amount) for each filter. These 6 filters were divided into 3 groups. Three different regimes with the same heating time which is 5 hours, and different temperatures (T1, T2 and T3) were applied to these 3 groups. (T1=80°C for group1, T2=90°C for group2 & T3=100 °C for group3).

Results:

The Bk.G. readings were:(64,39), (64,42) ,(66,40), (65,41), (63,40) and (62,38) for F1, F2, F3, F4, F5 and F6 respectively. After irradiating all of them the readings became (61052, 40721), (61100, 40790), (61070, 40800), (61088, 40705), (61060, 40740) and (61020, 40733). After applying T1 regime the readings became (3420, 2752) and (3433, 2763) for F1&F2. After applying T2 the readings became (477,321) & (485,310) for F3&F4. After applying T3 we got readings (60, 44) & (52, 39) for F5, F6.

Conclusions:

The regime of T3 succeeded to return the canisters to their Bk.G. readings to be ready for reusing again.

Key Words: Radon measurements; Activated charcoal canisters; Annealing heat regime

Funding Agency: None

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Evaluation of residential indoor radon levels in the state of Kuwait

*Sakr MA¹, El-Gazzar AH¹, Sayed AM², Abdelaziz SS³

¹Department of Nuclear Medicine, Faculty of Medicine, Kuwait University; ²Radiation Protection Department, Ministry of Health, Kuwait; ³Faculty of Sciences, Cairo University, Egypt

Introduction:

Radon is a colorless, odorless, tasteless, radioactive novel gas. It is produced naturally as a decay product of the radioactive element radium 226. A lot of epidemiological studies considered radon gas as a lung cancer inducer. Radon emanates from soil into houses through cracks. Hence evaluating of radon concentration levels became very important issue in the entire world. The aim of this study is to evaluate the indoor radon concentration levels inside some houses in the state of Kuwait.

Methods:

Twenty houses were scanned in this research. Fifteen villas and five flats. Each villa consists of three levels: basement, ground floor and first floor, while the flats are consisting of only one level in the third and fourth floor in one building. Bed room was the place in which measurements were taken in flats. In villas three places were chosen to take measurements: a bed room in the first floor, living room in the ground floor and the hall of the basement. Two pico – rad vials and one charcoal canister were used for each room to be scanned besides using of portable radon gas monitor. After exposing pico – rad vials and charcoal canisters to radon, pico – rad vials were scanned by using liquid scintillation counter (model: TRI CARB 3170 TR/SL), while charcoal filters were scanned by using Gamma ray spectrometer system (model: EG & G Ortec, Oak Ridge, TN.)

Results:

The average values of radon concentration are 19 Bq/m³ with σ equals (+or-1) for villas (basement and other levels in the villas have the same radon concentrations), and 45 Bq/m³ with σ equals (+or-6) for flats.

Conclusions:

The measured radon levels are acceptable according to the safety limit recommended in U.S.A. which is 148 Bq/m³ (i.e. approximately equals one third the maximum limit) The level of radon concentrations inside villas are much less than that inside flats in which air circulation is better and the entire volume is much bigger, these factors decreasing radon levels.

Key Words: Radon gas; Radon measurements; Environmental measurements

Funding Agency: None

71: Moderated

Five-year outcome study of deep vein thrombosis in the lower limbs

*Asbeutah A, Riha A, Cameron J, McGrath B

Faculty of Allied Health Sciences, Radiologic Sciences, Kuwait University

Introduction:

Venous disease were evaluated in relation to the postthrombotic syndrome (PTS) 5 years after deep venous thrombosis (DVT) in subjects treated with a regimen of low molecular weight heparin and warfarin.

Methods:

The presence of flow, reflux and compressibility in 51 subjects (102 limbs, 54 with DVT and 48 without DVT) was assessed by duplex ultrasound. Blood tests were carried out for prothrombotic screening. Venous disease was related to pathologic severity of PTS, characterized by the (Clinical Etiology Anatomy Pathophysiology) CEAP clinical classification, on a scale of 0 to 6.

Results:

In the 102 limbs studied there were 30 subjects (59%) with underlying thrombophilic disorder. The most common thrombophilic abnormalities were the presence of anticardiolipin antibody and deficiency of protein C and/or S. Twenty-six limbs (48%) had proximal involvement; the resolution was seen in 85%, 96% at 6 months, 5 years respectively. After 5 years, 25 of these proximal DVT limbs (96%) developed reflux and there were 4 limbs in class 0, 8 limbs in classes 1-3, and 14 limbs in classes 4-6. In the 28 limbs (52%) with distal DVT, all the limbs showed DVT resolution by 6 months. After 5 years, 10 limbs (36%) developed reflux and there were 13 limbs in class 0, 12 limbs in classes 1-3, and 3 limbs in classes 4-6. There was no DVT detected in the 48 contra lateral limbs but reflux was detected in 25 limbs (52%), predominately in the superficial veins (64%).

Conclusions:

The resolution of thrombus was more rapid and complete in subjects with distal DVT. Subjects with proximal DVT developed more severe form of PTS. An important finding was a high incidence of venous reflux in the unaffected limb. Although these limbs were not investigated at presentation, our data is consistent with the hypothesis that DVT may result in a more systemic disorder of venous function.

Key Words: *Deep vein thrombosis; Postthrombotic Syndrome; Low weight molecular heparin*

Funding Agency: *None*

72: Moderated

Rating errors in the assessment of clinical competence of newly-graduated Doctors

*Premadasa IG¹, Shehab D², Al-Jarallah KF¹

¹Kuwait Institute for Medical Specialization; ²Department of Medicine, Kuwait University, Faculty of Medicine

Introduction:

Clinicians and academicians at health care institutions share the responsibility for training medical graduates. When assessing trainees' competencies they need to guard against leniency (being generous), stringency (being unduly strict), central tendency (avoiding the extremes of a range) and the halo effect (prior knowledge affecting the score). Before being licensed to practice, medical graduates follow a one-year internship that comprises rotations in prescribed specialties. This study aims to identify the rating errors that may occur during the assessment of the clinical competence of interns.

Methods:

The internship trainees in the March 2002 cohort had their competencies in six domains (case presentation, clinical skills, diagnosis, therapy, handling of emergencies and professional behavior) assessed by assigned trainers. Competencies were rated under 1 = unsatisfactory, 2 = below expected standard, 3 = at expected standard, 4 = above expected standard or 5 = excellent. The ratings at the individual assessments were averaged at end of rotation.

Results:

4868 assessments were made of performances of 45 interns, who completed rotations in Surgery, Medicine, Obstetrics & Gynecology, and Pediatrics. The percentage of the ratings was as follows: 66% of all ratings fell in excellent category (mean = 4, mode = 5). The rotations in Surgery (37.6%) and Pediatrics (31.8%) elicited more excellent ratings than other specialties. Of all trainers, Registrars (46%) allocated the highest proportion of excellent ratings. When considering the number in each category, Assistant Registrars (72%), and Registrars (70%) had assigned excellent ratings to a high extent.

Conclusions:

A high proportion of the ratings given by the trainers fell at the upper end of the rating scale. This could be an effect of errors of leniency, compromising the usefulness of the results. Training the trainers in assessment methods needs to be considered as a remedial measure.

Key Words: *Errors of assessment; Internship training; Clinical competence;*

Funding Agency: *None*

Medicine

Category: Clinical

73: Moderated

Asthma and sensitization in a community with low indoor allergen levels and low pet-keeping frequency

*Al-Mousawi MS¹, Lovel H², Behbehani N³, Arifhodzic N¹, Woodcock A⁴, Custovic A⁴

¹Al Rashid Allergy Centre, Kuwait City, Kuwait; ²WHO Collaborating Centre for Primary Care, University of Manchester, UK; ³Department of Medicine, Kuwait University; ⁴North West Lung Centre, Wythenshawe Hospital, Manchester, UK

Introduction:

Little is known about causes of asthma and sensitization in desert countries. The purpose of the study is to investigate risk factors associated with asthma and sensitization in Kuwait.

Methods:

160 children (9-16 years) with physician-diagnosed asthma recruited and matched (age, sex) with 303 healthy controls. Risk factors were assessed by questionnaires, determination of sensitization status (skin tests and IgE) and home allergen exposure (mite, cat, dog, cockroach-ELISA).

Results:

Home allergen levels and frequency of pet ownership were very low (cat 4.1 %, dog 1.5%). The risk of cat sensitization increased significantly amongst cat owners (odds ratio, 95% confidence intervals: 3.53, 1.33-9.41, p=0.01), and in children with reported contact with cats during the first year of life (2.60, 1.17-5.80, p=0.019). In the multivariate analysis, maternal atopy (1.77, 1.13-2.75, p=0.01) and cat ownership (3.32, 1.19-9.25, p=0.02) remained significant associates of cat sensitization. Current dog ownership significantly increased the risk of sensitization to dog (6.05, 1.33-27.54, p=0.02). In the multivariate analysis dog ownership remained the only significant associate of dog sensitization (6.02, 1.30-27.96, p=0.02). Sensitization to Alternaria was the strongest independent associate of asthma group. Family history of asthma, history of whooping cough, current cat ownership and breast feeding <2 months were other significant and independent risk factors for asthma.

Conclusions:

Pet ownership markedly increased the risk of sensitization to pets. Despite low allergen exposure, the pattern of childhood asthma in Kuwait follows that which has been described in western communities (strong association with sensitization).

Key Words: Asthma; Sensitization; Allergen exposure

Funding Agency: Kuwait Foundation for the Advancement of Science (KFAS)

Medicine

Category: Clinical

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High resolution computed tomography (HRCT) in asthma

*Khadadah ME¹, Roberts OM², Jayakrishnan B³, Muqim A³, Onadeko BO¹, Sinan T⁴, Maradni N³, Lasheen I⁵

¹Department of Medicine, Faculty of Medicine, Kuwait University, Kuwait; ²Department of radiology, Mubarak Hospital, Kuwait; ³Respiratory unit, Mubarak Hospital, Kuwait;

⁴Department of Radiology, Faculty of Medicine, Kuwait University, Kuwait; ⁵Department Of Medicine, Mubarak Hospital, Kuwait

Introduction:

High-resolution computed tomography (HRCT) has allowed visualization of airways and parenchyma in a great detail. Our aim was to document the HRCT abnormalities in Asthma

Methods:

HRCT was done on selected adult patients with stable asthma attending the Chest Clinic of Mubarak Hospital. The lung fields were divided in to six zones, upper, mid and lower on each side.

Results:

In the 28 patients, 16(57.1%) were Kuwaitis. Twenty(71.4%) were males. Mean age was 41.39 years. Sixteen (57.1%) had moderate, 6(21.4%) had mild and 6 (21.4%) had severe persistent asthma. 13(46.4%) patients were having asthma for 1 to 5 years and 12(42.9%) were having asthma for >10 years. Mean percent predicted FEV1 was 69.12±16.8%. Abnormal HRCT findings like bronchial wall thickening (57.1%), bronchiectasis (28.6%), and mucoid impaction (17.9%), mosaic attenuation (10.7%), air trapping (53.6%) and plate like atelectasis (21.4%) were noted. No differences were seen when compared with symptom severity or duration of the illness. Bronchial wall thickening (p=0.048) and bronchiectasis (p=0.042) were more in males. Ten (35.7%) patients had mild, 9(32.1%) had moderate and 3(10.7%) had severe air trapping. The difference in HU between expiratory and aspiratory slices (air trapping) in different lung zones when correlated with percent-predicted FEV1 showed no relation. RUZ (r=0.25; p=0.30), LUZ (r=0.20;p=0.41), RMZ (r=0.15;p=0.53), LMZ (r=-0.04; p=0.60), RLZ (r=0.04;p=0.86) and LLZ (r=-0.13;p=0.58). 45% males had moderate while 75% of the females had mild air trapping (p=0.05). 50% of the patients with moderate asthma had only mild whereas 66.7% of the patients with mild asthma had moderate air trapping (p=0.07). 41.75 % of those with asthma of greater than 10 years duration had only mild air trapping (p=0.60).

Conclusions:

Abnormal HRCT findings are common in asthma. Air trapping was seen more in males but was not related to the duration or severity of the illness or to the FEV1

Key Words: Asthma; Computed tomography; Kuwait

Funding Agency: None

Medicine

Category: Clinical

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The use of Etoricoxib in patients with bronchial hyper reactivity: Data of 18 patients from a teaching hospital in Kuwait, a pilot study

*Nahar I, Muqim A, El-Ghoutti B, Shehab D, Al-Herz A, Uppal SS, Khoudadah M
Rheumatology Unit, Department of Medicine, Mubarak Al-Kabeer Hospital, Kuwait

Introduction:

Exacerbation of asthma symptoms is a limiting factor for use of NSAIDs in clinical practice . Limited data suggest that Cox-2 inhibitors may be safe in patients with bronchial asthma. We examined clinical and spirometry data of 18 patients with musculoskeletal complaints and history of bronchial hyper reactivity in which a COX-2 inhibitor was administered.

Methods:

Consecutive patients with musculoskeletal complaints and history of bronchial hyper reactivity were assessed for inclusion into the study. All patients had an initial clinical assessment for bronchial asthma by a qualified respirologist and underwent an initial PFT. Only patients with mild to moderate bronchial asthma were included into the study. These patients were given Etoricoxib 90 mg once daily for 14 consecutive days and were re-assessed by a respirologist, clinically and with follow up PFT, at day two and 14. The primary outcome measure was decline in FEV1 at day two and 14 following drug administration. Statistical significance were determined using paired-sample T test.

Results:

Sixteen of 18 patients were included in the study Majority of patients were females (15/16), with an average age of 50 years. Eleven patients had mild asthma (69%) and 5 had moderate persistent asthma. None of the patients were on oral steroids, two patients were on regular inhaled ventolin and five patients were on regular inhaled steroids therapy. No significant difference were found between symptoms at onset, day 2 or day 14 [95% CI(-.0342-.4958); (-.1814-.4890), respectively]. No significant difference in FEV1 predicted were found at study entry , day 2 or day 14 of the study [(95% CI - .852 - .0409); (-.2552-.2892), respectively)].

Conclusions:

In our small number of patients examined in this pilot study, administration of Etoricoxib 90 mg once daily did not result in worsening asthma symptoms nor significant decline of FEV1 in patients with mild to moderate bronchial asthma.

Key Words: Bronchial asthma; Etoricoxib; Bronchial hyper reactivity

Funding Agency: None

Medicine

Category: *Clinical*

76

A study on risk of pulmonary embolism in hospitalized patients

*Khot B, Kodali S, Al-Assousi A, Nasr M

Departments of Medicine and Nuclear Medicine, Al-Jahra Hospital, Kuwait

Introduction:

To study the incidence of pulmonary embolism (PE) in hospitalized patients at Al-Jahra hospital over 1 year and to correlate the clinical presentation with risk factors and results of diagnostic tests used to detect PE.

Methods:

We recruited all hospitalized patients who had a ventilation perfusion lung scan from Jan to Dec 2003. Parameters recorded: Age, sex, risk factors for PE, symptoms, D-dimer level, oxygen saturation, chest X-ray and ECG findings, lower limb doppler, pre and post scan probability of PE and treatment received.

Results:

A total of 43 patients, 31F, 12M were studied. Underlying risk factors: 8 patients >60 years of age with decreased mobility, 16 post-partum, 6 post Caesarian-section, 2 on oral contraceptives, 6 post-trauma or fracture, 1 post-abdominal surgery and 1 with protein S deficiency. Symptoms: Chest pain and dyspnea in 40, palpitations in 35 and hemoptysis in 5. Diagnostic tests: 9 had D-dimer >2000 and 9 had D-dimer between 500-2000. 7 had oxygen saturation <80% on room air. 15 had Q and T wave changes in lead III on ECG, 1 had a new RBBB. 2 had pleural effusion, 4 atelectasis and 4 consolidations on x-ray. Pre and post scan probability: Moderate prescan suspicion in 36 patients, all had a low postscan probability and were not treated. High prescan suspicion in 7, out of which 4 had intermediate post scan probability with -ve lower limb doppler and were not treated, remaining 3 patients had high postscan probability and treated as PE.

Conclusions:

Post-partum state and decreased mobility are the most commonly recognized risk factors for PE. Chest pain dyspnea and palpitations are the most frequent complaints. Q and T changes in lead III are sensitive but not specific for PE. D-dimer levels proved to be neither sensitive nor specific for PE as these were raised in post-partum state and post-trauma as well.

Key Words: *Pulmonary embolism; Ventilation perfusion lung scan; D-dimer level*

Funding Agency: *None*

Medicine

Category: Undergraduate

77: Moderated

Prevalence, awareness, treatment, and control of hypertension among Kuwaitis in Capital and Hawalli governorates

*Hashim A, Malik M, Al-Mahmeed M, Al-Shatti N, Longenecker JC

Department of Community and Behavioral Sciences, Kuwait University, Faculty of Medicine

Introduction:

Objectives: 1.To identifies the prevalence of hypertension among Kuwaiti males and female; 2. to assess the awareness of hypertension among hypertensive participants; 3. to identify blood pressure treatment and control levels among hypertensive participants.

Methods:

This cross-sectional study enrolled 477 Kuwaiti males and females over the age of 20 years, selected randomly from dewaneyas and beauty salons respectively, in Capital and Hawalli governorates. A questionnaire composed of three parts concerning different demographics and health related conditions, blood measuring behavior and questions to be answered only by hypertensive participants was distributed. Blood pressure was measured using a mercurial electronic sphygmomanometer and classified according to JNC VII. Logistic regression was performed to adjust for confounding by age and gender.

Results:

The overall prevalence of hypertension in the study population was 36.5% with a strong positive association with older age (OR=5.9 for those >50 vs. <35yrs) and male gender (OR=6.6; 95%CI, 4.2-10.3). The overall awareness of hypertension among hypertensive participants was 48.9%, with an adjusted OR of 0.2 [0.08, 0.5] for awareness among men vs. women. Awareness was also associated with age (OR=6.4 for those >50 vs. <35 yrs.). We found that 31.6% of all hypertensive participants were using medical treatment; however, only 8.6% of them had their BP controlled.

Conclusions:

These data suggest that the prevalence of hypertension is high in Kuwait and awareness, treatment and control are low, particularly among young males, which confer a significant burden on public health in Kuwait. More effective public health programs and public policies concerning hypertension should be conducted to improve the control of hypertension among hypertensive Kuwaitis.

Key Words: Hypertension; Kuwait; Blood pressure

Funding Agency: None

Accuracy of electrocardiography indices for prediction of life threatening ventricular arrhythmias after acute myocardial infarction

*Hegazy AM, Abderkder BA

Department of Medicine, Non-Invasive Cardiac Laboratory, Farwania Hospital, Kuwait

Introduction:

Heart rate turbulence (HRT) characterizes the early acceleration and later deceleration of sinus rhythm following a ventricular premature complex (VPC). The hypothesis of this study was that the absence HRT is a reliable independent method for detecting the life threatening arrhythmias in the patients with acute myocardial infarction (AMI).

Methods:

Prospective cohort study was conducted between January 2000 and April 2002. Patients and Methods: One hundred and forty patients with AMI and VPCs (130 men and 10 women) were included. Thrombolytic therapy was given for all patients. Electrocardiographic (ECG) was done to analyze the HRT after VPC's and QT dispersion. There were two groups, group I: included 60 patients with LTA and group II: included 80 patients without LTA.

Results:

Stepwise logistic analysis revealed no significant relation between age, gender, left ventricular diastolic dysfunction, frequent VPC's, ventricular couplets and non-sustained ventricular tachycardia and the LTA in patients with AMI (P=NS). There was an agreement between the absence of HRT and the LTA (K=0.82) and between QT dispersion and the LTA (K=0.67). Predictive indices of HRT and QT dispersion for prediction of LTA revealed that the sensitivity was (75% versus 63%), specificity=(75% versus 65%), accuracy =(76% versus 64%), positive predictive value =(42% versus 43%) and negative predictive value =(58% versus 57%), respectively. There was no significant difference in regards of intraobserver and interobserver variability in measurement of HRT and QT dispersion (P=NS). Receiver operating characteristic curve (ROC) of the QT dispersion revealed that 100% sensitivity was associated with 34% error and the ROC curve of the HRT revealed that 100% sensitivity was associated with 30% error.

Conclusions:

Absence of the heart rate turbulence after ventricular premature beats is an independent predictor of the life threatening ventricular arrhythmias after AMI

Key Words: Heart rate turbulence; Acute myocardial infarction

Funding Agency: None

Medicine

Category: Clinical

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Usefulness of pulsed-wave tissue doppler imaging of mitral valve annulus for assessment of hypertensive patients

*Hegazy AM, Abderkder BA

Department of Medicine, Non-Invasive Cardiac Laboratory, Farwania Hospital, Kuwait

Introduction:

The hypothesis of this study considered that tissue Doppler imaging (TDI) of mitral valve annulus (MVA) is a preload-independent tool and a valid technique to assess left ventricular (LV) longitudinal fiber function (shortening and lengthening).

Methods:

Cohort study conducted between March 2001 and March 2004. Patients: We studied 150 hypertensive patients and 50 normotensive subjects. Ambulatory blood pressure monitoring and transthoracic echocardiography with Doppler study was done. All patients underwent treadmill exercise ECG test, but only 62 patients were known to have undergone stress thallium scintigraphy in the course of their clinical management. There were two groups: group I: included 150 hypertensive patients and group II: included 50 normotensive subjects.

Results:

Receiver operating characteristic (ROC) curve data of mitral valve annulus TDI indices in hypertensive patients revealed that the systolic contraction velocity < 8 cm/second was a good indicator to detect the impaired LV longitudinal fiber shortening during systole and the systolic contraction time > 230 second was an indicator for detection of the impaired LV longitudinal fiber lengthening during diastole (sensitivity=84% vs. 87%, false +ve=18% vs. 20%, area under curve=0.837 vs. 0.872 and probability of error= 20% vs. 24%, respectively). There was a significant correlation between ventricular descent phase of M-mode mitral valve annulus (independent variable) and systolic contraction velocity of TDI mitral valve annulus (dependent variable), ($r=0.982$ & $p<0.05$). Stepwise logistic multivariate analysis revealed a significant relation between blood pressure status and left ventricular hypertrophy and impaired LV function in long axis in hypertensive patients ($p<0.05$).

Conclusions:

TDI can be considered a useful marker of impaired left ventricular function in long axis and an indicator of impaired relaxation of the longitudinal fibers of LV in the hypertensive patients.

Key Words: Hypertension; Mitral valve function; Tissue Doppler

Funding Agency: None

Impedance cardiography for V-V interval optimization in patients with Ventricular resynchronization therapy

*Al-Sayegh A¹, Akbar M², Dashti R³, Salman H¹, Khan N¹, Hayat N⁴

¹Departement of Cardiology, Chest diseases hospital, Kuwait; ²Cardiology Unit, Department of Medicine, Sabah Hospital; ³Cardiology Unit, Department of Medicine, Amiri Hospital;

⁴Department of Medicine, Kuwait University, Faculty of Medicine

Introduction:

Cardiac resynchronization improves cardiac function in patients with left ventricular systolic dysfunction and atrio-biventricular desynchrony. In addition to conventional AV time optimization, newer devices allow further programmability of interventricular activation, known as V-V offset time. Objectives: to determine the effect of changing left ventricular to right ventricular (V-V) pacing timing on the cardiac output (CO). Impedance cardiography is a new method that is used to assess cardiac hemodynamic change non-invasively.

Methods:

Fourteen patients were evaluated. They have dilated or ischemic cardiomyopathy, intra-ventricular conduction disturbances and heart failure New York Heart Association functional class III or IV. Mean age is 61 ± 10 years, mean ejection fraction 24%, 12 men. All patients had biventricular pacemaker/defibrillator with programmable V-V interval. The optimal AV delay was estimated and programmed based on transmitral flow pulsed Doppler using the method previously described by Ritter. Subsequently, cardiac output (CO), cardiac index and stroke volume were determined by impedance cardiography for different V-V intervals. CO is estimated, beginning at zero msec V-V intervals, then -20 msec LV to RV, and then -40 msec LV to RV for the same patient. Pacing was maintained for 10 minutes in each pacing mode

Results:

Three patients had maximum CO at zero msec V-V interval, 5 pts at -20 msec V-V interval and 6 pts at -40 msec of V-V interval. This will translate into a mean increment of 0.6 liter/minute (0 - 1.1 l/m) for the whole group with further optimization of V-V interval, equivalent to 25% increase of CO, $p < 0.05$.

Conclusions:

CO with ventricular resynchronization therapy can be further improved and fine-tuned with V-V interval optimization in top of the conventional AV optimization. These assessments can be performed rapidly and non-invasively with the use of impedance cardiography.

Key Words: Cardiac resynchronization; Impedance cardiography

Funding Agency: None

Medicine

Category: Clinical

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Baseline characteristics and clinical outcome in patients undergoing open heart valvular replacement surgery

*Vasundhara G¹, Thomas CS¹, Salama AL¹, Hayat N², Shuhaiber H¹, Khan N¹

¹Cardiology Department, Chest Diseases Hospital, Kuwait; ²Department of Medicine, Kuwait University, Faculty of Medicine

Introduction:

Patients with significant valvular heart disease undergo Open heart surgery and Valve replacement (VR) to relieve symptoms and to improve longevity. We studied baseline characteristics and clinical outcome in patients undergoing VR surgery.

Methods:

Ninety patients admitted for VR surgery were evaluated clinically and by echocardiography. Also clinical outcome and improvement after VR were examined. Data were entered using SPSS 12 statistical program and analyzed.

Results:

Ninety patients aged 30 to 73 (mean 52.3) years were studied. There were 61 (67.8%) males and 29 (32.2%) females. 72 (80%) were Arab nationals and 18 (20%) were from the Indian subcontinent. Aortic valve was replaced in 52.2% and Mitral Valve in 33.3%. Both were replaced in 14.5%. Associated bypass grafting (CABG) was done in 30%. Breathlessness was the main complaint in 70 patients (77.8%) with about half being in class II and the rest being in class III or IV. In 63.3% symptom class improved by 2 classes post operatively (POP). Chronic atrial fibrillation (AF) was seen in 17 (18.9%) and two patients developed AF POP. Left Ventricle (LV) was dilated in 60% and was so only in 28.8% POP. Perioperative mortality was very low (1.1%).

Conclusions:

Breathlessness was the most common symptom in patients undergoing VR and was significantly relieved by VR. LV dilatation was also normalized after VR. 30% needed associated CABG. These improvements were achieved with a very low mortality.

Key Words: Valvular heart disease; Valve surgery

Funding Agency: None

The usefulness of coronary angiography in patients with significant Symptoms following coronary artery bypass grafting

Shukkur AM¹, Thomas CS¹, Hayat N², Khan N¹, Koshy T¹

¹Department of Cardiology, Chest Diseases Hospital, Ministry of Health; ² Faculty of Medicine, Kuwait University

Introduction:

To evaluate the angiographic findings and outcome in status post coronary artery bypass graft surgery patients undergoing coronary angiography. CABG is the surgical method of revascularization in patients with coronary artery disease. However even after CABG patients can become symptomatic due to occlusion of grafts or due to new significant lesions. Coronary angiography is the gold standard method in evaluating graft patency in post CABG patients who present with significant symptoms.

Methods:

Fifty three post CABG patients who underwent coronary angiography in 2004 were studied. Coronary angiogram was performed using the standard protocol. Angiograms were analyzed in multiple views and results were analyzed using SPSS, version 12.0.

Results:

There were 47 males (88.7%) and six females (11.3%) and the mean age was 58 + 10.28. Baseline characteristics were studied. Dyslipidemia was found in 45 patients (85%), hypertension and diabetes mellitus were noticed in 35 patients (66%) and 33 patients (62.3%) respectively. Most of the patients were ex-smokers. Exercise ECG test and nuclear stress Myocardial Perfusion were done in 11.4% and 22.7% respectively. There were 25 patients (47.2%) with acute coronary syndrome whereas remaining presented with grade II dyspnoea. The mean duration between CABG and angiogram was 5.77 + 4.61 years. Thirteen patients had CABG within the previous one year. Twenty six patients (49.4%) underwent PTCA with stenting and six patients had redo CABG and 21 patients (39.6%) continued medical treatment.

Conclusions:

Major proportion of status CABG patients who had coronary angiogram were candidates for PTCA, whereas a small percentage were subjected to redo CABG and high percentage of patients were continued on medical treatment.

Key Words: *Coronary angiogram; Post coronary artery bypass graft surgery; Acute coronary Funding Agency: None*

Angiographic evaluation of Coronary artery disease in patients Undergoing open heart valve surgery

*Thomas CS¹, Vasundhara G¹, Habashy A¹, Hayat N², Khan N¹

¹Cardiology Department, Chest Diseases Hospital, Kuwait; ²Department of Medicine,
Kuwait University, Faculty of Medicine

Introduction:

Patients undergoing valve surgery are evaluated with coronary angiography when they fall in the age group susceptible for coronary artery disease. We wanted to study the prevalence of coronary artery disease in patients undergoing valve surgery.

Methods:

Ninety patients admitted for valve surgery underwent coronary angiogram using the routine femoral approach. Data were entered using SPSS 12 statistical program and analyzed.

Results:

90 patients aged 30 to 73 (mean 52.3) years were studied. There were 61 (67.8%) males and 29 (32.2%) females. 72 (80%) were Arab nationals and 18(20%) were from the Indian subcontinent. 20 patients(22.2%) were diabetics and 30 (33.3%) were hypertensives. 36 (40%) patients had history of smoking. Mean Cholesterol was 4.37 mmol/L (± 1.39); LDL Cholesterol was 3.1 (± 1.15); HDL Cholesterol was 0.98 (± 0.27) and Triglyceride was 1.44 (± 0.95). Twenty five (27.8%) had exertional chest pain. Significant aortic stenosis by cardiac catheterization was seen in 39 (43.33%) patients. Coronary artery disease is said to be significant when the lesions are \geq to 50%. Out of 90 patients, 54(60%) had normal coronaries. Nine patients (10%) had coronary artery lesions of $<$ 50% severity. Significant coronary artery disease was seen in 27 patients (30%). single vessel disease was seen in 12(13.3%); two vessel disease in 18(20%) and three vessel disease in 5(5.6%).

Conclusions:

In Patients undergoing open heart valve surgery, about 30% have significant coronary artery disease requiring associated Coronary Artery Bypass Graft Surgery.

Key Words: *Coronary artery disease; Valvular heart disease; Valve surgery*

Funding Agency: *None*

Prognostic value of myocardial perfusion SPECT in hypertensive Patients with left ventricular hypertrophy and a positive treadmill Exercise test

*Salman H, Khan N, Biswas G, Mohanadi S, Shukur M, Koshy T
Nuclear Cardiology Unit Dept of Cardiology Chest Hospital Kuwait

Introduction:

Left ventricular hypertrophy (LVH) is an independent risk factor for mortality and morbidity in hypertensive (HTN) patients (pts). Myocardial perfusion SPECT (MPS) is more accurate than plain treadmill test (ETT) in evaluating such pts for suspected coronary artery disease (CAD) and predicting future cardiac events. Our aim was to assess the prognostic value of MPS in HTN pts with electrocardiographic signs of LVH.

Methods:

We studied 40 consecutive pts (21 men 19 women, mean age 53 yrs) referred for evaluation of chest pain. Pts with unstable angina or bundle branch block were not enrolled. All 40 pts had long standing controlled arterial HTN and none of them had suffered any cardiac event or stroke. In all pts there was evidence of LVH on resting ECG. MPS was done using Tc 99m tetrofosmin. Coronary angiography, whenever indicated, was done within 3 weeks of MPS. Mean follow-up was 22 months.

Results:

All 40 pts had ST segment depression in the inferolateral leads during plain ETT. When these pts underwent MPS, ST depression was seen also in the same ECG leads but none of the pts had chest pain and scintigraphy did not reveal any reversible (ischemia) or fixed (scar) defect. 14 pts underwent a diagnostic coronary angiography which revealed normal coronary arteries and LVH with diastolic dysfunction due to long standing HTN. During follow-up, none of the 40 pts suffered an acute coronary event or cardiac death.

Conclusions:

MPS is more accurate than plain ETT in HTN pts with LVH. It also has a powerful predictive value in the long term follow-up of these pts. Pts with a normal MPS have a low risk for cardiac death or myocardial infarction; therefore they do not necessarily require invasive evaluation for CAD.

Key Words: *Arterial hypertension; Myocardial perfusion; Prognosis*

Funding Agency: *None*

Burden of clinically-apparent cardiovascular disease at initiation of dialysis

*Longenecker JC^{1,2}, Klag MJ¹, Powe NR¹, Fink NE¹, Levey AS⁴, Coresh J¹

¹ Johns Hopkins University, Baltimore, MD; ²Current affiliation: Kuwait University, Kuwait; ³Northwest Lipid Research Laboratories, University of Washington, Seattle, WA; ⁴New England Medical Center, Boston, MA

Introduction:

Atherosclerotic cardiovascular disease [ASCVD] is highly prevalent among dialysis patients. However, the epidemiology of ASCVD and its associated factors has not been extensively studied in the incident dialysis population. The aim of this study is to identify the factors cross-sectionally associated with ASCVD at the beginning of dialysis.

Methods:

This cross-sectional study enrolled 1038 incident dialysis patients in 19 states across the USA. ASCVD was ascertained by medical record review. Coronary heart disease (CHD) was defined as a history of MI, CABG, PTCA, or angina. Cerebrovascular disease (CrVD) was defined as a history of stroke, carotid endarterectomy, or repeated TIA's. Peripheral vascular disease (PVD) was defined as intermittent claudication, AAA, amputation, or peripheral bypass graft. Major CVD was defined as a history of myocardial infarction, CABG, PTCA, stroke or amputation. Cholesterol, albumin, and C-reactive protein were measured

Results:

Prevalence rates included: ASCVD, 57% [95% C.I.; 54, 60]; major ASCVD 44% [41, 47]; any CHD, 44% [41, 47]; myocardial infarction, 21% [18, 23]; any CrVD 17% [15, 19]; stroke, 11% [9,13]; any PVD, 26% [23, 29]; any amputation, 7.9% [6.3, 9.5]. The prevalence of major ASCVD was 55% among diabetics, and 32% among non-diabetics ($p<0.0005$). Six percent of the study population had all three systems affected (CHD, CrVD, and PVD). In a logistic regression model of major ASCVD, older age (OR 1.6 for +10 years; $p<0.0005$), male gender (OR, 1.9; $p<0.0005$), diabetes (OR, 2.9; $p<0.0005$), white race (OR, 1.3; $p<0.05$), and C-reactive protein (OR, 2.5 for 4th vs. 1st quartile; $p<0.001$) were all associated with major ASCVD, but dialysis modality, smoking, cholesterol, and albumin level were not.

Conclusions:

ASCVD is highly prevalent among incident dialysis patients, and is cross-sectionally associated with older age, male gender, diabetes, white race, and C-reactive protein level.

Key Words: Atherosclerotic cardiovascular disease; Dialysis; Prevalence

Funding Agency: None

Medicine

Category: Clinical

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Baseline renal functions in patients admitted for angiography

*Ravichandran N, Thomas CS, Shukkur M, Khan N
Cardiology Department, Chest Diseases Hospital, Kuwait

Introduction:

Assessment of baseline renal function (BRFN) is important in patients undergoing angiography(ANG). Contrast Induced Nephropathy(CIN) is more frequent in those with abnormal BRFN and can be reduced by taking precautionary measures.

Methods:

One hundred and sixty six patients admitted for ANG were studied. Baseline clinical data and Biochemical parameters were collected. Glomerular Filtration Rate (GFR) was calculated using the Cockcroft-Gault equation. Data were entered using SPSS 12 statistical program and analyzed.

Results:

166 Patients with a mean age of 56.33 years (19-87) were studied. There were 120 (72.3%) males and 46 (27.7%) females. Majority (88.6%) was Arab nationals and the rest were from the Indian sub continent. There was very high prevalence of Hypertension (72.9%) and Diabetes (61.4%).75.3% were on ACE Inhibitors and 34.9% were on diuretics. Baseline serum creatinine was abnormal in 28 (16.9%) and the BUN in 73 (44%). On the basis of GFR 81/166 (48.8%) were found to have deranged BRFN.

Conclusions:

In patients admitted for ANG there is a very high prevalence of abnormal BRFN. This calls for extra care in the management and follow up of the high risk patients. They need adequate preparation prior to ANG. During ANG contrast quantity is limited to the bare minimum. Also they should receive adequate hydration pre and post procedure. Care is also needed in following the post procedure renal functions.

Key Words: Renal dysfunction; Angiography; Contrast induced nephropathy

Funding Agency: None

Medicine

Category: Clinical

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Clinical course and therapy of IgA nephropathy- a single centre experience

*Ninan VT¹, Nampoory MRN^{1,2}, Gupta RK¹, Costandy JN¹, Rizk AM¹, Mikhael MMS¹, Hamood H¹, Al-Hilali N¹, Al-Ali J¹

¹Department of Medicine, Mubarak Al Kabir Hospital, Kuwait; ²Department of Medicine, Faculty of Medicine, Kuwait University

Introduction:

Information regarding the clinical course and progression of IgA Nephropathy in the Middle East area is limited and optimal therapy is debated. Hence we analyzed the experience with IgA nephropathy in our renal unit.

Methods:

Patients under care of the nephrology department of the Mubarak Al Kabir hospital, with biopsy proven IgA nephropathy over a ten year period from 1994 to 2004, and whose files with adequate follow up notes for at least six months were available, were the subjects of the study. Data from these files was collected and analyzed regarding presentation, course and response to therapy.

Results:

There were 29 patients included in the study. The age ranged from 15 to 62 years (mean age 35 years). 17(58.6%) were females and 18(62.1%) were Kuwaiti nationals. Follow up period ranged from 6 months to 90 months with a mean follow up period of 39.8 months. 12 patients(41%) had only asymptomatic urinary abnormalities at presentation. 7(24.1%) had renal impairment at presentation. 18(62.1%) received treatment with a combination of prednisolone, angiotensin converting enzyme inhibitor(ACEI) and/or ACE receptor blocker, and omega-3 marine triglycerides (maxepa). All patients on this regime had reduction of proteinuria and all except one maintained serum creatinine at around the baseline level. From the entire group, two patients who did not return for follow up after an initial period, progressed to end stage renal failure in about sixty months.

Conclusions:

IgA nephropathy presents as asymptomatic urinary abnormalities in a large number of patients with this disease in our area. A combination of prednisolone, ACEI and Maxepa appears to control progression of this glomerular disease in nearly all the patients treated with this regimen. Controlled studies are required to confirm this observation.

Key Words: IgA nephropathy; Clinical course; Therapy

Funding Agency: None

Medicine

Category: Clinical

88: Moderated

Does parathyroid hormone affect erythropoietin therapy in dialysis patients?

*Al-Hilali N¹, Ninan VT¹, Al-Humoud H^{1,2}, Puliyclil MA², Ali JH¹, Naem MM¹

¹Department of Medicine, Mubarak Al-kabeer Hospital; ²Faculty of Medicine, Kuwait University, Kuwait

Introduction:

Impact of parathyroid hormone (iPTH) on the responsiveness to recombinant human erythropoietin (rHuEPO) in dialysis patients is still under debate. We assessed the response to rHuEPO in dialysis patients with hyperparathyroidism and relative hypoparathyroidism.

Methods:

Patients on dialysis therapy for at least six months were selected for this study. Anemia of was treated by rHuEPO. Laboratory data for each patient included hematocrit, blood urea nitrogen, serum creatinine, corrected serum calcium, serum phosphate, and alkaline phosphatase. iPTH of <16 pmol/L was considered as relatively low (group 1), the range of target iPTH between 16-32 pmol/L (group 2) while iPTH > 32 pmol/L was considered high (group3). We expressed erythropoietin resistance index (ERI) as weekly erythropoietin/hematocrit ratio.

Results:

The study included 118 patients, 83 (70.3%) were on hemodialysis (HD) and 35 (29.7%) on continuous ambulatory peritoneal dialysis (CAPD). Hematocrit correlated negatively with serum iPTH levels in both HD and CAPD. Weekly rHuEPO dose correlated positively with serum iPTH ($R^2= 0.003$, $P= 0.82$ vs. $R^2 = 0.231$, $P =0.83$). Weekly rHuEPO dose in HD (8955 ± 2 units) was significantly higher in comparison to CAPD (6245 ± 2 units) $P<0.0001$. The overall ERI was significantly lower ($p=0.004$) in CAPD (188.89 ± 1.96) than in HD patients (279.08 ± 1.95). ERI was significantly lower ($p=0.046$) in CAPD (171.50 ± 1.63) than in hemodialysis patients (296.31 ± 1.58) in group 1. Furthermore ERI significantly lower ($p=0.012$) in CAPD (188.89 ± 1.96) than in HD was not significant in group 3.

Conclusions:

CAPD patients showed a reduced rHuEPO requirement than HD patients. ERI is lower in CAPD than in HD patients in controlled and relative hypoparathyroidism. Hyperparathyroidism is a predictor of rHuEPO hyporesponsiveness in chronic dialysis patients

Key Words: Parathyroid hormone; Erythropoietin; Dialysis;

Funding Agency: None

Medicine

Category: Clinical

89: Moderated

Early acute rejection episodes in renal transplantation in relation to Immunosuppression protocols – An audit of 100 cases

*Nair MP¹, Said T¹, Halim MA¹, Mansour M¹, Johny KV², Samhan M¹, Al-Mousawi M¹

¹Hamad Al Essa Organ Transplant Centre, Kuwait; ²Department of Medicine, Faculty of Medicine, Kuwait University, Kuwait

Introduction:

Early episodes of acute rejection (AR) have deleterious effects in the graft outcome and the incidence in the first three months is reported to be less than 20%. An audit of AR episodes was conducted in our unit recently since we found our rates to be on the higher side (30%)

Methods:

Consecutive cases of 100 renal transplants done in our unit over a period of 18 months were selected for the audit. Details of type of donor, induction therapy, immunosuppression (IS) medications, drug levels, HLA mismatches, episodes of acute tubular necrosis (ATN) and delayed graft function (DGF), AR episodes and it's response to therapy were all retrospectively collected from the hospital records. The AR rates were correlated with IS protocols, drug levels, HLA mismatches, DGF and type of donor.

Results:

30 rejection episodes occurred after a mean period of 14.3 days after transplantation. IS drugs used included cyclosporin, mycophenolate, sirolimus, azathioprine and prednisolone. There was no significant difference in AR episodes amongst different IS protocols (30.7 – 35.2%). Subjects with 4 or more HLA mismatches had higher episode of AR (40.3%) compared to those with 3 or less (23%). Subjects with ATN or DGF immediately post transplant had a higher incidence of AR (39.2%) than those who did not have them (26.3%) Cadaver donor recipients had a higher episode of AR (45.1%) compared to live related donor recipients (25%).Subjects who failed to achieve adequate cyclosporin (C2) levels had significantly high rates of AR (86.9%) compared to those with adequate or higher levels (8.6%).

Conclusions:

Higher HLA mismatches, DGF, cadaver donor and failure to achieve adequate cyclosporin levels were found to be the major risk factors for the development of AR in this audit.

Key Words: *Acute rejection; Immunosuppression; Renal Transplant*

Funding Agency: *None*

Medicine

Category: Clinical

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Early acute rejection episodes in renal transplantation on modified immunosuppression – A prospective study.

*Nair MP¹, Johny KV², Said T¹, Halim MA¹, Mansour M¹, Samhan M¹, Al-Mousawi M¹

¹ Hamad Al Essa, Organ Transplant Centre, Kuwait. ² Department of Medicine, Faculty of Medicine, Kuwait University, Kuwait.

Introduction:

An audit conducted in our unit on renal transplant recipients (RTR) revealed a higher rate (30%) of acute rejection (AR) episodes. Subsequently we conducted a prospective study with a modified immunosuppression (IS) protocol for RTR and the results are presented here.

Methods:

75 renal transplants performed over 8 months following the audit were prospectively studied on a new IS regime of a) prednisolone 1.5mg/Kg/day initially and then gradually tapered, b) mycophenolate mofetil(MMF)1gm twice daily from 3 days pretransplant, c) alternate patients started on cyclosporin(CyA)or tacrolimus one day pretransplant,as compared to the previous ISprotocol of prednisolone 1 mg/kg/day,MMF 1gm twice daily from 2 days pretransplant and all subjects on CyA one day pretransplant. Adequate blood levels of CyA(C2) and tacrolimus were maintained and AR episodes were documented and treated as per standard protocol.

Results:

7 episodes of AR occurred in a total of 75 RTR (9.3%)in the first 3 months post transplant. There was no significant difference in AR episodes between subjects who received CyA (6.25%) and those who received tacrolimus(8.3%).Cadaver donor recipients had a higher rate of AR (19%) compared to live donor recipients(7.3%) and subjects with 4 or more HLA mismatches showed a higher AR rate (13.4%) compared to those with less mismatches (4.1%). Pediatric recipients had higher AR rates (30.7%) compared to adult recipients (6.3%). All subjects achieved adequate CyA (C2) and tacrolimus blood levels.

Conclusions:

There was a significant reduction in AR rates with the modified IS protocol (9.3%). Higher dose of steroids, earlier adequate levels of MMF and adequate CyA and tacrolimus levels reduced the rates of AR. Higher HLA mismatches, cadaver donors and pediatric recipients had higher AR episodes.

Key Words: Renal transplant; Immunosuppression; Acute rejection;

Funding Agency: None

BK virus nephropathy in renal transplant recipients in Kuwait

*Nampoory MRN², Johnny KV¹, Nair MP², Said T², Francis I¹, Samhan M²,
Mousawi M², Dalwai A³, Khalil D³, Pacsa AS³, Szucs G³, Al-Nakib W³

¹ Department of Medicine, Faculty of Medicine, Kuwait University, ² Hamad Al Essa Organ Transplant Center, Ministry of Health, Kuwait, ³ Department of Microbiology, Faculty of Medicine, Kuwait University.

Introduction:

BK virus nephropathy (BKVN) is now known as a significant graft loss in renal transplant recipients (RTR). According to reports its incidence varies considerably. As yet there are no data for BKVN from any Middle East countries. We investigated the impact of BK virus on the impairment of graft function in a selected group of RTR amongst 670 patients on follow-up in the OTC.

Methods:

In this part of the study 42 selected RTR were followed-up for 5-8 months after transplantation. Depending on the source of donor kidney and HLA matching, patients had received induction and maintenance immunosuppression with ATG/IL2R antibodies and with Cyclosporin/Prograf, MMF/Sirolimus plus steroid respectively. Urine and blood samples from the RTR were investigated for the presence of polyomaviruses (BK and JC) by a nested version of PCR assay. First detection of the viral genome was related to the date of transplantation and renal function.

Results:

BKV was detected in the urine of 19 (45%) and in the blood of 11 (26.1%) RTR. JCV was found only in the blood of one of the patients. Neither of the 8 BKV uremic RTR nor the one with JCV viremia had any evidence for BKVN. On the other hand, of the 11 RTR with BKV viremia, 8 had histologically proven BKVN at the time of diagnosis while the other 3 patients developed nephropathy subsequently. All of the 11 viremic patients with BKVN have received MMF as common component of immunosuppressive therapy.

Conclusions:

Results show that BKVN is strongly associated with 2 factors; BKV viremia and the use of MMF as immunosuppressive agent. The established PCR assay seems to be a useful diagnostic tool in the management of BKVN.

Key Words: BK virus; Nephropathy; Renal transplant; t

Funding Agency: Funding Agency: Office of the Vice-Rector for Research

Medicine

Category: Clinical

92

Outcome of BK virus nephropathy in renal transplant recipients

*Nampoory MRN², Johnny KV¹, Halim MA², Nair MP², Said T², Francis I², Mousawi M², Pacsa AS³, Al-Nakib W³

¹ Department of Medicine, Faculty of Medicine, Kuwait University, ² Hamad Al-Essa Organ Transplant Center, Ministry of Health, Kuwait, ³ Department of Microbiology, Faculty of Medicine, Kuwait University

Introduction:

According to recent reports BK virus nephropathy (BKVN) varies from 3% to 9% depending on the study population. Treatment and outcome of BKVN are also reported to vary. In this study we investigated the effect of immunosuppressive therapy on the outcome of BKVN.

Methods:

Of 670 renal transplant recipients (RTR) being on regular follow up, 42 were suspected to have BK virus (BKV) infection on clinical ground. Serial blood and urine samples of these RTR were investigated for the presence of BKV genome by a PCR assay. Patients with BKV viremia were monitored for graft function (by serum creatinine level), signs of nephropathy (by histology) and the presence of the BKV in the blood by PCR. They were treated by reducing the doses of immunosuppressive drugs. Initially there was a 50% reduction and then immunosuppressive treatment was adjusted according to renal function.

Results:

BKVN developed from 2 to 44 months after transplantation in all of the 11 patients with BKV viremia. The average level of serum creatinine at the time of diagnosing BKVN was 160 µmol/l. Of the 11 RTR, 8 were followed for a period of 12 to 26 months. Three patients were lost to follow-up due to various reasons (pyelonephritis, non-compliance, leaving the country). At the end of the follow-up period, the level of serum creatinine was reduced to an average of 110 µmol/l showing an improvement in graft function. None of the 8 patients lost their grafts due to BKVN.

Conclusions:

Monitoring the presence of BKV in the blood of RTR by PCR is essential in the diagnosis and management of BKVN. BKVN can be successfully managed by reduction of immunosuppression.

Key Words: BK virus; Nephropathy; Immunosuppression;

Funding Agency: Office of the Vice-Rector for Research

Medicine

Category: Clinical

93: Moderated

Pathophysiology of neuroendocrine dysfunction in polycystic ovary syndrome

*Doi SA¹, Al-Zaid M², Towers PA³, Scott CJ³, Al-Shoumer KAS¹

¹Department of Medicine, Mubarak al-Kabeer Hospital & Kuwait University, Faculty of Medicine, Kuwait; ²Biochemistry (Radioimmunoassay) Laboratory, Mubarak Al-Kabeer Hospital, Kuwait; ³School of Biomedical Sciences, Charles Sturt University, Australia

Introduction:

Neuroendocrine dysfunction in PCOS was addressed by studying the steroid hormone changes in women with PCOS with either high or normal LH levels leading to inferences regarding the primacy of elevated LH in the pathophysiology of PCOS.

Methods:

A prospective case-control study was designed at Mubarak Al-Kabeer Teaching Hospital involving 234 women with PCOS. Patients were divided into two groups based on an LH/FSH ratio less than or greater than 1 and hormonal and metabolic studies were performed in both groups. Factors were determined by binomial logistic regression that predicted group membership of these women.

Results:

Higher follicular phase estradiol (E2) and androstenedione (A4) levels as well as greater insulin sensitivity were the only factors that predicted the presence of neuroendocrine dysfunction with elevated A4 being necessary for neuroendocrine dysfunction.

Conclusions:

It was concluded that uncoupling of hypothalamic E2 inhibition by elevated ovarian A4 associated with E2 related sensitization of pituitary LH leads to neuroendocrine dysfunction in PCOS.

Key Words: Polycystic ovary syndrome; Neuroendocrine; Steroid hormones;

Funding Agency: None

Medicine

Category: Clinical

94: Moderated

Improving the process of diabetes care at primary health care setting by a National Diabetes Care Programme

*Al-Adsani AMS¹, Al-Faraj J², Al-Sultan F³, El-Feky M⁴, Al-Mezel N⁵, Saba W⁶

¹Diabetes Unit, Department of Medicine, Al-Sabah Hospital, ²Al-Nuzha Clinic, ³South Hawalli Clinic, ⁴Al-Reqqa Clinic, ⁵Al-Rabiya Clinic, ⁶Al-Sulaibiya Clinic

Introduction:

Kuwait Diabetes Care Programme was established in order to improve the quality of care provided for diabetic patients at the Primary Health Care setting throughout Kuwait.

Methods:

The main strategies developed to achieve this goal were (i) development of clinical practice guidelines for diabetes care, (ii) development of standards for diabetes care, (iii) conducting training courses, and (iv) monitoring and evaluation system. Four cycles of audits were performed to evaluate the impact of KDCP on the structure and process of diabetes care over a period of 3 years.

Results:

There was significant improvement in the process of diabetes care. The prevalence of smoking assessment increased significantly from 2.8 % to 27.2 % ($p < 0.001$); the prevalence of conducting fundus and foot examination increased significantly from 2.4 % to 31.6% ($p < 0.001$); and from 0.4 % to 40.4 % ($p < 0.001$) respectively; the prevalence of urinary microalbumin determination increased significantly from 4.4 % to 26.4 % ($p < 0.001$); the prevalence of measuring serum creatinine and HbA1c values increased significantly from 16 % to 78.4 % ($p < 0.001$); and from 10.4 % to 60.8 % ($p < 0.001$) respectively; the prevalence of measuring serum total cholesterol, triglycerides, HDL-C, and LDL-C increased significantly from 16.4 % to 80 % ($p < 0.001$); from 14.4 % to 80 % ($p < 0.001$); from 2.4 % to 32.8 % ($p < 0.001$); and from 2.4 % to 24 % ($p < 0.001$) respectively. Lack of specialized diabetes care team, lack of policy for appointment system, non-improvements in the adherence of patients to their appointment, and lack of patients' education programmes were the main deficiencies.

Conclusions:

A national diabetes care programme was associated with improved processes of diabetes care. Support from health authorities, provision of manpower resources, continuous monitoring and evaluation system, conduction of structured education programmes are crucial to further improve the quality of diabetes care.

Key Words: *Diabetes; Quality; Kuwait;*

Funding Agency: *None*

Medicine

Category: Clinical

95

Usefulness of measurement of diabetic control index as a point of care

Al-Ansari S, Alansari S

Clinical Biochemistry Department/Armed Forces Hospital

Introduction:

Many countries have difficulty in shifting the balance of care to cover patients with chronic conditions such as diabetes since it requires life long care; instead they usually manage symptoms only when they occur leading to higher mortality and morbidity. Worldwide, there is now conclusive evidence that good control of blood glucose levels can substantially reduce the risk of developing complications and slow their progression in all types of diabetes; however, such measure could be time consuming and increase economic burden on health care. In Kuwait many laboratories realized the need for simple test and therefore improved their diabetic control index or glycated haemoglobin (HbA1c) test inside diabetic clinics, the result of such improvement, however, remains a matter of population characteristics studied and methodology.

Methods:

A population of 753 diabetic patients admitted to clinical biochemistry laboratory from Septmeber/2002- January/2005 for measurement of HbA1c using point of care DCA 2000 analyzer platform (Bayer diagnostics), after being assigned by their medical practitioner were studied.

Results:

Daily controls showed normal mean 5.7% and abnormal mean 10.6% with a median HbA1c of 7.8% (I.Q.R 6.5%-9.4%) for the whole population. When the samples were divided according to the sex of the patients (546 males, 207 females), a significant difference (difference – 0.4; p = 0.02, Mann-Whitney) was found between males (median 7.7%, I.Q.R 5%-9.3%) and females (median 8%, I.Q.R 6.5%-10.4%). Similarly, a significant difference (Chi square test 16.1; p < 0.001) was obtained when the patients were divided into two groups (Hb A1c < 10.6 % median 7.4%; I.Q.R 6.3%-8.8%, Hb A1c > 10.6% median 11.95%; I.Q.R 11.5%-12.2%) according to the level of HbA1c with 71.1% of the males occupying the high level group.

Conclusions:

Measurement of HbA1c as a point of care test could be of use in reducing the risk and managing complications

Key Words: Diabetic control index; Point of care; Complications;

Funding Agency: None

Medicine

Category: Clinical

96: Moderated

Resistin increases the susceptibility to coronary heart disease in Kuwaiti subjects with type 2 diabetes.

*Abdella NA¹, Mojiminiyi OA², Al-Dahi WA³, Al-Mohammed H³, Al-Jebely S³, George S², Pinto C¹, Mathew R²

¹Department of Medicine, Kuwait University, Faculty of Medicine; ²Department Pathology, Kuwait university, Faculty of Medicine ; ³Ministry of Health, Kuwait.

Introduction:

Obesity, which is associated with hyperinsulinemia, insulin resistance, hyperglycemia, hypertension and dyslipidemia, is a strong risk factor for Type 2 diabetes and coronary heart disease(CHD) but the underlying molecular mechanisms have yet to be fully elucidated. Adipocytokines such as resistin are thought to play an important role. This study evaluates the relationship of obesity, resistin, leptin, insulin resistance (homeostasis model assessment ratio (HOMA-R) formula derived from fasting insulin and glucose levels) and their associations with CHD risk factors in type 2 diabetic patients.

Methods:

Fasting resistin, leptin, insulin, glucose, HbA1c and full lipid profile were determined in 141 Type 2 diabetic patients. Patients were classified into those with CHD (n = 55) and patients without CHD (n = 86). Univariate regression and multivariate logistic regression analyses were used to relate these markers with indices of obesity, diabetic control and traditional CHD risk factors.

Results:

Resistin showed significant ($p < 0.01$) correlations with BMI ($r = 0.60$), waist circumference ($r = 0.48$), fasting insulin ($r = 0.45$), HOMA-R ($r = 0.27$); leptin ($r = 0.38$); HDL-cholesterol ($r = -0.17$); Apolipoprotein A1 ($r = -0.19$); Triglycerides ($r = 0.19$) and Apolipoprotein B ($r = 0.20$) but showed no significant correlation with systolic and diastolic blood pressures, HbA1c, age and duration of diabetes. When patients with and without CHD were compared, resistin was significantly higher in females with CHD only. When the confounding effects of traditional CHD risk factors were fixed using multiple logistic regression, resistin was not independently associated with CHD (Odds ratio = 1.05; 95% CI = 0.98 to 1.10; $p = 0.08$).

Conclusions:

We conclude that resistin is significantly associated with indices of obesity, insulin resistance and CHD risk factors and this association might contribute to the increased susceptibility to CHD seen in patients with Type 2 diabetes.

Key Words: Resistin; Coronary heart disease; Diabetes;

Funding Agency: None

Medicine

Category: Clinical

97: Moderated

New markers for disease activity in hyperthyroidism

Al-Shoumer KAS*, Vasanthy BA, Al-Zaid M.

Division of Endocrinology and Metabolic Medicine, Department of Medicine, Mubarak Al-Kabeer Hospital and Faculty of Medicine, Kuwait University, Kuwait

Introduction:

Data on components of insulin-like growth factor axis in patients with hyperthyroidism are not well investigated. We have therefore evaluated the changes in Acid-Labile Subunit (ALS) and insulin-like growth factor 1 (IGF-1) in hyperthyroid patients, before and after medical therapy, and compared them with those of controls.

Methods:

Hyperthyroid patients due to Graves' disease (n = 29) matched with normal controls (n = 32) for age, sex and body mass index were studied. Subjects were assessed after 12 hours of overnight fasting and the patients were then studied again, 6 months later, after they had become euthyroid with antithyroid drugs (carbimazole). Blood was collected for the measurement of thyroid function, ALS (ELISA) and IGF-1 (RIA).

Results:

Untreated patients with hyperthyroidism had significantly lower level of ALS (mean±SEM, patients versus controls: 15.9±1.5 vs. 20.0±0.7 ?g/ml, p = 0.012) and IGF-1 (16.7±2.4 vs. 28.9±2.3 ng/ml, p = 0.007) than controls. Within the patients, ALS (20.1±1.8 ?g/ml, p = 0.006, compared with pre-treatment level) and IGF-1 (25.8±4.2 ng/ml, p = 0.046, compared with pre-treatment level) increased significantly after therapy with antithyroid drugs to similar values of controls. ALS (rho = -0.36, p = 0.05) and IGF-1 (rho = -0.66, p = 0.001) levels demonstrated a strong negative relation with free T3, and only IGF-1 was correlated negatively with free T4 (rho = -0.56, p = 0.005).

Conclusions:

ALS and IGF-1 levels are low in untreated hyperthyroidism due to Graves' disease. Both have increased to normal levels after 6 months of medical treatment of hyperthyroidism. Reduced ALS and IGF-1 could be used as potential markers of active hyperthyroidism.

Key Words: Acid-Labile Subunit (ALS); Insulin-like growth factor 1 (IGF-1); Hyperthyroidism;
Funding Agency: None

Medicine

Category: Clinical

98

The clinical and immunological features in 10 Arabs with systemic sclerosis.

Al-Salem IH

Rheumatology Unit, Medical Department, Amiri Hospital , Kuwait.

Introduction:

Scleroderma is an uncommon autoimmune disease of significant morbidity and mortality. Variation in clinical and immunological features of the disease had been reported among some ethnic groups but not in Arabs. The aim of this study is to describe this disease in Arab patients and compare it with other ethnic groups to see the influence of genetic factors on such a disease.

Methods:

The study was conducted on patients with systemic sclerosis who were followed in the Rheumatology Unit of Al-Amiri Hospital, one of the main teaching hospitals in Kuwait. Ten patients were included in the study. They were 8 females and two males. The mean age at disease onset was 37 years for the whole study group, 31 years for females and 38.5 years for males.

Results:

Half of the patients had the diffuse variety of the disease, and the remaining half had the limited variety. Nine patients had involvement of their lungs in the form of either interstitial lung disease or pulmonary vascular hypertension. Only one patient had myocarditis with no cardiomyopathy or conduction defects in the rest. All patients had gastroesophageal reflux disease. Mild proteinuria was reported in two patients with no significant impairment of renal function. Immunologically, the following antibodies were detected in the following frequencies: Antitopoisomerase antibodies known as scl 70 were present in 8 patients. ANA was positive in 9 patients. Anticentromere was present in 6 patients and was not available in the rest. Lupus anticoagulant was detected in 2 patients with absent anticardiolipin antibodies.

Conclusions:

Conclusion: The clinical features of scleroderma in our patients were similar to those reported in the literature but there was a higher frequency of Scl 70 antibody in our patients (80%) compared with 26% in Americans and white Australians.

Key Words: Ethnicity; Antitopoisomerase antibody(scl70); Lupus anticoagulant.;

Funding Agency: None

Medicine

Category: Clinical

99: Moderated

Pro-inflammatory cytokines profile in Lupus patients with Pulmonary involvement

*Al-Mutairi SS¹, Al-Awadi AM¹, Raghupathy R¹, Al-Khawari H¹, Sada P², Al-Herz A², Raoot PA¹

¹Department of Medicine, Kuwait University Faculty of Medicine; ¹Department of Medicine, Kuwait University Faculty of Medicine; ¹Department of Microbiology, Kuwait University Faculty of Medicine; ¹Department of Radiology, Kuwait University Faculty of Medicine; ²Ministry of Health Amiri Hospital Department of Radiology; ²Ministry of Health Mubarak Al-Kabeer Hospital Department of Medicine; ¹Department of Microbiology, Kuwait University Faculty of Medicine

Introduction:

Earlier studies suggested that auto-immune manifestations of connective tissue disorders caused by imbalance of T-helper cell cytokines. Possibly, different disease phenotypes have different cytokines. Among Systemic Lupus Erythematosus (SLE) patients, pulmonary involvement varies significantly. Our aim was to examine the level of some pro-inflammatory cytokines among SLE patients with and without pulmonary involvement.

Methods:

Patients with SLE diagnosis were interviewed and a health and respiratory symptoms - related questionnaire was filled. Pulmonary function test (PFT) and High Resolution C/T scan studies were done on all patients. According to the results of these studies and questionnaire analysis, the patients were divided into two groups : those with pulmonary involvement and those without it. Among the pulmonary group, further subdivision was carried out based on the PFT results into subgroup of restrictive disorder and those with obstructive disorder pattern. Next, the level of the cytokines IL-8, INF- γ and TNF- α were estimated in sera of the patients by ELISA.

Results:

Pulmonary involvement was found among 49 patients of the 61 subjects recruited. The mean levels of IL-8, INF- γ , and TNF- α were significantly higher among the pulmonary group (38, 50, and 47 pg/ml respectively) than the non-pulmonary group (9, 6, and 6 pg/ml respectively) with p values of the differences 0.02, 0.024, 0.002 respectively. The ratio of pro-inflammatory cytokines to anti-inflammatory cytokines indicates a stronger bias towards a pro-inflammatory response in the pulmonary group as compared to the non-pulmonary group. In the pulmonary group, TNF- α showed a higher level in restrictive pattern subgroup compared to obstructive subgroup (p=0.04)

Conclusions:

Lupus patients with pulmonary involvement have higher levels of IL-8, INF- γ and TNF- α compared to phenotype without it. TNF- α has a trend to be even higher in the subgroup without obstructive disorder involvement.

Key Words: Systemic Lupus erythematosus (SLE); Pulmonary; Cytokines;
Funding Agency: None

100

Cytokine profiles in peripheral blood mononuclear cells and sera of seropositive rheumatoid arthritis patients correlate with distinct disease subsets

Uppal SS^{1,2}, Raghupathy R¹, Rawoot P¹, Abraham M¹

¹ Departments of Medicine and Microbiology, Kuwait University Faculty of Medicine, Kuwait, ²Department of Medicine, Mubarak Al Kabeer Hospital, Kuwait

Introduction:

Rheumatoid arthritis (RA) is clinically heterogeneous and cytokine networks are known to play a critical role in its pathogenesis. Therefore a panel of pro- and antiinflammatory cytokines was measured to identify biologically-based subsets of RA.

Methods:

Peripheral blood mononuclear cell (PBMC) production and plasma concentrations of cytokines [interleukin-4 (IL-4), IL-10, interferon- γ (IFN γ), and tumor necrosis factor- α (TNF α)] were measured in 48 patients with seropositive RA. Detailed clinical, laboratory and radiological data was gathered for these patients using a pre-designed proforma. Based on this data, the patients were grouped as per disease duration, severity, activity, and other parameters. Cytokine expression patterns were determined using cluster analysis.

Results:

25 (52.1%) patients were active (DAS28 score > 2.6) and 23(47.9%) were in remission (DAS28 score \leq 2.6). The mean disease duration was 2, 16.7, and 71.2 months in patients having early, intermediate and late disease respectively. The mean (SD) tender joint count, swollen joint count, DAS28 disease activity scores, and ESR values for the two groups (active versus remission) respectively were 7.2(2.1) vs 2.6 (0), 3.9(2.2) vs. 0, 5.3(1.2) vs.1.8 (0.67), 43.7(2.7) vs. 8.6(2.6),and 2.9(2.9) vs. 1.4(1.5). Lymphocyte production of anti-inflammatory cytokines IL-4 and L-10 was lower, whereas pro-inflammatory cytokines TNF α ; and IFN γ ; was higher in the active group compared to the group in remission. As far as serum levels of various cytokines were concerned, IL-10, TNF α ; and IFN γ ; levels were higher whereas IL-4 was marginally lower in the active group compared to the group in remission. In all cases, the ratio of mean pro-inflammatory to anti-inflammatory cytokines was higher in the active group vs the remission group.

Conclusions:

Distinct multicytokine profiles are associated with distinct disease subsets in RA.

Key Words: Rheumatoid Arthritis; Disease activity; Cytokines;

Funding Agency: None

Medicine

Category: Graduate (Resident)

101: Moderated

Plasma concentrations of C-reactive protein and total homocysteine in relation to the severity and risk factors for cerebrovascular disease

*Zaki MY¹, Mojiminiyi OA², Abdella NA³, George S², Pinto C³, Mathew R²

¹Ministry of Health, Departments of²Pathology and³Medicine, Faculty of Medicine, Kuwait University

Introduction:

Higher C-reactive protein (CRP) and plasma homocysteine (tHcy) concentrations have been shown to indicate increased risk of coronary heart disease (CHD) and cerebrovascular disease (CVD) but the mechanisms by which they increase the risk of atherothrombotic disease are under investigation. This study evaluates the relation of CRP and tHcy with CVD risk factors.

Methods:

High-sensitivity CRP (hs-CRP), fasting tHcy, and lipid profile, were determined in 50 patients with CVD and 20 healthy control subjects. Clinical data, NIHSS scale on admission and disability ranking on discharge were recorded. Cutoff points of 1.5 mg/dL (hsCRP) and 15 $\mu\text{mol/L}$ (tHcy) were used to indicate increased risk, based on epidemiological studies. Univariate and multivariate logistic regression analyses were used to relate these parameters with each other, with CVD risk factors, severity and disability on discharge.

Results:

38% of patients had increased CRP and 26% had elevated tHcy. CRP ($p = 0.01$) and tHcy ($p < 0.0001$) concentrations were significantly higher in patients compared with controls and these differences remained significant after correction for age and sex. tHcy showed significant correlations with hsCRP ($r_s = 0.35$; $p = 0.003$); LDL cholesterol ($r_s = 0.49$; $p = 0.005$). Logistic regression analysis with CVD as the dependent variable showed significant association with CRP ($p = 0.01$) and tHcy ($p < 0.0001$) only; no associations were found with lipid parameters. CRP showed increased trend with disease severity and increased disability.

Conclusions:

These data support 4 main conclusions (i) elevation of CRP and tHcy are common in CVD; (ii) the significant relationship between tHcy and hsCRP suggests that the association of tHcy with CVD risk is dependent on inflammation-related mechanism (iii) increased hsCRP and tHcy shows that patients with CVD may be at greater risk of subsequent CHD; (iv) admission hsCRP could be used as an indicator of prognosis.

Key Words: C-reactive protein; Homocysteine; Cerebrovascular disease;

Funding Agency: MG 033

Tension type headache and its relationship to depression: a correlation –predictive study

Al-Ansari BM¹, Al-Shatti T²

¹ Office of Vice President for Research, Kuwait University, Kuwait.

² Office of Administration

Introduction:

This study aimed at determining: (a) the prevalence of episodic tension-type headache, chronic tension-type headache, (b) Gender differences in the last-mentioned variables, (c) the correlation between the tension type headache variables and depression, and (d) the possibility of predicting depression based on tension type headache variables.

Methods:

The sample consisted of (314) males and (704) females of undergraduates of Kuwait University Kuwait University. Their ages ranged between 18-15 years. The following two scales were administrated to the above mentioned samples. Tension-Type Headache Inventory based upon international headache society classification of headache 2003, which consist of (8 items X 4-points scale) for both episodic and chronic tension-type headache and Beck Depression Inventory II (short version) based upon DSMFIV which consist of (2 items X 5-Point scale).

The above scales presented satisfactory psychometric properties, in terms of internal consistency and temporal stability.

Results:

Results indicated that (a) the episodic tension-type headache prevalence rate was higher among males than females, while chronic tension-type headache, was higher in females than males. (Chi-Square = 3.84, p level = 0.05). (b) Males had significantly higher mean scores than females in episodic ($t = 5.41, p < .001$) and in chronic tension-type headache ($t = 5.01, p < .001$). (c) The correlations between tension-type headache variables and depression was significant and positive ($r = .29, p < .01$) for episodic and ($r = .30, p < .01$) for chronic tension-type headache. (d) The episodic and chronic tension-type headache did contribute significantly to the prediction of depression ($R^2 = .29, p < .001$).

Conclusions:

There is significant gender differences in the prevalence and mean of episodic- type and chronic-type headache. Furthermore, the two tension-type headache variables correlated positively with depression. In all 26% of depression scores could be predicted.

Key Words: *Episodic tension-type headache; Chronic tension-type headache; Gender differences;*

Funding Agency: *None*

Medicine

Category: Clinical

103: Moderated

**Comparative study of serological and microbiological tests in
Brucellosis.**

Taha K, *Zein Eldein S, Makboul G

Alexandria Faculty of Medicine, Egypt & Infectious Diseases Hospital, Kuwait

Introduction:

Brucellosis is an endemic zoonosis and still occurs frequently in many countries in the Gulf area. Cases often remain unrecognized and underestimated because of inaccurate diagnosis. Consequently they are always treated and scheduled as 'fever of unknown origin'. The present study was carried out in order to evaluate the diagnostic value of the rapid serological tests of brucellosis in comparison to the late blood culture results.

Methods:

The study was conducted on patients with brucellosis from January 2003 to December 2004. These patients were subjected to: complete history taking and clinical examination, complete biochemical checkup, complete blood picture, C-reactive protein, blood culture and sensitivity pattern. Serological tests of brucella were performed including: brucella agglutination test and ELISA.

Results:

Results of the present study revealed that there was a linear positive correlation between brucella agglutination test and presence of bacteremia . Moreover, ELISA IgM and IgG tests achieved a higher specificity and a lower sensitivity in all cases examined. Furthermore, positive and negative predictive values were comparable to specificity.

Conclusions:

To sum up, serological tests are reliable and sensitive tests in the diagnosis of brucellosis.

Key Words: Brucellosis; Serological tests; Blood culture;

Funding Agency: None

Medicine

Category: Clinical

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Varicella-Zoster infection in adults: risk factors for Varicella-Zoster virus pneumonia

*Taha K¹, Zein-Eldein S¹, Al-Abyad S², Maqboul G¹

¹ Alexandria Faculty of Medicine, Egypt, ² Infectious Diseases Hospital of Kuwait

Introduction:

Varicella is a common childhood illness causing a mild febrile illness with a characteristic rash. In healthy children, the course of a varicella infection is typically benign, however, in adults and immunocompromised children it can be complicated by pneumonic, hematologic, and neurologic manifestations, of which pneumonia is the most common. Several risk factors exist that can give a clinician a high index of suspicion for lung involvement with varicella infections. Immunosuppression, chronic obstructive pulmonary disease (COPD), old age, smoking, pregnancy, and a severe cutaneous or hemorrhagic rash increase the occurrence of pneumonia in the adult varicella patient. Despite the increasing frequency, little data exists on the prognosis of adult with varicella pneumonia (VP). The purpose of this study is to look for the prevalence of VP among adult chickenpox admitted to Infectious Diseases Hospital (IDH) of Kuwait, to reiterate the risk factors for the development of VP and to predict the early progression to severe pneumonitis in order to establish the early therapeutic intervention.

Methods:

The study enrolled 52 male adult chickenpox patients with varicella pneumonia as confirmed their chest x-ray features. All patients were subjected to the following:• Thorough history, complete physical examination and chest X-ray. • Complete blood picture and coagulation profile. • Complete biochemical check up including renal profile, hepatic functions and serum electrolytes. • Assessment of arterial blood gases and monitoring of oxygen saturation. • Hypoxaemic index (HI), was calculated and used as an indicator of severity of the pneumonia.

Results:

Results of this study showed that the ages of our patients ranged from 20 to 52 years with an average of 36.8 years. The main complaints of the patients were fever, rash, cough, and breathing difficulty. Severe skin rash was evident in almost all cases. Out of the studied 52 patients, 31 (59.6%) showed associated risk factors. Statistical analysis showed that smoking was the most frequent risk factor (64.5%), followed by underlying lung disease (25.8%). I

Conclusions:

Immunosuppressive drug use, diabetes and alcohol consumption were among the risk factors encountered in our patients as well. Moreover, hypoxaemic index(HI) showed a significant correlation with the degree of severity of VP. HI was significantly reduced in those cases that needed an urgent intensive care management.

Key Words: *Varicella infection; Pneumonia;*

Funding Agency: *None*

Medicine

Category: Clinical

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Anti-PF4 antibodies from patients with thrombocytopenia in Kuwait

*Al-Shatti S, Tatoyan M, Ashkanani H, Radwan R
Kuwait Central Blood Bank

Introduction:

Heparin-induced thrombocytopenia (HIT) is a serious complication that occurs in 1-5 % of patients treated with heparin and may be associated with severe thrombotic complications. HIT is mediated by antibodies directed mostly to epitopes formed by complexes between heparin and platelet factor 4. The aim of the study was to approve that anti-PF4 anti platelets alloantibodies can cause sever thrombocytopenia in patients on heparin treatment .

Methods:

Using the GTI - PF4 ELISA assay kit and comparing the results with the kit positive and negative controls samples, 21 thrombocytopenic patients who were on heparin treatment and at risk of having thrombotic complications were tested against antibodies to PF4: Heparin complexes.

Results:

From the 21 thrompocytopenic patient plasma samples, 10 were confirmed positive for anti-PF4 antibodies , 8 of them inhibited with excess heparin treatment and 3 were indicating the presence of antibodies not associated with heparin. The other 10 samples found to be negative for PF4 antiplatelet antibodies.

Conclusions:

Our findings indicated that anti-PF4/heparin antibodies can bind to complexes on the endothelial cells, causing damage not only for platelets but also for the endothelium which will lead to thrombotic events .

Key Words: *Heparin-induced thrombocytopenia (HIT) ; GTI - PF4 Elisa;*

Funding Agency: *None*

The carriage of selected oral pathogens amongst the Kuwaiti schoolchildren

Kononen EI¹, *Rotimi VO², Salako NO³, Asfour LE³, Sharma PN^{1,4}

¹National Public Health Institute, Helsinki, Finland; ²Department of Microbiology, Kuwait University Faculty of Medicine; ³Department of Developmental and Preventive Dental Sciences, Kuwait University Faculty of Dentistry; ⁴Department of Community Medicine, Kuwait University Faculty of Medicine, Kuwait

Introduction:

Information on the carriage of oral pathogens amongst Kuwaitis is very scanty. *Streptococcus mutans*, *Prevotella intermedia/P. nigrescens* and *Actinobacillus actinomycetemcomitans* belong to the potentially pathogenic group often isolated from the oral cavities of children. This study was designed to evaluate the incidence of these pathogens in young Kuwaiti children with mixed dentition.

Methods:

A total of 60 schoolchildren (33 boys and 27 girls) aged 6-9 years (mean age 7.6 ± 1.0) was studied. They were recruited from a public pedodontic clinic and examined for their oral health status after informed consent. Dental plaque was collected from all first permanent molars mesiobuccally or, if missing, from second primary molars distobuccally with a toothpick, at and below the gingival margin. Each pooled plaque sample was placed into a vial containing anaerobic transport medium, transported immediately to the Anaerobe Reference Laboratory, Department of Microbiology, Faculty of Medicine, and processed within 2 h of collection by culturing on non-selective and selective media. SPSS was used for statistical analysis.

Results:

The data generated in this study showed that the incidence of this group of pathogens and the oral health status of the children examined did not differ significantly between the genders. The isolation rates of *S. mutans* were 83.3%, *P. intermedia/P. nigrescens* 58.3% and *A. actinomycetemcomitans* 13.3%. Their mean quantities (CFU/ml) in pooled plaque samples were $3.3 \pm 6.4 \log_4$, $0.7 \pm 1.3 \log_4$, and $0.2 \pm 1.0 \log_4$, respectively. The levels of mutans streptococci in dental plaque differed between the children with high and low rates of caries experience.

Conclusions:

Our data on these culture-based isolation frequencies of *S. mutans*, *P. intermedia/P. nigrescens* and *Actinobacillus actinomycetemcomitans* in Kuwaiti children are concordant with reports of other studies in children from other parts of the world.

Key Words: Carriage; Oral pathogens; Kuwait;

Funding Agency: Kuwait University Research Administration: Grant

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Septicemia in paediatric surgery in Kuwait: a four-years prospective

*Mokaddas E¹, Al-Ramadan S², Shetty S¹, Aneesa VK¹, Kumar S², Ashkanani A²

¹Dept. of Microbiology, ²Dept. of Pediatric Surgery, Ibn Sina Hospital

Introduction:

Blood stream infections account for most of the nosocomial infections in the neonatal and pediatric intensive care units. The objectives of this study were to determine the incidence, risk factors, microbiological etiology and anti-microbial susceptibility pattern of septicemia in pediatric surgery patients.

Methods:

Over a period of four years (2001-2004), all the documented cases of septicemia were investigated. Risk factors such as low birth weight, prematurity, ICU stay, use of ventilators underlying disease and surgical interventions were determined. Blood and other cultures were incubated. All positive cultures were subjected to identification and anti-microbial susceptibility testing. Outcome of septicemia was then analyzed.

Results:

58 patients who developed 80 episodes of microbiologically documented bacterial and fungal sepsis were analysed. 23 were neonates and 35 were infants. Half of the patients were admitted to the ICU. Twenty-five patients had gastrointestinal problems with surgical interventions. The 31 Gram negative septic episodes included *Pseudomonas aeruginosa*, *Enterobacteriaceae*, *Acinetobacter baumannii* and *Stenotrophomonas maltophilia*. The 39 Gram-positive septic episodes included coagulase negative *Staphylococcus*, *Staphylococcus aureus*, *Enterococcus faecalis* and *Viridans streptococcus*. Candidemia accounted for 10 episodes. All Gram-negative isolates were uniformly susceptible to third generation cephalosporins, aminoglycosides, piperacillin/tazobactam and carbapenems. All Gram-positive isolates were uniformly susceptible to Glycopeptides.

Conclusions:

The main risk factors for septicemia in pediatric surgery includes prematurity, ICU stay and underlying disease. The main etiological pathogens included coagulase negative staphylococcus, *Pseudomonas aeruginosa* and *Enterobacteriaceae*; empirical therapy with piperacillin/tazobactam for Gram-negative sepsis and glycopeptides for Gram-positive sepsis proved to be effective.

Key Words: *Septicemia; Paediatric surgery;*

Funding Agency: *None*

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Cerebrospinal fluid shunt infections in Neurosurgery Department in Kuwait: microbiological analysis and clinical outcome

Mokaddas E¹, Aneesa VK¹, Shetty S¹, Al-Sheik T²

¹Department of Laboratory Medicine, ²Department of Neurosurgery, IBN Sina Hospital, Kuwait

Introduction:

Shunt infection is a frequent concern for patients with cerebrospinal fluid (CSF) shunt infections. The objectives of this study were to evaluate the risk factors associated with development of CSF shunt infections; to determine the biochemical parameters, microbial etiological agents and their antimicrobial susceptibility pattern; and to evaluate the clinical outcome of such infections.

Methods:

Over a period of 10 months 79 patients with CSF shunts were admitted to the Neurosurgery Department in Ibn Sina Hospital. CSF was collected upon admission and repeated three times per week. Biochemical analysis, Gram stain, cell and differential count, culture and antimicrobial susceptibility pattern were carried out in the main laboratory.

Results:

Out of 79 patients 20 had microbiologically documented CSF shunt infections. Fourteen (70%) of the 20 patients were neonates and young children with a mean age of 8 months. The underlying diseases were mainly hydrocephalus, tumor and myelomeningocele. Almost all the patients had external ventricular drainage. Eighteen (90%) of the patients had WBC count of >50 cells/mm³ predominantly polymorphonuclear cells and all had protein level of >300 mg/L reaching up to 3 g/L. Thirteen Gram-negative bacteria mainly Enterobacteriaceae, *Acinetobacter* spp. and *Stenotrophomonas maltophilia* and twelve Gram-Positive bacteria mainly coagulase negative staphylococci were isolated. The majority of the Gram negative isolates except for the *Stenotrophomonas maltophilia* were uniformly susceptible to most of the antibiotics including third generation cephalosporins, piperacillin/tazobactam, aminoglycosides and carbapenems, while almost all the Gram-positive isolates were susceptible to the glycopeptides. The outcome of the infected patients was analyzed and 2 of them had died.

Conclusions:

The rate of CSF shunt infection in the Neurosurgery Department in Kuwait is about 25% with significant mortality and morbidity

Key Words: *Cerebrospinal fluid; Shunt infection; Microbiology;*

Funding Agency: *None*

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High prevalence of metronidazole resistance in *Helicobacter pylori* isolated in Kuwait

*Albert MJ¹, Al-Mekhaizeem K², Dhar R³, Neil L¹

¹Department of Microbiology, Kuwait University Faculty of Medicine, Kuwait; ²Al-Amiri Hospital, Kuwait; ³Al-Adan Hospital Kuwait.

Introduction:

Helicobacter pylori infection is associated with a number of digestive diseases including chronic active gastritis, peptic ulcer disease and gastric cancer. Usually, a combination of two antimicrobial agents and a proton-pump inhibitor is prescribed for treatment of *H. pylori* infection. In Kuwait, we have been observing clinical failure in the treatment of infection with antimicrobial agents. The objective of the study was to find out the in vitro susceptibility of *H. pylori* cultured from gastric biopsies of patients in Kuwait with upper gastrointestinal symptoms.

Methods:

Gastric biopsies from 175 adult patients from Al-Amiri hospital and 186 adult patients from Al-Adan hospital, all with upper gastrointestinal symptoms were cultured on blood agar supplemented with vitox and Dent supplement microaerophilically at 37°C for a week. Colonies identified as *H. pylori* were tested for susceptibility to amoxicillin, tetracycline, clarithromycin and metronidazole by E-test on Mueller-Hinton sheep blood agar with vitox incubated at 37°C for three days.

Results:

Biopsies from Al-Amiri hospital yielded 57 isolates and those from Al-Adan hospital yielded 80 isolates. Of 13 isolates tested from Al-Amiri hospital, 11 were resistant to metronidazole (MIC more than 8 mg/L) and of 13 isolates tested from Al-Adan hospital, 4 were resistant to metronidazole. All 26 isolates from Al-Amiri and Al-Adan hospitals were susceptible to the other three antimicrobials (MICs less than 1 mg/L).

Conclusions:

Our preliminary results showed that the prevalence of metronidazole resistance is high in Al-Amiri hospital, but relatively low in Al-Adan hospital. Nevertheless, the overall prevalence of resistance to metronidazole is substantial. This indicates that it is prudent not to include metronidazole in the drug regimen for treatment of *H. pylori* infections.

Key Words: *Helicobacter pylori*; Antimicrobial resistance; Metronidazole;

Funding Agency: None

Characterization of community-acquired MRSA isolated in Kuwait hospitals

*Udo EE, Al-Sweih N, Noronha B

Department of Microbiology, Faculty of Medicine, Kuwait University. Kuwait.

Introduction:

Community-acquired MRSA (CAMRSA) strains have several factors that distinguish them from nosocomial MRSA. They are mostly non-multidrug resistant, and contain the type IV staphylococcal cassette chromosome mec (SCCmec) element and the recombinase (ccr) gene complex whereas the nosocomial MRSA contain types I-III SCCmec elements. Recently, non-multiresistant- MRSA are being isolated increasingly from patients in Kuwait hospitals. The objective of this study was to characterize non-multi-resistant MRSA isolated from patients in Kuwait hospitals to ascertain whether they were CAMRSA.

Methods:

Between July 2001 and October 2003, 42 non-multiresistant MRSA were isolated from 33 inpatients and seven outpatients in seven Kuwaiti hospitals. The presence of SCCmec elements, ccr complex and genes for methicillin resistance, mecA, the virulence factor, panton-valentine leucocidin (PVL) and insertion sequence elements, IS431/IS257 and IS1272 were amplified in multiplex or standard PCR assays. Their relatedness was investigated by pulsed-field gel electrophoresis (PFGE).

Results:

The majority (30) of the isolates were from skin (9) or wound (21) samples. Others were from the nose (6), urine (2), blood (2) eye (1) and ear (1). They all contained genes for mecA and insertion sequence element IS431/IS257. The majority (38/42) carried type IV SCCmec element that is characteristic of CAMRSA. The types I and III SCCmec elements were detected in single isolates. Forty isolates had the type 2 ccr gene complex. Eight isolates contained PVL genes. PFGE revealed 15 patterns designated A-O. The types A, B and C patterns were detected in 10, 8 and 6 isolates in 6, 4 and 2 hospitals respectively.

Conclusions:

The results show that 38 of the 42 isolates possessed characteristics that are typical of CAMRSA. However, PFGE showed that they belonged to different clones. The presence PFGE types A; B and C clones in different hospitals demonstrated the potential of these clones to spread among patients in these hospitals

Key Words: *Community MRSA; Antibiotic resistance; Pulsed-field gel electrophoresis (PFGE);*

Funding Agency: *Funded by Kuwait University Research Administration*

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The prevalence and dissemination of mupirocin–resistance in Methicillin-resistant Staphylococcus aureus in Kuwaiti hospitals

*Udo EE, Al-Sweih N, Mathew B, Noronha B

Department of Microbiology, Faculty of Medicine, Kuwait University. Kuwait.

Introduction:

The prevalence of high-level mupirocin resistance has been increasing in MRSA isolated in Kuwait in recent years. This necessitated monitoring MRSA isolated in Kuwaiti hospitals at regular intervals to detect changes in their resistance and clonal patterns. The aim of this study was to monitor the prevalence of mupirocin resistance in MRSA isolated in Kuwait hospitals and determine their genetic relatedness.

Methods:

MRSA isolated from six hospitals between January and June 2003, were tested for susceptibility to antibacterial agents by disk diffusion. Mupirocin MICs were determined with Etest strips. The presence of the *mupA* gene that encodes high-level mupirocin resistance was investigated by PCR. Pulsed-field gel electrophoresis (PFGE) was used to study their genetic relatedness.

Results:

Ninety nine (36.5%) of 271 MRSA obtained during the study period were mupirocin-resistant; 97 (35.8%) of them expressed low-level mupirocin resistance (MIC: 16-128 mg/L) while two isolates expressed high-level resistance (MIC>1024 mg/L). Forty one (42.3%), 24 (42.3%), 19 (19.6%) and 6 (6.2%) of the isolates had mupirocin MIC of 32, 48, 24 and 16 mg/L respectively. One isolate had MIC of 128 mg/L. The *mupA* gene was detected only in the high-level mupirocin resistant isolates. PFGE analysis revealed that the low-level mupirocin-resistant MRSA isolates belonged to six different clones. Two clones, constituting 87.6% of these isolates, were detected in all six hospitals. The other clones were less widespread.

Conclusions:

This study revealed a dramatic decline in the prevalence of high-level mupirocin resistance and an increase in that of low-level mupirocin resistance among Kuwaiti MRSA isolates during the study period compared with data from previous years. It demonstrated the dominance of two MRSA clones in the hospitals and emphasized the value of regular surveillance in detecting changes in resistance and clonal patterns of MRSA isolates in healthcare environments.

Key Words: *Mupirocin Resistance; Pulsed-field electrophoresis;*

Funding Agency: *Supported by Kuwait University Research Administration*

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Application of screening methods for the detection of carbapenem resistance mechanisms

Dashti AA¹, *West PWJ¹, Denny BJ², Johny M³

¹Faculty of Allied Health Sciences, Kuwait University; ²Faculty of Pharmacy, Kuwait University, ³Department of Laboratories, Amiri Hospital, Kuwait

Introduction:

The carbapenems are a class of beta-lactam antibiotics. Several resistance mechanisms are known, including hydrolysis by metallo and serine beta-lactamases and impermeability. In this poster we present our data on the application of some methods which can be used to indicate the probable resistance mechanism present in clinical isolates.

Methods:

Bacterial isolates were identified using the Vitek II system, API 20E and API 20NE. Reduced carbapenem susceptibility was detected using the Vitek II system and Kirby Bauer method. Organisms were screened for metallo-enzymes using EDTA and mercapto-propionic acid. Permeability studies were conducted using sodium citrate and sodium polyphosphate. Previously characterized strains of *Stenotrophomonas maltophilia*, *Acinetobacter baumannii* and *Pseudomonas aeruginosa* were used as controls.

Results:

Strains showing carbapenem minimum inhibitory concentrations (MICs) of ≥ 4 mg/L were investigated. Metallo-enzymes were detected in some isolates of *P. aeruginosa* and as expected in all isolates of *S. maltophilia*, and probable non metallo-enzymes in *A. baumannii*. Increased susceptibility in the presence of permeabilizers was found in *P. aeruginosa* and *A. baumannii*. Strains with metallo-enzymes were resistant to carbapenems (MIC ≥ 16 mg/l). Non-metallo-enzymes and reduced permeability resulted in reduced susceptibility (MIC 4-8 mg/L).

Conclusions:

The use of relatively simple tests can assist in the elucidation of carbapenem resistance mechanisms. Since strains harboring enzymes are more likely to persist in the clinical environment this information could be useful in determining the course of action when resistant strains are encountered.

Key Words: *Carbapenems; Beta-lactamases; Permeability;*

Funding Agency: *Kuwait University RIG awarded to AAD*

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Characterization of extended spectrum beta-lactamase producing *Escherichia coli*

*Dashti AA¹, West PWJ¹, Kawaf J¹, Johny M², Habeeb F¹

¹Faculty of Allied Health Sciences, Kuwait University, ²Department of Laboratories, Amiri Hospital, Kuwait.

Introduction:

Although they were first reported in *Klebsiella* spp. Extended spectrum beta-lactamases (ESBLs) are now also commonly found in *Escherichia coli*. In this poster we report the results of our pilot study to characterize a series of *E. coli* isolates suspected to harbor ESBLs.

Methods:

Seventy one isolates from 68 patients were investigated. Isolates were initially tested with the Vitek II and reported by the expert system to be ESBL positive. The presence of ESBLs was investigated using the disc approximation test with five cephalosporins and Etest strips with ceftazidime/clavulanate and cefotaxime/clavulanate. PCR was performed to detect the presence of TEM and/or SHV enzymes. Chromosomal DNA was cleaved with *xba*I and the products separated by pulsed field gel electrophoresis. An ESBL *E. coli* provided by WHO was used as a control.

Results:

Sixty two strains were isolated from 59 patients in Amiri Hospital, and 9 strains were isolated from neonates in Farwania Hospital in 1994. The Amiri isolates originated from many departments and 27/59 patients were >60 years old. Cefotaxime/clavulanate detected ESBLs in 70/71 (98.6%) of the isolates, whereas cefipime which performed best in the disc approximation test showed clear results in 46/71 (65%). Of the Amiri isolates, 92% were resistant to ciprofloxacin, 70% to cotrimoxazole and 68% to gentamicin. All the 1994 isolates were susceptible to ciprofloxacin and cotrimoxazole, but resistant to gentamicin. TEM enzymes were detected in 86% of the total strains, SHV in 50% and both enzymes in 35%. Pulsed-field gel electrophoresis showed many different genotypes.

Conclusions:

The epidemiology of ESBL *E. coli* in Kuwait is complex. Many distinct strains are already present in the population and their incidence is increasing. The organisms are resistant to many other types of antibiotic.

Key Words: *Escherichia coli*; Extended spectrum beta-lactamases (ESBLs); Antibiotic;

Funding Agency: None

114: Moderated

Ciprofloxacin and gentamicin resistance in *Escherichia coli* and *Klebsiella pneumoniae* strains producing extended epectrum beta-lactamases

Al-Sweih N^{1,2}, Khan SS², *Jamal M², Kurdia M², Ali I², Al-Azmi O², Al-Hamdan H², Abdul Ameer L²

¹Department of Microbiology, Kuwait University; ²Department of Microbiology, Maternity Hospital, Kuwait.

Introduction:

Infections caused by an extended spectrum beta-lactamases (ESBL) producing *Escherichia coli* and *Klebsiella pneumoniae* strains are at increased risk of treatment failure, and higher hospital costs. ESBLs hydrolyze oxyimino- β -lactams such as (cefotaxime, and ceftazidime) resulting in resistance to these drugs. Resistance to ciprofloxacin and gentamicin are increasing in enterobacteriaceae. This study evaluated the relationship between ESBL production and ciprofloxacin and gentamicin resistance in *Escherichia coli* and *Klebsiella pneumoniae*.

Methods:

Escherichia coli and *Klebsiella pneumoniae* were isolated from different clinical materials identified by using VITEK2 system (BioMerieux, France). E test (AB Biodisk, Sweden) was used to determine susceptibility to ciprofloxacin and gentamicin and ESBL production.

Results:

A total of 120 *Klebsiella pneumoniae* and 92 *Escherichia coli* strains were isolated from blood 58 (27.3%), urine 51 (24%), wound swab 29 (13.7%), high vaginal swab 29 (13.7%), respiratory secretions 21 (9.9%), lines and catheters 12 (5.7%) and miscellaneous sites 12 (5.7%). Of the 120 *Klebsiella pneumoniae* isolates 60 (50%) produced ESBL 6 (10%) and 56 (93.3%) were resistant to ciprofloxacin and gentamicin respectively and 3 (5%) were resistant to both antibiotics. Of the 92 *Escherichia coli* isolates 46 (50%) produced ESBL. 37(80.4%) were resistant to ciprofloxacin and 34 (73.9%) were resistant to gentamicin. 31 (67.4%) of the ESBL producing *Escherichia coli* were resistant to both antibiotics

Conclusions:

This study demonstrated that ESBL producing strains of *Escherichia coli* and *Klebsiella pneumoniae* were more likely to be resistant to ciprofloxacin and gentamicin and significantly reducing therapeutic options for infections caused by these organisms.

Key Words: *Extended Spectrum Beta-lactamases (ESBL); Ciprofloxacin; Gentamicin;*

Funding Agency: *None*

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Significance of *Mycoplasma hominis* and *Ureaplasma urealyticum* in female genital tract and its association with premature rupture of membrane (PROM)

*Khan SS¹, Al-Sweih N^{1,2}, Al-Saleh A¹, Abdulhadi H¹, Jesusa M¹, Kordia M¹

¹ Department of Microbiology, Maternity Hospital, ² Department of Microbiology, Faculty of Medicine, Kuwait University, Kuwait

Introduction:

During pregnancy genital mycoplasmas such as *Mycoplasma hominis* and *Ureaplasma urealyticum* may be associated with preterm labor, spontaneous abortion, infertility, PROM, puerperal fever and pelvic inflammatory diseases. The aim of the present study was to determine the possible role of *Mycoplasma hominis* and *Ureaplasma urealyticum* in PROM

Methods:

High vaginal swabs were obtained from 122 cases of PROM and 36 control cases. The *Mycoplasma* IST 2 kit (BioMerieux SA, France) was used. The swabs were collected, transported and processed according to the manufactures instructions. It provides simultaneous results for identification, semi quantitative enumeration and susceptibility study for 9 antibiotics (Doxycycline, Josamycin, Ofloxacin, Erythromycin, Tetracycline, Pristinamycin, Ciprofloxacin, azithromycin, and clarythromycin).

Results:

Of the 122 cases of PROM, 74 (60.65%) and 34 (27.86%) were positive and negative for genital *Mycoplasmas*, respectively. 43 (35.24%) were positive for *Ureaplasma urealyticum*, 1 (0.82%) was positive for *Mycoplasma hominis* and 30 (24.60) were positive for the presence of both *Mycoplasma hominis* and *Ureaplasma urealyticum*. While of 36 control cases, 15 (41.66%) were positive for *Ureaplasma urealyticum* and 5 (13.88%) were positive for both *Mycoplasma hominis* and *Ureaplasma urealyticum*. No case (0.0%) was positive for *Mycoplasma hominis*. 16(44.44%) were negative.

Conclusions:

In our study *Ureaplasma urealyticum* was the most common organism isolated from both patients and controls. Consequently it is difficult to predict the occurrence of adverse effect of colonization with genital *Mycoplasmas* in individual patients.

Key Words: Genital mycoplasmas; Colonization; PROM;

Funding Agency: None

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Spectrum and antibiotic resistance of uropathogens isolated from hospital and community patients with urinary tract infections in London Hospital.

*Draghijeva E, Egbase P, Mathai S
London Hospital, Al-Fintas, Kuwait.

Introduction:

Urinary tract infection (UTI) is very common and the causative uropathogens exhibit changing susceptibility patterns. Our study was undertaken to determine the spectrum of microbial etiology and antibiotic resistance pattern of the uropathogens isolated from risk group-pregnant women in London hospital over a period of one year.

Methods:

Uropathogens from all cases of UTI with significant bacteriuria (>100000 CFU/ml), were studied. The uropathogens were identified by API and tested for susceptibility by the disk diffusion method - Bauer - Kirby. The interpretation of susceptibility was realized according NCCLS.

Results:

A total of 338 isolates were analyzed. The five overall most common strains were: *Escherichia coli*, the predominant uropathogen, accounting for 37,9% of isolates, followed by *Streptococcus agalactiae* (Group B *Streptococcus* - GBS; 25,1 %), *Klebsiella pneumoniae* (10,6%), *Candida* spp. (9,5%) and coagulase-negative *Staphylococci* (4,7%). High resistance to Penicillin and Ciprofloxacin was noted for GBS. The percentage of all patients isolates of GBS resistant to these agents were 68,3 % and 73,1 %, respectively. Resistance to Erythromycin (EM) was also high - 60 %. Low resistance to third generation phalosporines and Amoxicillin/Clavulanic acid was noted - 4,4% and 2,1% respectively.

Conclusions:

Among recently published reports different investigators have described essentially identical resistance rates of GBS. They report higher resistance to EM.

Key Words: Group B Streptococcus; Antibiotic; Resistance;

Funding Agency: None

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Antibiotic resistance patterns of *Escherichia coli* isolated from hospital and community patients with urinary tract infections in London Hospital.

*Draghijeva E, Egbase P, Mathai S
London Hospital, Al-Fintas, Kuwait.

Introduction:

Escherichia coli (E.coli) is the most common microorganism causing urinary tract infections (UTI) in women and has great potential for pregnancy complications. This study was undertaken to determine the antibiotic resistance pattern of E.coli isolated from women with UTI in London Hospital over a period of one year.

Methods:

2650 urine cultures were studied over a period of one year. 128 strains E.coli from all cases of UTI were isolated and studied. The strains were identified by API and were tested for susceptibility by the disk diffusion method.

Results:

High resistance to the β -lactam antibiotics was noted, especially to Ampicillin, Amoxicillin/Clavulanic acid, Cephalotin. Resistance to Nalidix acid was also high. Low resistance to third generation cephalosporines and aminoglycosides was noted.

Conclusions:

These data provide the information including antibiograms to monitor local resistance and guide antibiotic choice. By practicing targeted therapy, individual physicians can effectively treat the patients now while helping to preserve the future power of antibiotics.

Key Words: *Urinary tract infections (UTI); Escherichia coli; Antibiotic;*

Funding Agency: *None*

Emerging high frequency of isolation of antibiotic-resistant oral viridans Streptococci from healthy children in Kuwait.

*Salako NO¹, Rotimi VO², Mokaddas E², Philip L¹, Rjan P¹

¹Department of Biological Sciences, Kuwait University Faculty of Dentistry; ²Department of Microbiology, Kuwait University Faculty of Medicine

Introduction:

To evaluate the isolation frequency of antibiotic-resistant viridans group streptococci (VGS) from the tongue and tooth surfaces in healthy children.

Methods:

In this study, plaque samples were collected from tooth and tongue surfaces of 102 healthy subjects. Serially diluted samples were inoculated onto BHI agar plates supplemented with 5% sheep blood and Mitis Salivarius Agar (MSA) plates and incubated as appropriate. Viable counts were calculated and representative colonies identified by standard methods. All VGS isolates were identified to species level by established methods. Etest MICs were determined for 11 antibiotics on Mueller-Hinton agar.

Results:

Of the 540 VGS isolates from both sites, 58% were from the tooth surfaces and 42% from the tongue. The most prevalent were *S. salivarius* (22.4%), *S. sanguis* (15.8%), *S. oralis* (12.2%) and *S. mitis* (10.7%). Among all VGS isolates, 60.7, 40.8, 34.7, 32.6, 27.5 and 25.3% were resistant to trimethoprim, amoxicillin, piperacillin, erythromycin, cefuroxime and cephalothin, respectively. Out of all the 11 antibiotics tested, the most active were imipenem with resistance rate of 2.3% and vancomycin 5.4%. Resistance rates to penicillin and clindamycin were 15.9% and 15.4%, respectively. Resistant strains varied in their predilection for tooth or tongue surfaces. The majority of the erythromycin-resistant isolates were from the tongue; 41% versus 29%. About 26% and 23% of *S. salivarius* and 23% and 14% of *S. mutans* isolated from the tooth and tongue respectively were resistant to penicillin.

Conclusions:

Our data showed the species-related and site-related variations in the susceptibility pattern and emerging antibiotic resistance problem among viridans streptococci. The difference in the susceptibilities between the species underscores the importance of accurate identification and the need for surveillance of antimicrobial resistance among clinical isolates in our hospitals.

Key Words: *Antibiotic resistance; Oral viridans streptococci; Healthy children;*

Funding Agency: *Kuwait University Research Grant No. 01/01*

119: Moderated

Serogroups and antimicrobial susceptibility pattern of clinical isolates of Salmonella in Kuwait

Husain E¹, Al-Saif I²

¹Department of pediatrics, Infectious Diseases Hospital, Kuwait; ²Public health Laboratories, Ministry of Health, Kuwait.

Introduction:

An increase in the pattern of resistance of Salmonella to various antimicrobials has been reported worldwide. The objective was to evaluate predominant Salmonella serogroups in Kuwait and their antibiotic susceptibility pattern.

Methods:

Retrospective analysis of serogroup and antibiotic susceptibility pattern of all clinical isolates of salmonella species submitted to the public health laboratory in Kuwait in the years of 2002 and 2003.

Results:

A total of 266 isolates were reported in the study period. The majority (60.5%) were obtained from in-patients. Eighty six percent of the isolates were from stool, 10% from blood, 3% from urine and 1.6% were from other sites Pediatric patients comprised 60% of the total isolates. The three most dominant serogroups were serogroup B (36%), serogroup D (26%), serogroup C1 (15.5%).Prevalence of antibiotic resistance was as follows: Ampicillin 28%, ceftriaxone 2%, cephalothin 19%, chloramphenicol 20%, ciprofloxacin 3%, gentamicin 8%, nalidixic acid 21%, tetracycline 36% and cotrimoxazole 22%. Increased resistance was found more in inpatients isolates. Multidrug resistance was identified as resistance to three or more antibiotics and was present in 30% of the isolates.

Conclusions:

Continues monitoring of salmonella antimicrobial susceptibility pattern is warranted to guide clinicians for the proper use of antibiotics.

Key Words: *Salmonella; Antimicrobial susceptibility; Kuwait;*

Funding Agency: *None*

120: Moderated

Establishment of a multiplex PCR assay for the detection of respiratory viruses in clinical specimens

*Loutfy S, Khalik D, Al-Nakib W

Department of Microbiology, Faculty of Medicine, Kuwait University

Introduction:

Respiratory viruses are leading causative agents of global morbidity and mortality. Respiratory syncytial virus (RSV), influenza A and B (Flu A, B), Parainfluenza viruses types 1,3 (PIV1,3) and adenoviruses (ADV) contribute significantly to acute respiratory infections (ARI). Since these viruses cause similar clinical manifestations, laboratory diagnosis is essential to identify the etiological agent. We aimed at establishing a genomic detection assay for diagnosing ARI caused by the six respiratory viruses.

Methods:

Respiratory specimens collected from 65 patients with ARI were processed for genomic amplification. The designed multiplex PCR (MPCR) utilized 6 primer sets targeted the following genes: fusion protein for RSV between nucleotides 6227 and 6466, non structural proteins for Flu A,B (from nucleotide 467 to 656 and 732 to 977 respectively), hemagglutinin-neuraminidase for PIV1(from 7372 to 7551), fusion protein for PIV3 (from 5073 to 4907) and hexon protein for Adenovirus (from 2755 to 2888). For amplifying the targeted genes of the viruses 2 master mixtures were used; mixture 1 contained the primers specific for Flu A, B and ADV while mixture 2 the ones specific for RSV and PIV1, 3.

Results:

Both of the master mixtures were tested on samples spiked with standard strains of viruses; Flu A, B and ADV for Mix 1, RSV and PIV1,3 for Mix2. This showed that all the target virus strains present in the samples could be detected by the mixtures. Specificity of the mixtures were tested on samples containing rhino-, corona-, measles-, and mumps viruses. None of them was amplified by the primer mixtures. Of the 65 respiratory specimens tested with both mixtures. 4 (6%) were positives for each of RSV, Flu A and B, and 3 (4.6%) for ADV. All were negatives for PIV1,3.

Conclusions:

The 2 mixture-based, multiplex RT-PCR provides a novel approach for rapid and sensitive diagnosis of 6 important respiratory viral infections.

Key Words: *Diagnosis; Multiplex PCR; Respiratory viruses;*

Funding Agency: *Kuwait University/Research Administration Grant*

121: Moderated

Predominance of echovirus 9 and an uncommon serotype, coxsackievirus A7, in enteroviral infections in Kuwait

Dalwai A, Al-Nakib W, Ahmad S, Hussein E, Pacsa AS, Szucs G
Department of Microbiology, Faculty of Medicine, Kuwait University.

Introduction:

Non-polio enteroviruses are implicated in a variety of diseases particularly in children, ranging in severity from common colds to febrile illness, aseptic meningitis, cardiac disease and perhaps also insulin dependent diabetes. Except a few serotypes, enteroviruses in general share tissue tropism and present similar clinical manifestations.

Methods:

The presence of enteroviruses in different diseases reported in Kuwait was investigated using 'semi-nested RT-PCR (snRT-PCR)'. The snRT-PCR amplified a 100 bp fragment from the conserved 5'UTR region of enteroviral genome. The enterovirus positive samples were typed by DNA sequencing of a 575 bp region amplified from the 5'UTR of the genome of enterovirus isolates.

Results:

A total of 720 cases of suspected enteroviral infections were investigated during the years 2002 to 2004. Enteroviruses were present in 30% (144/484) of aseptic meningitis, 30% (33/109) of febrile illness, 20% (18/87) of neonatal sepsis-like disease and in 25% (10/40) of cardiac disease. Among the different enterovirus serotypes that were identified by DNA sequencing, echovirus type 9 was the predominant type in cases of aseptic meningitis, febrile illness and neonatal sepsis-like disease. Coxsackievirus A7 was the second most predominant serotype identified which is quite uncommon in these cases. Coxsackievirus B3, B4, and B6 were identified in the blood of patients suffering from acute cardiac disease.

Conclusions:

In Kuwait it was also found that enteroviruses were important etiological agents in diseases such as aseptic meningitis, febrile illness, neonatal sepsis-like disease and cardiac disease. DNA sequencing revealed that echovirus type 9 followed by coxsackievirus A7, were the predominant enterovirus types identified in these cases during the study period.

Key Words: Enteroviruses; Semi-nested RT-PCR; Genotyping;

Funding Agency: Supported by Research Administration project grant

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Detection of polyomavirus (BK and JC) genome in serum and urine samples of kidney recipients

*Loutfy S¹, Dalwai A¹, Saeed G¹, Khalik D¹, Nampoory MRN², Johny KV²,
Said T², Mousawi M², Pacsa AS¹, Szucs G¹, Al-Nakib W¹

¹Department of Microbiology, Faculty of Medicine, Kuwait University, ²Organ Transplant Center, Ministry of Health, Kuwait

Introduction:

Human polyomaviruses (BK, JC and SV40) share 75% genomic homology. Molecular analysis has identified several genotypes, some of which are now emerging as etiological agents of different diseases. Data are accumulating that BK virus (BKV) and to a lesser extent JC virus (JCV) are responsible for the development of nephropathies after kidney transplantation depending on the immunosuppressive regimens used to prevent rejection. This study aimed at establishing a sensitive and specific laboratory assay for the detection of polyomavirus (BK and JC) genome in serum and urine samples of kidney recipients (KR).

Methods:

In the present study 96 serum and 100 urine samples from 60 KR admitted to Organ Transplant Center, Kuwait, were tested for the presence of polyomavirus (PoV) genome. The PoV DNA was detected by a nested version of generic PCR assay. This amplifies the T genomic region of both BKV and JCV polyomaviruses. The primers targeted the region between nucleotides 4379 and 4554 for BKV and 3978 and 4131 for JCV respectively. The distinction between BKV and JCV was done by restriction digestion with endonuclease BamH1.

Results:

From 36 of the 60 patients single serum and urine samples were tested. The PoV genome was present in 6 serum (16.6%) and in 13 urine (36%) samples. All of the six patients with PoV viremia excreted the virus in their urine. The viral DNA could be detected in the urine samples of 7 additional patients. From 24 patients, 2 or more serum and urine samples were tested. In both serum and urine samples the PoV was detected in 11 of 24 patients (45.8%), and 8 additional patients excreted the virus only in their urine.

Conclusions:

The established genomic detection method of polyomavirus makes it possible to investigate the impact of PoV (BK and JC) on the development of nephropathies in KR.

Key Words: Polyomavirus; Genomic detection; Graft function;

Funding Agency: Office of the Vice Rector for Research, Kuwait University

123

Comparison of ELISA, PCR and culture methods for the detection of *Mycoplasma gallisepticum*

*Al-Ali I¹, Al-Mouqati S¹, Qasem J²

¹Biotechnology Department, Food Resources Division, Kuwait Institute for Scientific Research

²Department of Biomedical Sciences, College of Health Science, Public Authority for Applied Education and Training, Kuwait

Introduction:

Mycoplasma has a wide distribution in nature. They lack a cell wall and they include important pathogens of animals, plants insects and human. It is difficult to diagnose mycoplasma infection based on symptoms alone, for the diagnosis of this organism; we need a faster and more specific method because of the difficulty of culturing them in laboratory. The objective of this work was the evaluation under our conditions of two commercial kits for the detection of avian Mycoplasmosis in comparison to culture method. A PCR diagnostic kit (VenoMGs) and ELISA diagnostic kit (ProFLOK) were used as rapid methods of detection.

Methods:

We used two advance techniques: a molecular method using PCR technique and a novel technique producing large quantities of specific sequences of nucleic acids using a thermostable DNA polymerase. The results produced by this method were compared by a serological detection method using ELISA, to study the spread of this disease in sample from broiler and layer flocks.

Results:

We tested fifty bird samples for mycoplasmosis. Samples tested with ELISA gave 25 positive (50%) and 29 were positive by PCR (58%) and only seven (14%) were positive with culture methods. Swab samples obtained from the choanal cleft gave more positive (60%) with PCR than tracheal samples (56%) and cultures were grown in broth media with a pH indicator.

Conclusions:

Rapid, sensitive and specific tests that detect nucleic acid from pathogenic mycoplasmas are very attractive for the laboratory detection of infected flocks, and methods reported here are of high sensitivity and specificity for mycoplasma. The use of these methods for surveillance of the disease would establish data concerning the predominant Mycoplasmosis diseases in Kuwait and improves the veterinary medical service in Kuwait.

Key Words: *Mycoplasma; ELISA; PCR;*

Funding Agency: *Kuwait Institute for Scientific Research (KISR)*

124

A comparative study of the nucleotide sequence of RepA gene among five *Helicobacter pylori* plasmids.

Qasem J

Department of Biomedical Sciences, College of Health Sciences, Public Authority for Applied Education and Training, Kuwait.

Introduction:

The majority of *H. pylori* strains contain plasmid DNA, although the size varies from strain to strain. No phenotype has been assigned to the plasmids of *H. pylori*.

Methods:

In this study, we did a comparative study of the nucleotide sequence of *H. pylori* RepA gene encoding plasmid replication protein. The DNA sequence was retrieved from the submitted sequences to Gen bank and was analyzed using DNAsis and DNA inspector Iie computer programs, as well as BLASTP and BLSTN programs provided by NIH. A minimum-length similarity tree was constructed on the basis of the Rep gene variable positions by using algorithm by PhyloBlast.

Results:

The screening of databases revealed the presence of proteins with homology to RepA in other species of bacteria. In pHPM179 the sequence showed strong amino-acid sequence identity to a putative ORF1 protein of a cryptic pHP180 plasmid, and significant homologies to putative Rep proteins found in twenty one other plasmids isolated from various organisms, including *Helicobacter pylori*, *Campylobacter*, *Pediococcus*, *Pseudomonas*, *Lactococcus*, *Neisseria* and *Kelbsiella*. Upstream of RepA, a 22-bp sequence was recognized which was tandemly repeated four times, a feature typical for many replication origins (ori) and commonly termed a DNA iteron. Comparison of iterons from five different plasmids of five different strains of *Helicobacter pylori* (pHPM179, pHPM8, pHeL1, pHPM180 and pHPS1) revealed a conserved region between all the five plasmids iterons compared. The plasmid repA DNA sequences from various bacterial species were aligned using PhyloBlast, and a dendrogram was generated. Alignment of the Rep genes of the twenty three Rep gene revealed 83-91% identity. The main differences in these sequences were clustered into four closely related clusters.

Conclusions:

The sequence comparison of the *H. pylori* plasmid replication protein DNA sequence using available databases revealed a high degree of identity suggesting a common origin.

Key Words: *Helicobacter pylori*; RepA gene;

Funding Agency: None

125: Moderated

**Molecular genetic analysis of ethambutol-resistant clinical
Mycobacterium tuberculosis isolates from Kuwait**

*Jaber AA, Ahmad S, Mokaddas E

Department of Microbiology, Kuwait University Faculty of Medicine

Introduction:

Resistance to ethambutol (EMB) in clinical *Mycobacterium tuberculosis* isolates is mediated by mutations in several genes notably embB (arabinosyl transferase) and iniA (isoniazid-inducible) genes. This study aimed to characterize EMB-resistant clinical *M. tuberculosis* isolates from Kuwait for mutations at embB gene codons 306, 406 and 497 and iniA gene codon 501.

Methods:

Fifty EMB-resistant and 25 -susceptible *M. tuberculosis* isolates recovered from TB patients in Kuwait during 2000-2003 were obtained. The isolates were identified as EMB-susceptible or -resistant based on phenotypic drug susceptibility testing by MGIT 960 system. The presence of mutations at embB codons 306 and 497 and iniA codon 501 were detected by PCR amplification of the target region followed by restriction enzyme digestion to generate restriction fragment length polymorphism (RFLPs). Direct DNA sequencing of the amplified DNA was used to confirm the results of RFLP as well as for detection of mutations at embB codon 406. The fingerprinting of the isolates carrying similar mutations was performed by double repetitive element (DRE)-PCR.

Results:

Out of 50 EMB-resistant *M. tuberculosis* isolates, only 21 (42%) contained a mutation indicative of EMB resistance. Fifteen, two and three isolates contained a mutation at embB codons 306, 406 and 497, respectively, while one strain had a mutated iniA codon 501. None of the susceptible strains contained a mutation at any of the above codon positions. The fingerprinting analysis by DRE-PCR showed that majority of the isolates carrying similar mutations exhibited unique patterns.

Conclusions:

Rapid PCR-RFLP and direct DNA sequencing methods targeting embB codons 306, 406 and 497 and iniA codon 501 detected only 42% of EMB-resistant *M. tuberculosis* strains. The data indicate that mutations at other codons in these genes or other target genes substantially contribute towards EMB resistance in strains recovered from TB patients in Kuwait.

Key Words: *M. tuberculosis*; Ethambutol (EMB) resistance; Rapid detection;

Funding Agency: Supported by Research Administration grant

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Molecular cloning, recombinant expression and purification of mce3 operon repressor (Mce3R) of *Mycobacterium tuberculosis*

*Kunjumoidy NP, Kuwait University

Introduction:

Tuberculosis, caused primarily by *Mycobacterium tuberculosis* is a leading infectious disease. The mce3 is one of four homologous mce operons, each encoding six exported invasin-like proteins with a probable role in virulence of *M. tuberculosis*. The mce3 operon expression is negatively regulated by mce3R, located in close proximity and expressed from its own promoter. This study aimed to clone, express and purify Mce3R as a first step to generate antibodies, required to study its expression under different growth conditions of *M. tuberculosis*.

Methods:

The protein coding region of mce3R was amplified by PCR using *M. tuberculosis* H37Rv genomic DNA as a template, cloned in pGEM-T Easy vector and its identity was confirmed by restriction mapping. The mce3R was sub-cloned in a pGES-TH vector that allows high level expression of fusion proteins with two affinity tags in *Escherichia coli*. The expression was detected by Coomassie Blue staining of SDS-PAGE gels and Western immunoblotting. The recombinant protein was purified by Ni-NTA agarose affinity chromatography.

Results:

The PCR amplified a single DNA fragment of expected size which was cloned in pGEM-T Easy vector and its identity as mce3R was established by restriction mapping. The mce3R fragment was sub-cloned in pGES-TH vector and was expressed at high levels in *E. coli* BL21 cells, migrated to its expected position in SDS-PAGE gels and reacted with anti-GST and anti-penta-His antibodies, as expected. The recombinant Mce3R was solubilized from the inclusion bodies in urea and was purified to near homogeneity by using Ni-NTA agarose chromatography.

Conclusions:

The mce3R coding region from *M. tuberculosis* could be amplified by PCR, cloned, expressed as fusion protein and the recombinant fusion protein could be purified to near homogeneity. The purified fusion protein may now be cleaved by specific proteases to remove the fusion partner and the free Mce3R may be used for generating antibody probes.

Key Words: *M. tuberculosis*; Mce3R;

Funding Agency: Supported by Kuwait University Research Administration

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**pGES-TH-1 vector for molecular cloning, expression and purification
of three low molecular weight culture filtrate proteins of
*Mycobacterium tuberculosis***

*Hanif SNM, Ahmad S, Al-Attayah R, Mustafa AS

Department of Microbiology, Faculty of Medicine, Kuwait University, Kuwait

Introduction:

The aim of this study was to clone, express and purify RD903, CFP10 and ESAT6 of *Mycobacterium tuberculosis* by using pGES-TH-1 vector in *E. coli* for characterization and immunological studies.

Methods:

The genes RD903, CFP10 and ESAT6 were amplified by PCR using genomic DNA from *M. tuberculosis* as a template and cloned into cloning vector (pGEMT-Easy) for restriction mapping and sequencing and sub-cloned into an expression vector (pGES-TH-1) for high-level expression of fusion protein along with glutathione-S-transferase (GST) in BL21 (*E. coli* strain). Expression was detected by Coomassie Blue staining of SDS-PAGE gels and characterized by western immunoblotting. The recombinant fusion proteins were purified using glutathione-sepharose column, the fusion partner was cleaved by thrombin protease digestion and free proteins were purified by Ni-NTA sepharose affinity matrix.

Results:

The PCR resulted in specific amplification of DNA fragments corresponding to RD903, CFP10 and ESAT6. Those cloned successfully into pGEMT-Easy vector and the identity of the clone was confirmed by restriction mapping as well as sequencing. The recombinant protein expressed at high level in *E. coli* (BL21) and migrated to their expected size in SDS-PAGE gel. The identity of each fusion protein was confirmed by Western blot using anti-GST antibodies as well as anti-His antibodies. The recombinant fusion proteins were purified by using a glutathione-sepharose affinity matrix. The fusion partner was cleaved by thrombin protease. Ni-NTA columns were used to get rid of the traces of contaminating proteins and to obtain pure RD903, CFP10 and ESAT6 proteins.

Conclusions:

Recombinant DNA technology using pGES-TH-1 vector is useful for obtaining pure proteins of *M. tuberculosis*, which further can be used for characterization and assessment of immunological reactivity.

Key Words: *pGES-TH-1* vector; Cloning; Expression and purification;

Funding Agency: Funded by the Kuwait University Research Administration

ESAT6-like proteins are present in pathogen-specific and cross-reactive genomic regions of *Mycobacterium tuberculosis*

Mustafa AS

Department of Microbiology, Faculty of Medicine, Kuwait University, Kuwait

Introduction:

ESAT6 is a low molecular weight, secreted and major antigenic protein of *Mycobacterium tuberculosis*. The gene for ESAT6 and another ESAT6-like protein (CFP10) is located in the RD1 region that is present in the pathogenic strains of *Mycobacterium tuberculosis* and *Mycobacterium bovis* but deleted in all strains of *M. bovis* BCG vaccines. Recombinant BCG transformed with RD1 and expressing ESAT6 and CFP10 have increased pathogenesis in animals, and therefore, ESAT6-like proteins have been suggested to be important for pathogenesis of *M. tuberculosis*/*M. bovis* in humans. The aim of this study was to identify if ESAT6-like proteins are present in other genomic regions of *M. tuberculosis*.

Methods:

To identify additional ESAT6-like proteins in *M. tuberculosis* genome, the sequence of ESAT6 was searched for homologous sequences in the relevant data bases, i.e. Tuberculist and The Institute for Genomic Research (TIGR). The identified sequences belonging to ESAT6-family were further analyzed for subfamilies by comparing the sequence of each protein with others using bioinformatics tools like BLAST and CLASTAW searches.

Results:

The search with ESAT6 sequence identified 23 members of ESAT6-family in the genome of *M. tuberculosis*. All of these were low molecular weight proteins lacking signal for secretion during the growth of *M. tuberculosis*. Two of these proteins were present in the RD1 region and four others, two in each case, were present in RD7 and RD9, which are deleted in BCG. However, each of the two proteins in RD7 and RD9 belonged to a subfamily of ESAT6, and each subfamily contained five members, two of which were present in regions deleted in BCG but three other members were present in regions conserved in BCG.

Conclusions:

This study demonstrates that all ESAT6-like proteins may not have a role in the specific pathogenesis of *M. tuberculosis* because of their presence in genomic regions that are deleted as well as present in BCG vaccines.

Key Words: *ESAT6; Pathogenesis; M. Tuberculosis;*

Funding Agency: *This study was supported by Kuwait University Research Administration*

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Purification and immunological reactivity of PE35 & PPE68 of the RD1 region of *Mycobacterium tuberculosis*

Ali MM, Ahmad S, Mustafa AS

Department of Microbiology, Faculty of Medicine, Kuwait University

Introduction:

RD1 is one of several regions of difference identified by genetic comparisons of virulent strains of *Mycobacterium tuberculosis*, *Mycobacterium bovis*, and the attenuated vaccine strain, *M. bovis* BCG. Recent studies have shown that the RD1 region encodes an ATP-dependent secretory apparatus involved in secretion of two highly antigenic proteins, ESAT-6 and CFP-10. Two members of PE and PPE families of repetitive proteins, PE35 and PPE68 with unknown functions are located upstream of *esat-6/cfp-10* genes. This study aimed to investigate the immunological reactivity of these proteins in TB patients.

Methods:

The DNA segments corresponding to PE35 and PPE68 were amplified by PCR, cloned in a pGES-TH-1 expression vector and expressed in *Escherichia coli*. The recombinant proteins were purified to near-homogeneity. Sera samples were obtained from 34 patients with pulmonary TB, 10 long-term contacts and 10 healthy subjects. All sera were tested either individually or combined in a pool at a final dilution of 1:200.

Results:

The recombinant PE35 and PPE68 proteins were expressed at high levels in *E. coli* BL-21 cells and purified by affinity chromatography and thrombin protease digestion. Antibodies to PE35 protein were detected in only 3% sera of TB patients, whereas antibodies to PPE68 protein were detected in 30% sera of TB patients, 20% sera of long-term contacts, and 20% sera of healthy subjects.

Conclusions:

PE35 does not stimulate antibody production in most TB patients indicating its weak immunogenicity. However, antibodies reactivity to PPE68 was detected in the sera of TB patients and in the sera of healthy subjects. This cross-reactivity may be due to exposure of the healthy controls to environmental mycobacterial species which also have PPE68 homologues.

Key Words: *M. tuberculosis*; Expression vector; Immunogenicity;

Funding Agency: This study was supported by Research Administration

130: Moderated

Mammalian cell entry proteins encoded by the mce3 operon are expressed during in vitro growth of *Mycobacterium tuberculosis* and internalized by HeLa cells

*El-Shazly S¹, Ahmad S¹, Mustafa AS¹, Al-Attiyah R¹, Krajci D²

¹ Department of Microbiology; ² Department of Anatomy and EM Unit, Kuwait University Faculty of Medicine

Introduction:

The mammalian cell entry (mce)3 is one of four mce operons of *Mycobacterium tuberculosis* that encodes six (Mce3A-F) invasin-like proteins possibly involved in macrophage entry, a process central to the pathogenesis of tuberculosis and stable persistent infection. Previous studies with proteins encoded by mce1 operon have shown that Mce1A is expressed in *M. tuberculosis* and polystyrene beads coated with Mce1A are internalized by mammalian cells. This study aimed to demonstrate the expression of Mce3A-F proteins during in vitro growth of *M. tuberculosis* and their role in the internalization of this bacterium by mammalian cells.

Methods:

Purified recombinant Mce proteins were used to raise antibodies in rabbits. The expression of Mce3A-F proteins during in vitro growth of *M. tuberculosis* was demonstrated by using fractionated sub-cellular protein samples and Western blotting as well as total RNA and reverse transcription (RT)-PCR. Fluorescent polystyrene beads coated with Mce3 proteins were used to study their uptake by HeLa cells using flow cytometry and electron microscopy.

Results:

The mce3A-F mRNA were detected by RT-PCR. Anti-Mce3A, anti-Mce3D and anti-Mce3E antibodies reacted with a protein of apparent molecular size expected for the corresponding Mce3 protein in the cell wall fraction only, prepared from *in vitro*-grown *M. tuberculosis*. Interestingly, the beads coated with Mce3A and Mce3E were found to be abundantly associated with HeLa cells by fluorescent microscopy and flow cytometry. Scanning and transmission electron microscopy confirmed the internalization of beads coated with Mce3A and Mce3E.

Conclusions:

The Mce3A-F proteins are expressed and localized in the cell wall fraction of *in vitro* grown *M. tuberculosis*. The internalization of beads coated with Mce3A/Mce3E by non-phagocytic HeLa cells indicates that Mce3 proteins may also be involved in the interaction of this pathogen with macrophages and contribute towards persistent infection.

Key Words: *M. tuberculosis*; Mce3A-F; Expression and internalization;

Funding Agency: Supported by Research Administration grant

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**Immunological evaluation of regions of differences between
Mycobacterium tuberculosis and the vaccine strains of *Mycobacterium
bovis* BCG in Th1 cell assays**

Shaban F, Al-Attayah R

Department of Microbiology, Faculty of Medicine, Kuwait University, Kuwait

Introduction:

Genomic comparisons of *Mycobacterium tuberculosis* with the vaccine strains of *Mycobacterium bovis* BCG have shown that 11 genomic regions of *M. tuberculosis* are deleted in all BCG strains. The aim of this study was to evaluate these regions for the protective Th1 cell responses in humans.

Methods:

A total of 1,614 overlapping peptides were commercially synthesized. These peptides corresponded to 89 open reading frames (ORF) of 11 genomic regions of *M. tuberculosis* deleted in all strains of *M. bovis* BCG. These regions of differences (RD) included RD1, RD4-RD7, RD9-13 and RD15. Peptides corresponding to each RD were pooled and tested with peripheral blood mononuclear cells (PBMC) obtained from 45 HLA-DR and DQ typed healthy donors showing positive responses to complex *M. tuberculosis* antigens, i.e. whole cells, cell walls and culture filtrate in Th1 cell assays, i.e. antigen-induced proliferation and interferon (IFN)- γ 61543; secretion.

Results:

The results were obtained as a stimulation index (SI) for antigen-induced proliferation and U/ml for delta IFN γ 61543; The SI and delta IFN γ 61543; values of >5 and >5 U/ml, respectively, were considered as positive responses. These criteria showed that, although each RD pool was stimulatory for Th1 cells in a proportion of the subjects tested, the best responses were obtained with an RD1 pool followed by peptide pools of RD7, RD9, RD12, RD10 and RD13. The lowest responses ($<20\%$ positive responses) were seen with peptide pools of RD4, RD5, RD6, RD11 and RD15, suggesting that the antigens encoded by these regions were poor stimulators of Th1 cells.

Conclusions:

The use of peptide pools identified six of the 11 RD of *M. tuberculosis* as good stimulators of Th1 cell responses in unselected PBMC.

Key Words: *M. tuberculosis*; Regions of difference; Th1 cell response;

Funding Agency: The study was supported by a grant from KFAS

132: Moderated

Mechanism of the antimicrobial effects of 1-alkyl-2-(4-pyridyl)pyridinium bromides

* Denny BJ¹, West PWJ², Novotny L¹

¹ Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Kuwait University, Kuwait

Introduction:

A series of novel 1-alkyl-2-(4-pyridyl)pyridinium bromides with alkyl chains varying from C9 to C16 were synthesized and tested as antimicrobial agents against methicillin sensitive and resistant *Staphylococcus aureus*, *Acinetobacter baumannii*, *Escherichia coli* and *Stenotrophomonas maltophilia*. The mechanisms of the antibacterial effects were investigated by adding the efflux pump inhibitor reserpine or the membrane permeabilizer, sodium citrate.

Methods:

Chemical synthesis was based on the reaction of 2, 4'-bipyridyl with alkyl bromide. Antimicrobial activity of the bipyridyls was measured by the agar dilution method. Bacterial cultures were grown on Mueller-Hinton agar in the presence and absence of different concentrations of inhibitors and in the presence and absence of sodium citrate or reserpine.

Results:

Methicillin sensitive *S. aureus* were much more susceptible to the bipyridyls than methicillin resistant strains. Two subpopulations of methicillin resistant *S. aureus* were observed. One group had much higher MIC's than methicillin sensitive strains. The MICs of all MRSA strains were reduced in the presence of reserpine. For the Gram-negative organisms *Escherichia coli*, *Stenotrophomonas maltophilia* and *Acinetobacter baumannii*, the minimum inhibitory concentrations (MIC's) were reduced more than 8-fold in the presence of the membrane permeabilizer sodium citrate.

Conclusions:

The antibacterial effects of these surfactants are related to membrane perturbations. Efflux pumps are also involved in the resistance of MRSA strains to these compounds.

Key Words: Bipyridyl Reserpine; MRSA efflux pumps; ;

Funding Agency: None

Comparison of two electrophoresis systems for genotyping of *Streptococcus agalactiae* using randomly amplified polymorphic DNA (RAPD).

Al- Mouqati S¹, Al- Shamalli A², Qasem J³

¹ Biotechnology Department, Kuwait Institute for Scientific Research, ² Al-Adan Hospital,

³ Department of Biomedical Sciences , College of Health sciences , Authority for Applied Education and training, Kuwait.

Introduction:

Streptococcus agalactiae is considered one of the major causes of invasive bacterial infections in neonates. The aim of this study was to evaluate the genetic diversity of between clinical isolates of *S. agalactiae* from Kuwait using two electrophoresis systems.

Methods:

A protocol for typing strains of *Streptococcus agalactiae* isolates based on randomly amplified polymorphic DNA (RAPD) fragments has been developed. Using a single 10-mer primer. Different conditions of DNA release and amplification were investigated in order to obtain reproducible results and high discrimination among strains.

Results:

We tested fifteen (15) clinical isolates using both submarine Gel electrophoresis and PhastSystem gel electrophoresis. The amplicons arrays were analyzed and dendrogram constructed using a matrix generated by UPGMN (Unweighted Pair Group Method with Arithmetic Means). We were able to cluster the 15 isolates according to RAPD-DNA pattern into five clusters of relatively high diversity. Cluster 4 contained 7 isolates of identical RAPD patterns Cluster 2 contained two isolates of similar pattern cluster 1 contained 2 isolates of high similarities and cluster 3 contained only one isolate showing high heterogeneity with the rest in RAPD profile. The RAPD pattern was compared with the anti-biogram and no significant correlation was seen.

Conclusions:

In conclusion, RAPD analysis distinguished strains with identical electrophoretic types; this method of analysis provides a practical alternative for genomic typing of GBs. The phast -system (Pharmacia) has the advantage of performed gel which can be rapidly electrophoresed in a controlled environment, coupled with an extremely sensitive silver stain to visualize band patterns. A very high detective efficiency can be achieved using the PhastSystem in comparison to the regular sub-marine gel electrophoresis.

Key Words: *Streptococcus; Agalactiae; PhastSystem;*

Funding Agency: None

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Comparative evaluation of PCR and ELISA for the detection of anti-Candida IgG, mannan and β 61538;-D-glucan in the diagnosis of culture proven candidemia patients

Alam FF, Mustafa AS, Khan ZU

Department of Microbiology, Faculty of Medicine, Kuwait University, Kuwait

Introduction:

A delayed diagnosis of candidemia is associated with high mortality and therefore early diagnosis and institution of appropriate therapy is essential for better prognosis. The aim of this study was to evaluate the comparative sensitivity of several non-culture based tests in the early diagnosis of candidemia.

Methods:

Sera samples were obtained from 16 culture-confirmed cases of candidemia and 8 culture negative healthy controls. DNA was extracted from the sera using standard techniques and PCR was performed with generic as well as species-specific primers for *C. albicans*, *C. parapsilosis*, *C. glabrata* and *C. tropicalis*. ELISA was performed to detect anti-Candida IgG by using Candida antigen coated 96 well plates. The antigen detection was performed to detect Candida mannan and β 61538;-D-glucan using commercially available kits. In case of antibody and antigen detection, the cut-off values for a positive reaction were the mean values +2 SD obtained with the control sera.

Results:

The results showed that all of the control sera from culture negative healthy subjects were also negative for PCR as well as ELISA to detect Candida antigens and antibodies. With respect to culture proven candidemia patients, the detection of mannan was positive in only 1 case, whereas anti-Candida IgG was positive in 8 cases, PCR in 14 cases and β 61538;-D-glucan detection in 15 cases. However, the patients that were negative for PCR (patient no. 10 and 13) and glucan detection (patient 16) were different.

Conclusions:

The results of this preliminary study demonstrate that PCR and glucan detection are highly sensitive and specific for the early diagnosis of candidemia. As compared to culture, which takes 3 to 4 days, the results of these tests are available within a single working day.

Key Words: *Candidemia; DNA; ELISA;*

Funding Agency: *The study was supported by the College of Graduate Studies*

135: Moderated

Polymerase chain reaction- based diagnosis of invasive candidiasis

*Al-Rifaiy AI, Mustafa AS, Khan ZU

Department of Microbiology, Faculty of Medicine, Kuwait University

Introduction:

Invasive candidiasis is an important cause of morbidity and mortality in immunocompromised patients. Due to the limitations of clinical and laboratory diagnosis, PCR has emerged as a promising alternative. In this study, we applied a two-step PCR assay for direct detection and specific identification of *Candida* species in clinical specimens.

Methods:

Two-step PCR, using universal fungal primers for ribosomal RNA (rRNA) in the first round and species-specific primers for *C. albicans*, *C. tropicalis*, *C. glabrata* and *C. parapsilosis* in the second round, was applied. The assay was evaluated with DNA isolated from reference strains (ATCC) and clinical isolates of *Candida*, blood of intravenously infected mice, and sera of culture-proven candidemia patients. PCR results were compared with that of conventional culture methods.

Results:

The sensitivity of PCR in spiked serum specimen was close to one organism per milliliter. Evaluation of the assay with 50 clinical *Candida* Isolates showed 98% concordant results with yeast identification systems. In intravenously infected mice, the positivity of PCR on blood exceeded that of blood culture in normal mice (40 versus 13%), cyclophosphamide-treated (51 versus 21%), and cyclophosphamide and fluconazole-treated mice (38 versus 15%). *C. albicans* DNA was detected in blood samples of 5 (28%) gastrointestinally colonized mice fed on *C. albicans* and tetracycline dietary supplement. In culture-proven candidemia patients (n=30), results of PCR on serum samples were in full concordance with blood culture results, both with respect to positivity and species specificity. PCR assay was negative in sera from healthy subjects (n=10) and superficially colonized (n=6) patients.

Conclusions:

A sensitive and specific two-step PCR assay has been developed for the detection of four commonly encountered *Candida* species that can be useful for early diagnosis of candidemia and invasive candidiasis.

Key Words: Invasive candidiasis; Candidemia; PCR;

Funding Agency: Collage of Graduate studies, Kuwait University

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Diagnosis of adenoviral conjunctivitis in Kuwait by PCR technology

*Al-Rifaiy AI¹, Al-Nakib W¹, Al-Merjan J², Pacsa AS¹

¹ Department of Microbiology, Faculty of Medicine, Kuwait University

² Al-Bahar Ophthalmology Center, Ministry of Health, Kuwait

Introduction:

Adenoviruses are associated with a wide range of clinical manifestations. Eleven of the 51 human adenovirus serotypes are known to cause eye infections. Ocular adenoviral infections exhibit varieties of clinical presentations, including epidemic keratoconjunctivitis (EKC), pharyngoconjunctival fever (PCF), nonspecific follicular conjunctivitis, and chronic papillary conjunctivitis. We established a sensitive PCR-based assay to investigate the importance of adenoviruses in eye infections in Kuwait.

Methods:

Primers were used to amplify the 480-bp consensus region of adenovirus hexon gene. Specificity and sensitivity of the PCR assay were tested with DNA extracted from adenovirus reference strains (ATCC), spiked medium, other DNA and RNA viruses (using cDNA), and eye specimens. Eye swabs (n=138) were collected from 107 patients presenting with unilateral or bilateral conjunctivitis at Al-Bahar Ophthalmology Center, Kuwait. Results of PCR assay were compared with that of conventional tissue culture and commercially available direct immunofluorescence tests.

Results:

Amplified product was detected in all adenovirus ATCC strains, but not other viruses tested for specificity. The sensitivity of the test reached 10⁻⁵ dilution of media spiked with adenovirus serotype 8 (Ad8). When applied for clinical specimens, 58 of 138 (42%) eye swabs (51 of 107 patients [48%]), were positive by PCR. The assay proved to be more sensitive when compared with either tissue culture or immunofluorescence tests.

Conclusions:

A rapid and sensitive PCR- based assay was evaluated for the diagnosis of adenoviral conjunctivitis. The above data are the first to be released about adenovirus eye infection in Kuwait, and is thought to support future work regarding the role of adenoviruses in various infections in the region

Key Words: *Eye infection; Adenoviruses; PCR;*

Funding Agency: *Collage of Graduate studies, Kuwait University*

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Sensitive and species-specific detection of *Aspergillus* and *Fusarium* species DNA by two-step nested PCR amplification of rDNA

*Ahmad S, Theyyathel AM, Khan ZU

Department of Microbiology, Kuwait University Faculty of Medicine

Introduction:

Invasive aspergillosis and fusariosis are two important opportunistic mycoses associated with high mortality. These infections are difficult to diagnose due to non-specific signs and symptoms and low culture positivity. We recently developed a semi-nested PCR for detecting *Aspergillus* and *Fusarium* species DNA, however, genomic DNA from other fungi also initially yielded amplicons due to the panfungal nature of first round PCR primers. Here we describe a nested (n) PCR protocol for the detection of *Aspergillus* and *Fusarium* species DNA.

Methods:

The genomic DNA from 6 reference strains of *Aspergillus* and *Fusarium* species, 9 other fungi and from serum samples from experimentally-infected rats was isolated and used as a template for PCR. The primers were derived from the internally transcribed spacer (ITS) regions 1 and 2 and their specificity was determined by BLAST. The PCR amplicons were detected by agarose gel electrophoresis.

Results:

The nPCR amplification of the ITS regions from *Aspergillus* and *Fusarium* species with species-specific primers was positive with a minimum of nearly 400 fg of *Aspergillus* or *Fusarium* DNA which is roughly equivalent to 10 genome copies (analytical sensitivity). The amplification with each primer pair was specific, as the amplicons were obtained only from the corresponding *Aspergillus* or *Fusarium* species (analytical specificity). Preliminary application of the established methodology to sera samples obtained from 10 experimentally infected rats with *A. fumigatus* showed that nPCR was positive in four sera even four days post-infection.

Conclusions:

A sensitive and species-specific nested PCR was developed for the detection of *Aspergillus* or *Fusarium* species DNA and the established protocol detected *A. fumigatus* DNA in experimentally infected rats. The established methodology may be useful for the early diagnosis of aspergillosis and fusariosis and needs to be validated in clinical specimens.

Key Words: *Aspergillosis; Fusariosis; Molecular diagnosis;*

Funding Agency: *Supported by Kuwait University Research Administration*

138: Moderated

Enzyme-based parasite lactate dehydrogenase (pLDH) test for the rapid diagnosis of *Plasmodium falciparum* and *Plasmodium vivax*

*Sher A¹, Iqbal J², Hira PR², Hameed GhHM³, Mandakar Y⁴, Al-Mufti S⁵, Al-Owaish RA⁴

¹ Malaria Laboratory; ² Department of Microbiology, Faculty of Medicine; ³ Ports and Borders Health Division; ⁵ Virology Laboratory; ⁴ Department of Public Health, Ministry of Health, Kuwait

Introduction:

The aim of this study was to develop a rapid and specific diagnostic test to identify and treat individuals infected with malaria. Malaria is endemic in more than 90 countries worldwide, and it is estimated that there are over 500 million clinical cases and 2.7 million deaths per year. In Kuwait about 250 cases of malaria are detected every year by microscopy, which is very cumbersome and time consuming.

Methods:

About 250,000 immigrants come to Kuwait each year for residence or to work, and the majority of them come from developing countries where malaria is endemic. A total of 200 blood samples were tested for malaria parasites by the OptiMAL method, and the results were compared to results obtained from thin and tick blood films microscopy.

Results:

During screening by microscopy it was found that 50% (100/200) of the blood samples were infected with malaria. *Plasmodium vivax* was detected in 80% (80/100) of the blood samples whereas, *Plasmodium falciparum* was in 20% (20/100). Similarly, the OptiMAL test results indicated that 45% (90/200) of the blood samples were positive for malaria parasites. Infection with *P. vivax* was found in 81%(73/90) and *P. falciparum* in 18% (17/90) blood samples, respectively. The microscopy method identified five more *P. vivax* in samples that were negative in OptiMAL test. However, there was a good correlation between the results of microscopy and OptiMAL for the other 73 blood samples infected with *P. vivax*. The sensitivity of OptiMAL in detecting *P. vivax* was 40% when parasitemia was less than 100/μl of blood and rose to 100% when parasitemia was more than 100/μl.

Conclusions:

The OptiMAL test may be as good as Giemsa's stained thick and thin blood films in the diagnosis of malaria in very remote areas where proper laboratory facilities and well trained technicians are not available. The OptiMAL test is very simple and the results usually available within 5 minutes.

Key Words: OptiMAL; Malaria; Enzyme;

Funding Agency: Ministry of Health, Kuwait

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Evaluation of the immunochromatographic test for rapid assessment of lymphatic filariasis among the expatriate population in Kuwait.

*Iqbal J¹, Sher A², Khalid N¹, Hira PR¹

¹ Dept. of Microbiology, Faculty of Medicine, Kuwait University; ² Malaria Laboratory, Ports and Borders, Ministry of Health, Kuwait

Introduction:

Lymphatic filariasis continues to be a major source of permanent disability and an impediment to socio-economic development in 73 countries where more than 1 billion people are at risk and over 120 million infected, *Wuchereria bancrofti* (*W. bancrofti*) is responsible for approximately 90% of the infections. Early and efficient diagnosis of *W. bancrofti* infection is a key step in monitoring, treatment and subsequent eradication of lymphatic filariasis. Currently used microscopy-based assays are unable to detect active infection. This study was done to evaluate the performance of immunochromatographic test (ICT) that detects circulating filarial antigen (CFA) Og4C3 in the immigrant population.

Methods:

The study was performed during the period April 2000 to November 2003. A total of 1050 immigrants (>90% from Indian Subcontinent) from filarial endemic countries and 260 individuals residing in Kuwait were screened for filarial infection: 50 healthy native Kuwaiti blood donors, 50 microfilaria-negative individuals from endemic areas and 160 patients with other parasitic infections. All specimens were tested for microfilaraemia by microscopy of thick blood film (TBF) and CFA by ICT and TropBio assay.

Results:

The overall prevalence of filarial antigenemia was 18.3% by ICT test and 20.3% by TropBio assay; microfilaremia was present in 32 (3%) cases. The mean microfilarial count in these mf-positive cases was 816 mf/μl. The TBA was negative in all the controls. The sensitivity and specificity of the ICT test was compared with that of TBF and TropBio assay (TBF: 93.8% and 84.1%; TropBio assay: 90.1% and 100% respectively). The ICT test failed to detect CFA in 2 cases with the microfilaraemia load of <20 mf/ml.

Conclusions:

This study showed that ICT test was rapid, simple to perform and had a high sensitivity of 93.8% to detect filarial infection in the day-time collected blood specimens.

Key Words: Lymphatic Filariasis; Immigrants; Immunochromatographic test (ICT);

Funding Agency: Kuwait University MI 06/01

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Housekeeping gene expression during fetal brain development in the rat: validation by semi-quantitative RT-PCR

*Al-Bader MD, Al-Sarraf HA

Department of Physiology, Faculty of Medicine, Kuwait University

Introduction:

Mammalian gene expression is usually carried out at the level of mRNA where the amount of mRNA of interest is measured under different conditions such as growth and development. It is therefore important to use a “housekeeping gene”, that does not change in relative abundance during the experimental conditions, as an internal control. However, recent data suggest that expression of some housekeeping genes may vary with the extent of cell proliferation, differentiation and under various experimental conditions. Thus, the aim of this study was to find a housekeeping gene that can be used as an internal control during fetal rat brain development.

Methods:

The expression of various housekeeping genes (18S rRNA [18S], glyceraldehydes-3-phosphate dehydrogenase [G3PDH], beta-glucuronidase [BGLU], histone H4 [HH4], ribosomal protein L19 [RPL19] and cyclophilin [CY]) was investigated during fetal rat brain development using semi-quantitative RT-PCR at 16, 19 and 21 days gestation.

Results:

It was found that all genes studied, with exception to G3PDH, did not show any change in their expression levels during development. G3PDH, on the other hand, showed a significant increase in expression between 16 and 21 dg ($p < 0.05$).

Conclusions:

These results suggest that the choice of a housekeeping gene is critical to the interpretation of experimental results and should be modified according to the nature of the study.

Key Words: *Housekeeping genes; Glyceraldehyde-3-phosphate dehydrogenase; Fetal rat brain; Funding Agency: Financial support for this study was provided by Kuwait University*

141: Moderated

Progesterone-induced blocking factor mediates the redirection of potentially harmful Type 1 cytokines

*Raghupathy R¹, Al-Mutawa E¹, Makhseed M², Azizieh F¹, Szekeres-Bartho J³

¹ Department of Microbiology, Faculty of Medicine, Kuwait University; ² Department of Obstetrics & Gynecology, Faculty of Medicine, Kuwait University; ³ Pecs University Medical School, Hungary

Introduction:

Pregnancy loss is a problem of great clinical, social and emotional significance, and recurrent spontaneous abortion (RSA) is a common cause of pregnancy loss. Type 1 or Th1-type cytokines are injurious to the conceptus and previous work in this and other laboratories has demonstrated that women with normal pregnancy manifest a higher Type 2 bias, while women with a history of unexplained RSA evince a bias towards Type 1 reactivity. If strong maternal Type 1 immunity is indeed responsible for pregnancy loss, modalities that redirect maternal reactivity away from Type 1 predominance may be effective in preventing pregnancy loss. Progesterone has been shown to favor the development of Type 2 responses and to reduce the production of Type 1 cytokines by lymphocytes from women with a history of RSA. This study was undertaken to ascertain whether Progesterone-Induced Blocking factor (PIBF) is capable of redirecting maternal cytokine profiles. PIBF is a protein, the production of which is induced in lymphocytes by progesterone. PIBF has been shown to suppress cytotoxic T cell and natural cell reactivity.

Methods:

Peripheral blood cells from 30 women with RSA were stimulated with the mitogen phytohemagglutinin, and cultured in the presence or absence of PIBF after which the levels of Type 1 and Type 2 cytokines were estimated by ELISA.

Results:

Lymphocytes exposed to PIBF produce higher levels of the Type 2 cytokines IL-4, IL-6 and IL-10. The ratios of Type 1 to Type 2 cytokines are substantially reduced in the presence of PIBF, indicating a shift away from Type 1 predominance towards Type 2 bias.

Conclusions:

PIBF appears to bring about a shift from the potentially harmful maternal Type 1 reactivity to a Type 2 bias, a cytokine profile that is more conducive to the success of pregnancy. Such an immunomodulatory molecule may be valuable in the therapy of immunologically-mediated pregnancy loss.

Key Words: *Progesterone; Cytokines; Recurrent spontaneous abortion;*

Funding Agency: *Kuwait University Research Administration: MI05/02*

Percentage distribution of activated and naïve T-lymphocyte sub-populations in peripheral blood of Kuwaiti asthmatics with rhinitis

*Mahmoud F¹, Abul HT², Arifhodzic N³, Haines D⁴, Ammar I⁵, Novotny L⁵, Al-Dowaisan A³, Wise J⁶

¹ Department of Medical laboratory Sciences, Faculty of Allied Health Sciences, ² Department of Pharmacology, Faculty of Medicine, ³ Al-Rashed Allerg Center, Sabah Hospital, Kuwait,

⁴ Department of Epidemiology and Biostatistics, The George Washington University, Washington DC. ⁵ Department of Pharmaceutical Sciences, Faculty of Pharmacy, Kuwait University, Kuwait, ⁶ Natural Alternatives International Inc., San Marcos California, USA

Introduction:

Asthma and allergic disease, including rhinitis, have increased substantially in Kuwait since 1991. Previous studies characterizing the underlying pathogenesis of asthma have demonstrated elevated immune activation revealed by expanded populations of activated peripheral blood (PB) lymphocytes. Here we hypothesize that the profile of activated PB T cells in a Kuwaiti asthmatic population includes helper (CD4+), cytotoxic and T cells with natural killer (T-NK) cell surface antigens; and that significant expansion of T cells expressing adhesion molecules will also be observed.

Methods:

Peripheral venous blood was taken from a population of 17 Kuwaitis afflicted concurrently with allergic rhinitis and asthma. Frequencies of selected T cell sub populations were evaluated by 2-color flow cytometry, including naïve T cells (CD4+CD45RA+), memory and activated T-helpers (CD4+CD45RO+CD4+CD4+CD25+, CD4+HLA-DR+, CD4+CD29+, CD4+CD54+, CD4+CD62+), activated T-cytotoxic cells (CD8+CD25+, CD8+HLA-DR+, CD8+CD38+) and T-NK cells (CD3+CD16+CD56+).

Results:

Comparison of T lymphocyte subpopulations in healthy versus asthmatic subjects, revealed significantly elevated frequencies of all activated forms in the asthmatic group ($p < 0.05$ - $p < 0.001$), except for CD3+CD4+HLA-DR+. Conversely, no significant differences were noted in percentage content of CD3+CD4+CD45RA (naïve T cells) in peripheral blood of healthy, as compared to asthmatic subjects.

Conclusions:

Expanded populations of activated PB T lymphocytes are expected on the basis of the known characteristics of asthma and allergic rhinitis. These results provide a clear separation between healthy and symptomatic individuals in an array of easily-measured immunoparameters. This profile provides an excellent objective measure of disease and will allow clear evaluations to be made of novel drug effects.

Key Words: *Asthma; Lymphocyte activation; Peripheral blood;*

Funding Agency: *None*

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Major lymphocyte populations and T-cell expression of ICAM-1 and L-selectin adhesion molecules, in Kuwaitis with asthma and rhinitis

*Arifhodzic N¹, Mahmoud F², Abul HT³, Haines D⁴, Ammar I⁵, Novotny L⁵, Wise J⁶

¹ Al-Rashed Allergy Center, Sabah Hospital, Kuwait; ² Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences; ³ Department of Pharmacology, Faculty of Medicine; ⁴ Department of Epidemiology and Biostatistics, The George Washington University, Washington DC; ⁵ Department of Pharmaceutical Sciences, Faculty of Pharmacy, Kuwait University, Kuwait; ⁶ Natural Alternatives International Inc., San Marcos California, USA

Introduction:

We hypothesize that Kuwaitis afflicted concurrently with asthma and rhinitis, exhibit positive skewing of major peripheral blood lymphocyte subpopulations and T cells expressing adhesion molecules, toward elevated percentages of activated forms, including those expressing adhesion molecules.

Methods:

Seventeen Kuwaiti patients diagnosed with bronchial asthma concurrent with rhinitis and a control cohort of 17 healthy individuals participated in this study. Peripheral venous blood from each subject was evaluated by 2-color flow cytometry for major lymphocyte populations including CD19+ (B cells) and T and or NK cells defined by the following cell surface antigens: CD2+, CD3+, CD4+, CD8+, CD16+CD56+; and T-helper (CD3+CD4+) cells expressing the adhesion molecules ICAM-1 (CD3+CD4+CD54+) and L-selectin (CD3+CD4+CD62+). Total lymphocyte counts were also recorded.

Results:

No significant differences in total lymphocyte count or the numbers and percentage of T cells was noted when blood from healthy subjects was compared with that of asthmatics. Relative to healthy subjects, asthmatics exhibited increased percentage of T + NK cells ($p < 0.05$), increased T-helper, T-cytotoxic and NK cells for both total numbers ($p < 0.05$ - $p < 0.001$); and percentages ($p < 0.001$); as well as increased percentages of T helper cells expressing the intracellular adhesion molecules ICAM-1 (CD54) ($p < 0.01$) and L-selectin (CD62) ($p < 0.05$). Conversely, B cells were present at significantly lower levels in asthmatics, both in total numbers ($p < 0.05$) and percentages of circulating lymphocytes.

Conclusions:

Consistent with results of previous investigators and with our own studies, asthmatics with rhinitis exhibit expanded populations of cells implicated in the pathogenesis of respiratory inflammation. Elevated percentage of T cells expressing adhesion molecules is consistent with higher levels of immune activation and increased migration of these cells into inflamed tissue.

Key Words: *Asthma; ICAM-1; L-Selectin;*

Funding Agency: *None*

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Trace elements and cell-mediated immunity in gestational and pre-gestational diabetes mellitus during third trimester of pregnancy

*Abul HT¹, Mahmoud F², Haines D³, Williams J¹, Gupta M⁴, Mannazhath N⁵, Omu AE⁵

Departments of ¹Pharmacology and ⁵Obstetrics & Gynaecology, Faculty of Medicine, Kuwait University; ² Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences, Kuwait University; ⁴ Maternity Hospital, Kuwait; ³ Department of Epidemiology and Biostatistics, The George Washington University Medical Center, Washington, D.C., United States of America; ⁴ Maternity Hospital, Kuwait;

Introduction:

Here, peripheral blood lymphocyte subpopulations, serum antioxidant enzymes activity and serum levels of zinc (Zn²⁺), copper (Cu²⁺), magnesium (Mg²⁺), selenium (Se²⁺) and chromium (Cr³⁺) were evaluated in diabetic and healthy pregnant subjects.

Methods:

Participants included 63 women with gestational diabetes mellitus (GDM) (43 women managed with diet and 20 with insulin) and 16 pregnant women with Type 2 diabetes (5 women managed with diet and 15 with insulin). 44 normal pregnant and 48 healthy, non-pregnant women were included as controls. Whole blood was analyzed for electrolytes by atomic absorption; antioxidant enzymes activity by spectrophotometry; and lymphocyte sub-populations by flow cytometry.

Results:

Zn²⁺ and Cr³⁺ deficiency were observed in Type 2 diabetics with an increase in Cu²⁺ in all pregnant cohorts. Naïve T cells were decreased and memory T-cells and activated T cells (CD4+HLA-DR+, CD4+CD29+) were increased in GDM but not in Type 2 diabetes. In diet controlled GD cohort %CD45RO+/ CD45RA+ T cells correlated directly with serum Mg²⁺ (p<0.05) and Zn²⁺ (p<0.01) and inversely with Cu²⁺ (p<0.01), in insulin-treated GD cohort, %CD4+CD29+ cells was increased proportionally to serum Zn²⁺ (p<0.05). Total antioxidant activity was increased in healthy pregnant women (p<0.05) but not in diabetics. Lower superoxide dismutase (SOD) levels were observed in Type 2 diabetics relative to non-pregnant (p<0.005), and SOD correlated directly with CD4+CD25+ T cells in Type 2 insulin-treated cohort.

Conclusions:

Maternal immunosuppression may not be as effective in GDM patients as in healthy women. The results reflect the role of trace elements in regulation of lymphocyte activation in pregnancy. Increased oxidative stress observed in GDM and Type 2 diabetes may influence lymphocyte activation and cause complications. Dietary manipulation may allow substantial improvements to be made in existent approaches to management of diabetes.

Key Words: *Pregnancy; Diabetes; Trace elements;*

Funding Agency: *KU MRO2/00*

Incidence of Bell's Palsy in Kuwait

*Al-Mazeedi S, Al-Muhana A, Nabeel M

Kuwait University, Faculty of Allied Health Sciences, Physical Therapy Department
Farwania Hospital, Kuwait

Introduction:

Bell's palsy is an acute unilateral paresis or paralysis of the facial nerve. The number of cases of this condition in Kuwait is very high, however, the incidence has not yet been determined. Therefore, the purpose of this study was to determine the incidence of Bell's Palsy in Kuwait.

Methods:

Medical records of 229 patients with Bell 's palsy, who were seen and treated at the department of physical therapy at Farwania Hospital between the months of July 2001 and July 2002, were reviewed. The data collection sheet included information regarding the patient's demographic characteristics, past medical history, site and severity of facial palsy, date of current and previous onset, medication, physical therapy treatment modality and prognosis.

Results:

Mean age of the patients was 31.32 ± 16.01 , incidence of Bell's palsy was 53.6 per 100,000 (57.8 males and 44.5 females). The highest onset of Bell's Palsy was during the months of August, January, November and December (26%, 27%, 25% and 25% cases respectively). In 94.73% of cases, Bell's Palsy was due to unknown cause, 2.19% had common cold, 0.44% had past medical history of hypertension and/or diabetes mellitus, and 0.44% had trauma to the facial nerve. Ninety percent of the patients had Bell's palsy as a first onset and 8.33% had it previously. Out of the 229 patients, 64.63% had full recovery, 9.21% had fair recovery and 4.80% had poor recovery.

Conclusions:

The incidence of Bell's palsy is very high in Kuwait compared to other countries, highest occurrence of the condition was in the months of August, January, November and December. Highest percentage of Bell's palsy cases were due to unknown cause which is in agreement to other studies.

Key Words: *Bell's Palsy; Incidence; Physical Therapy;*

Funding Agency: *None*

The Kuwait Nutrition Surveillance System

Al-Hamad NM, *Al-Sumaie MA, Prakash P
Administration of Food and Nutrition, Ministry of Health, Kuwait

Introduction:

The State of Kuwait has initiated and run a nation-wide Nutrition Surveillance System since 1995. This was established by the Nutrition Unit with consultation provided through WHO/EMRO/CDC and at present being implemented by the Administration of Food and Nutrition. The Kuwait Nutrition Surveillance System (KNSS) is intended to provide information on the nutritional status of Kuwaiti population. The data will help to identify prevalent nutrition-related problems; identify high risk groups; monitor trends; target resources for program planning; and evaluate the effectiveness of interventions.

Methods:

KNSS is designed as a "sentinel" surveillance system. Data on selected nutritional status indicators were collected from selected clinics, schools and Medical Council from January to December, 2003. A sample of 17,140 from ages 2 months to 60 years and above was included.

Results:

The trend in obesity in all age groups studied is on the rise and obesity was more among adult women (48.4%) than adult men (29.1%). Iron deficiency anemia is high among preschool children (20.9%), adolescent females (25.4%) and women of child bearing age (27.9%). There is an increased trend of dyslipidemia and adult onset diabetes among adults.

Conclusions:

Kuwait is the first country to start a nutrition surveillance system among the other Gulf and Eastern Mediterranean Countries. Obesity is increasing at an alarming rate among all sectors of the population. Iron deficiency anemia is still a major public health problem in Kuwait. Nutritional surveillance is an efficient monitoring system that does not require statistical analysis for comparison between the groups.[CDC/WHO]

Key Words: Nutrition Surveillance; Obesity; Iron deficiency anemia;

Funding Agency: None

Non-compliance of weight loss attempts among Kuwaiti adults

Al-Qaoud N, Prakash P, Jacob S

Administration of Food and Nutrition, Ministry of Health, Kuwait

Introduction:

Attempted weight loss is a common behavior; however obesity remains a major public health problem. A survey was therefore conducted to find out the reasons for attempting to lose weight, for choosing medical nutrition outpatient clinic and for non-compliance of weight loss attempts by dietary regimes.

Methods:

Survey methods were followed and a purposive sampling technique was used to select a sample of 526 Kuwaiti adults (103 males and 423 females) who registered themselves in the medical nutrition outpatient clinic from August - December 2003. Height and weight were measured and Body Mass Index (BMI) was calculated and classified according to WHO grades of obesity. A structured questionnaire was used for collecting data.

Results:

Women outnumbered men in attempting to lose weight. Nearly sixty percent of the sample falls in the category of obese class II (BMI 30-40). The majority of the sample was in the age group of 20-40 years, educated and married. Forty seven percent attempted to lose weight to avoid health problems. 41.1% chose the medical nutrition outpatient clinic with the advice of friends or relatives. A majority (70.5%) reported previous attempts to lose weight but number of attempts varied from two to more than four. One third of the sample made previous attempts as advised by a dietitian. The reasons for non-compliance of the dietary weight loss attempts were unable to resist sweets and traditional foods (27.3%) and not satisfied with the previous dietary regime outcome (16.7%). Half of the sample perceived normal weight reduction as 2-5kg per month.

Conclusions:

Kuwaiti adults made attempts to lose weight to avoid health problems. The study confirms awareness, health consciousness and social support, but lack of self-control and motivation among dieters. Hence behavioral management techniques may also be considered for nutrition education approaches and effective weight management strategies.

Key Words: Kuwait; Attempted weight loss; Non-compliance;

Funding Agency: None

148: Moderated

Prophylactic intravenous bolus ephedrine for elective Caesarean section under spinal anesthesia.

El-Zeini MN, *Al-Refaai AR, Aharmy J, Al-Abdul Hadi F

Department of Anesthesia, Maternity Hospital, Sabah Area, MOH, Kuwait.

Introduction:

Spinal anesthesia is an excellent technique for Caesarean section. It has become the routine in some centers, and deserves to be used even more widely in the community. Hypotension is a frequent problem with spinal anesthesia. Sometimes ephedrine is given IV prophylactically, and sometimes added to the IV bag to treat hypotension. Others may give intramuscularly ephedrine prophylactically, but this seems rather uncontrollable. Ephedrine IV before hypotension occurs helps prevent hypotension and decreases therapeutic doses given after. Objective: To compare the incidence of maternal hypotension associated with spinal anesthesia for cesarean section when 10 or 20-mg prophylactic boluses of intravenous (IV) ephedrine are used

Methods:

After patients had received an intravenous preload of 500 mL of lactated Ringer's solution, spinal anesthesia was administered in the sitting position with hyperbaric bupivacaine 2.5 mL 0.5%. A total of 40 patients were divided into 2 groups to receive intravenously a simultaneous bolus of either ephedrine 10mg (Group A, n = 20), or ephedrine 20 mg (Group B, n = 20). Maternal blood pressure was checked every 3 minutes. Hypotension was promptly treated with further rescue boluses of 2.5-mg ephedrine if systolic arterial pressure fell to greater than 30% below baseline.

Results:

There was a significantly higher incidence of hypotension in Group A (10mg ephedrine) compared to Group B (20mg ephedrine). Fewer rescue boluses of ephedrine were required in Group B (20mg ephedrine) compared with Group A (10mg ephedrine) [24/36 in the 10mg ephedrine group vs. 9/36 in the 20mg ephedrine group, respectively].

Conclusions:

A prophylactic bolus of ephedrine 20 mg intravenously given at the time of intrathecal block, plus rescue boluses as needed, leads to a lower incidence of hypotension following spinal anesthesia for Caesarean section compared to ephedrine 10mg bolus intravenous, plus rescue boluses.

Key Words: *Prophylactic ephedrine; Spinal Anesthesia; Caesarean section;*

Funding Agency: *None*

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Maternal mortality between cardiac pregnant mothers admitted to maternity ICU.

Al-Refaai AR¹, *El-Zeini MN¹, Vedi HJ¹, Slim N¹, Mamoon I²

¹Department of *Anesthesia and²**obstetrics, Maternity Hospital, Sabah Area, MOH, Kuwait.

Introduction:

Heart disease is a leading cause of maternal death. Approximately 2.6% of pregnancies involve women who have cardiac disease. Congenital heart disease is becoming more common during pregnancy. The presence of cardiac disease does not preclude pregnancy but increases the risk to the mother and requires special management. The aim of this study was to evaluate the association between heart disease and maternal mortality in a relatively large group of patients admitted to ICU for the last 3 years in comparison with the New York Heart Association (NYHA) mortality rates 1 to 7%.

Methods:

A retrospective evaluation of the outcomes of 47 pregnant women with heart disease who received a part of their obstetrical care at the ICU of Sabah maternity hospital from the year 2002 through 2004. Those who have pregnancy induced diseases, like PIH or PET were excluded.

Results:

Of the 1165 admissions 47 were cardiac pregnant patients. 28/47 have had hypertensive heart diseases (59%). 11/47 (23%) were rheumatic heart disease patients. 4/47 were congenital heart disease (8%). Cardiomyopathy patients were 3/47 (6%). 1/47 was diagnosed to be arrhythmia patient (2%). No single mortality was recorded between the 47 cases studied for 3 years.

Conclusions:

Multidisciplinary teams including cardiologists, obstetricians, anesthetists, physiotherapists and nursing teams, should undertake management of pregnant women with pre-existing cardiac problems. In women with pre-existing cardiac disease wishing to proceed to term, cardiac status must be optimized preoperatively and planned elective delivery is advised. Vaginal delivery is preferable, and careful incremental regional anesthesia is safe in most women with cardiac disease. The presence of adequate systems for early detection, appropriate referral to specialist centers, and timely delivery with multidisciplinary support can minimize the serious consequences of poorly controlled heart disease in pregnancy.

Key Words: *Mortality; Pregnancy; Cardiac;*

Funding Agency: *None*

150: Moderated

An audit of post-dural puncture headache

*Mlechkova L, Vedi HJ, Baretto C, Madhavan L, Mohamed M, Zalak M, Al-Refaai AR, Nagi M, Gad R, Botev S

Anaesthesia Department, Maternity hospital, Kuwait

Introduction:

Post-dural puncture headache (PDPH) is an iatrogenic complication of neuraxial blockade. The cerebrospinal fluid leakage from the punctured dura reduces the pressure and volume in the subarachnoid space, causing traction on the meninges and blood vessels rich of pain fibers. This effect is increased by gravity when the patient assumes an upright position. The purpose of our study is to define the incidence of PDPH with conjunction of the predisposing factors in order to prevent this troublesome complication and to promote the use of regional anaesthesia (RA).

Methods:

A retrospective study for one year period was performed on 525 patients who received regional anaesthesia for cesarean delivery, labor analgesia and gynaecological procedures. Distributional analysis was performed regarding age, weight and height of the patients, numbers and type of surgeries and anaesthesia. The incidence, onset, nature, duration and treatment of the headache were evaluated and the risk factors were assessed.

Results:

From 525 patients with RA, 45.2% received spinal (SA), 22.8% epidural (EA), 31.6% combined spinal epidural (CSE), and 0.4% caudal anaesthesia. 88.3% of the regionals were for obstetric procedures and 11.7% for non obstetric. 25% of operative deliveries were done under RA. The incidence of PDPH was 4.7% with prevalence for obstetric cases. 40% of PDPH was after emergency and 60% after elective procedures. Mild forms of PDPH occurred in 88% of patients. 32% of the PDPH was after CSE, 16% after EA and 52% after SA. The patients were treated conservatively. All headaches except 3 resolved within 72h.

Conclusions:

Parturients have the greatest risk of PDPH which rarely is prolonged or debilitating. Cough, bleeding, and dehydration may deteriorate PDPH. Getting greater experience in RA and use of fine, atraumatic spinal needle is advised in order to decrease the incidence of PDPH.

Key Words: *Post-dural puncture headache (PDPH); Regional anaesthesia; Pregnancy;*

Funding Agency: *None*

151: Moderated

Screening for gestational diabetes in Kuwait

*Al-Adsani AMS¹, Al-Salem K², Abu-Talib F², Omran A², Abdul-Sayed A²,
Attallah W²

¹ Diabetes Unit, Department of Medicine, Al-Sabah Hospital

² Sabah Al-Salem Primary Health Care Clinic

Introduction:

Gestational diabetes mellitus (GDM) is defined as any degree of glucose intolerance with onset or first recognition during pregnancy. The prevalence of GDM depends on the population studied and the diagnostic tests employed. Internationally, there is a conflict regarding the selection of subjects, diagnostic tests used, and timing of performance. Kuwait is a country with high prevalence of non-gestational diabetes. Yet, there is no national policy to diagnose GDM. This indicates the importance of devising a policy for screening for GDM on a scientific basis. We carried out this study to estimate the prevalence of GDM among Kuwaiti women and to compare the utility of screening tests before 24 weeks and at or after 24 weeks of pregnancy.

Methods:

Study subjects were recruited between October 1, 2002 to April 30, 2003 from of Sabah Al-Salem antenatal care clinic at the Primary Health setting. All Kuwaiti pregnant women who were not known to have diabetes were enrolled in the study. A 75-gm oral glucose tolerance test (OGTT) was performed before 24 weeks of gestation. Subjects were requested to retest again at or after 24 weeks of gestation. Gestational diabetes was diagnosed according to American Diabetes Association Criteria.

Results:

Of the 107, 104 complied with the testing. Of the 104 subjects, 10 (9.6%) tested positive for GDM. Of these 10 patients, 6 (60%), were diagnosed with GDM before 24 weeks of gestation and 4 (40%) at 24 weeks of gestation or after. Of the 10 diagnosed patients, the fasting level diagnosed only one case. The rest were all diagnosed by OGTT.

Conclusions:

This finding suggests the importance of early screening for GDM among Kuwaiti women using oral 75-gm OGTT. To be cost-effective, larger studies are needed to identify those with a high risk of developing GDM and to establish a policy for screening in Kuwait

Key Words: Gestational diabetes; Screening; Kuwait;

Funding Agency: None

152

Functional anatomy of the human placenta: the evolution of the maternal-fetal interface.

Omu AE, Al-Azemi MK, Al-Harmi J, Oriowo MA, Anim J, Mathew C

Department of Obstetrics and Gynaecology, Pharmacology and Toxicology, Pathology and Anatomy, Faculty of Medicine, Health Sciences Centre, Kuwait University, and Maternity Hospital, Kuwait.

Introduction:

The placenta is the interface between the mother and the fetus and it is critical for a successful pregnancy by mediating implantation, nutrient exchange, hormone production and immunological protection of the fetus. Objective of study: To evaluate the morphological pattern of the placenta in normal and complicated pregnancies as a basis for future interventional studies.

Methods:

Five groups of women 10 each, with normal pregnancy, preeclampsia (PET), gestational diabetes, prolonged rupture of membranes and intrauterine growth retardation were studied. Three blocks of placenta of 2x2x2 cm were dissected from the maternal surface of the placenta: (1) Formal-saline fixed block was prepared with LEICA TP 1020 and LEICA RM 2165, stained with Haematoxylin and Eosin and evaluated with phase contrast light microscopy, (2) Paraffin embedded placental block for immunohistochemical studies with anti-monoclonal antibodies to bhCG, and (3) Glutaraldehyde placental block was prepared with standard techniques and evaluated with electron microscopy.

Results:

Syncytiotrophoblast on villous trophoblast, extravillous junctional trophoblast with endometrial tissues and invasive trophoblast in uterine spiral arteries were identified in maternal-fetal interface. Syncytial knots were more common in preeclampsia (80%), intrauterine growth restriction (70%), and post-maturity (70%) compared to normal pregnancies (20%) and gestational diabetes (20%) ($P<0.05$). Severe PET and intrauterine growth restriction were more associated with lack of trophoblastic invasion of the endometrial spiral arteries compared to normal pregnancy (60% versus 10%; $P<0.05$). The diabetic placentas revealed more infarcts and fibrinoid changes on the endometrial decidua, compared to normal pregnancy (60% versus 10%; $P<0.04$). Postmaturity were associated with marked villitis and leukocytosis

Conclusions:

There are differences in the maternal-fetal interface in normal and abnormal pregnancies.

Key Words: Trophoblast; Pregnancy; Immunologic;

Funding Agency: Partially through Kuwait University Research Grant

Obstetrics and Gynecology

Category: Clinical

153: Moderated

Attitudes of academic staff and students towards the objective structured clinical examination (OSCE) in Obstetrics and Gynaecology.

Omu AE, Al-Azemi AK, Diejomaoh FME, Al-Harmi J, Al-Rumaih H, Al-Tammamy H

Departments of Obstetrics and Gynaecology, Faculty of Medicine, Health Sciences Centre,

Kuwait University , and Maternity Hospital, Kuwait.

Introduction:

The Department of Obstetrics and Gynaecology first implemented the Objective Structured Clinical Examination (OSCE) in examinations during the 2002-2003 academic year to replace the oral examination on short cases. Objective of study: To evaluate the attitude of staff and medical students towards OSCE as a method of clinical assessment

Methods:

Four groups were evaluated: (1) 86 medical students at the end of their rotation in Obstetrics and Gynaecology and the OSCE examination (2) 30 trainee doctors at the Maternity Hospital, during their internship. (3) 25 trainee doctors who never used the OSCE during clinical training. (4) academic staff members (12) and external examiners (6) in the final MB, B.Ch examinations for 2002/2003 and 2003/2004. The evaluation used a 5-point numerical scale from 1 (unsatisfactory) to 5 (outstanding), with regards to their perception of examination attributes and usefulness of the OSCE. Score of 3 or more was accepted as a positive response.

Results:

Perception of examination was highly positive among the students: Quality of instruction and organization (87%), transparency of the process (96%), method of assessing clinical skills (90%), problem solving (78%), assessment of knowledge (84%) and communication skills (75%). More trainee doctors that had OSCE during their training (92%) had positive perception of OSCE than those trainees (65%) that did not ($P < 0.05$). Both the internal and external examiners had an equally high (83% versus 92%; $P > 0.05$).

Conclusions:

OSCE is a useful alternative to the traditional oral examinations. Further psychometric evaluation will strengthen the development to replace the whole clinical examination in Obstetrics and Gynaecology.

Key Words: *Clinical; Evaluation; Examination;*

Funding Agency: *None*

154: Moderated

Thyroid autoantibodies have no impact on pregnancy outcome in women with recurrent spontaneous miscarriage.

*Diejomaoh FME^{1,2}, Al-Azemi MK^{1,2}, Jirous J², Al-Anezi H², Farhat R², Assiya M¹

¹ Department of Obstetrics and Gynaecology, Faculty of Medicine, Kuwait University;

² Department of Obstetrics and Gynaecology, Maternity hospital, Kuwait.

Introduction:

Previous studies have reported a correlation between thyroid autoantibodies and recurrent spontaneous miscarriage (RSM): some authors have reported an increased incidence of RSM in patients with positive autoantibodies while others have reported no effect on pregnancy outcome. Guidelines on RSM have stated that since thyroid autoantibodies have no impact on RSM, such screening tests should not be performed routinely. The objective of our study was to assess the impact of thyroid autoantibodies on the outcome of pregnancy in our patients with RSM.

Methods:

A 2-year prospective study, January 2003-December 2004, of all our patients (360) with RSM (those patients who have a history of 3 or more consecutive spontaneous miscarriage) attending our specialised RSM clinic was undertaken. After a detailed history and physical examination, comprehensive investigations including genetic, endocrinological, immunological (antiphospholipid and anti-thyroid antibodies), microbiological and radiological (hysterosalpingogram/transvaginal timed ultrasonography) were all performed. The outcome of all the pregnancies was analysed.

Results:

The mean age and parity of the patients were 30.36 ± 3.16 years and 2.31 ± 1.6 respectively; 59% of the patients were Kuwaitis. The mean number of previous miscarriages was 4.21 ± 1.6 , 85% of these being in the first trimester. Positive thyroid autoantibodies (thyroglobulin[TG] or thyroid peroxidase[TPO]) were detected in 13% of the patients; all these patients were euthyroid. None of these patients received any specialised treatment. There was no significant difference in the outcome of pregnancies in patients with positive thyroid autoantibodies compared with those with negative results (full term pregnancies of 63.6% vs 65.3%) $p > 0.05$.

Conclusions:

The presence of thyroid autoantibodies did not adversely affect the outcome of the pregnancies in patients with RSM thus supporting the opinion that such investigations should not be routine tests.

Key Words: *Thyroid autoantibodies; Recurrent spontaneous miscarriage (RSM);*

Funding Agency: *None*

155

Multiple pregnancy in assisted reproductive technology (ART): Is there a heritable factor?

Gupta M, Al-Azemi MK, Al-Ashkanani L, Al-Rumaih H, Omu AE

Departments of Obstetrics and Gynaecology, Maternity Hospital and Faculty of Medicine,
Kuwait University, Kuwait

Introduction:

Multiple pregnancy has become a major complication of assisted reproductive technology (ART), because of associated obstetrical and neonatal complications and the huge financial expenditure. Objective of the study: To determine whether women with close family history of multiple pregnancies are more prone to multiple pregnancies through ART.

Methods:

Four groups of pregnant women with 50 women each were studied: (a) Multiple pregnancies following ART, (b) Singleton pregnancy following ART, (c) Spontaneous multiple pregnancy, and (d) Spontaneous singleton pregnancy. ART involved in-vitro fertilization, intracytoplasmic sperm injection (ICSI) and induction of ovulation with gonadotropins. Background history of multiple pregnancies in the women in the study, mother, sister, grandmother, aunt or uncle and any other close relative was documented. The pregnancies were followed up till delivery and antenatal complications, mode of delivery and neonatal outcome were documented.

Results:

Women with multiple pregnancies from ART have a more significant family history of multiple pregnancies than their ART counterparts with singleton pregnancies (45.2% versus 15.4%; $P < 0.01$). Spontaneous multiple pregnancy was significantly associated with family history of multiple pregnancy compared to spontaneous singleton pregnancy (44.2% versus 17.3%; $P < 0.01$). There was no significant difference in the family history of multiple pregnancy between women with spontaneous multiple pregnancies and those through ART (44.2% versus 45.2 %; $P = 0.95$) nor between spontaneous singleton and ART associated pregnancies (17.3% versus 15.4%; $P = 0.8$). More multiple pregnancies through ART ended in preterm delivery compared with spontaneous multiple pregnancies (84% to 44%; $P < 0.04$).

Conclusions:

There is a positive association between family history of multiple pregnancies and patients achieving multiple pregnancies through ART.

Key Words: *Assisted; Spontaneous; Multiple pregnancy;*

Funding Agency: *None*

156: Moderated

Maternal-Fetal Exchange Characteristics of Carboplatin in Perfused Human Placenta: In Vitro Study

*Al-Saleh E, Nandakumaran M, Sadan T, George S

Obstetrics and Gynecology Department, Faculty of Medicine, University of Kuwait

Introduction:

Carboplatin, a new generation therapeutic agent belonging to alkylating group of drugs is widely used for treatment of various forms of cancer. Considering the paucity of data on its maternal-fetal exchange characteristics in humans, we thought it interesting to them in vitro, using perfusion of isolated human placental lobules.

Methods:

Carboplatin alongwith antipyrine as reference marker were injected as a single bolus(100ul) into the maternal circulation of isolated,perfused human placental lobules and serial perfusate samples collected from maternal and fetal circulations over a period of 5 minutes.NCTC medium diluted with buffered Earle's salt solution was used as perfusate. Carboplatin concentration in perfusate samples was assessed by atomic absorption spectrophotometry while antipyrine concentration was determined by spectrophotometry (UV-1601 PC, Shimadzu, Japan). Transport and pharmacokinetic parameters were computed by previously established standard parameters.

Results:

Carboplatin transport fraction averaged 4.80 % of injected maternal load, representing 6.80 % of antipyrine fraction in 12 successful perfusions. TR50 index of carboplatin averaged 1.00 ± 0.02 times that of antipyrine TR50 value. Area under the curve, clearance, elimination constant, time for maximum response, absorption rate and elimination rate of the drug averaged 0.20, 15.45, 0.05, 0.98, 0.21 and 0.24 times that of corresponding reference marker values.

Conclusions:

We conclude that carboplatin transport from mother to fetus is negligible in vitro and that its transfer in clinical unintended use in vivo may not pose much of a health risk for the fetus in utero.

Key Words: *Carboplatin; Human Placenta; Maternal-Fetal Exchange;*

Funding Agency: *Kuwait University*

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Maternal-Fetal Status of Some Essential Trace Elements in Obese Pregnant Women in Late Gestation

*Nandakumaran M¹, Al-Saleh E¹, Sadan T¹, Al-Shammari M¹, Abraham S¹, Al- Harmi J²

¹Obstetrics and Gynecology Department, Faculty of Medicine, University of Kuwait,

²Maternity Hospital, Kuwait

Introduction:

Obesity is well known to be a contributory risk factor for several disease states including diabetes mellitus. Paucity of data on maternal-fetal disposition of essential trace elements in obese pregnancies prompted us to undertake this study

Methods:

Maternal venous and umbilical arterial and venous samples were collected from obese patients (BMI>30) and control pregnant women (BMI<25) at time of spontaneous delivery or cesarean sections and concentrations of essential trace elements such as Cu, Fe, Mo, Se and Zn determined by atomic absorption spectrophotometry. Fetal/maternal ratios of trace elements were computed in control and study groups to assess maternal-fetal status and disposition of various elements

Results:

Concentrations of Cu, Fe, Mo, Se and Zn in serum of control pregnant women at time of delivery averaged 2232.6, 2398.1, 10.9, 108.9 and 661.9 ug/L while in the obese group the values of the above elements averaged 2150.3,2446.8,12.6,96.8,838.9 ug/L respectively. Cu:Zn ratio in maternal vein of obese group (3.60±0.20) was significantly lower (Student's t-test ; p<0.05) than that of controls (2.50 ±0.19)while Cu:Fe ratio (1.04±0.08 Vs 1.02±0.09) was not significantly different (Cu:Zn ratio in maternal vein of obese group (3.60±0.20) was significantly lower (Student's t-test ; p<0.05) than that of controls (2.50 ±0.19)while Cu:Fe ratio (1.04±0.08 Vs 1.02±0.09) was not significantly different (Student's t-test ; p>0.05)in the two groups.

Conclusions:

We conclude that obesity is associated with alterations in maternal-fetal disposition of some essential trace elements and could pose a health risk for the mother as well as the baby in the womb, by modulating anti-oxidant associated trace element status.

Key Words: Obesity; Trace Elements; Maternal-Fetal Exchange;

Funding Agency: Kuwait University Project Number M001/00

Oncology

Category: Clinical

158: Moderated

Cancer in Kuwait, 1974 - 2003

El-Hattab O

Kuwait Cancer Registry, HMJCSS, MOH, Kuwait

Introduction:

The Kuwait Cancer Registry (KCR), has been leading the way in the Middle East in the area of Cancer Registration since 1970. The quality, the accuracy and the readiness of its data and the valuable information that is allowing the planning and implementation of the highest standard of quality of care and the realization of cancer control strategy and the collaboration with the most prestigious agencies and centers in the world, had stimulated many other institutions and states to follow its steps.

Methods:

The Kuwait Cancer Registry within the Hussein Makki Al-Jumma Center for Specialized Surgery (Kuwait Cancer Control Center), is committed to collect, analyze and produce the Kuwait Cancer data.

Results:

Nearly 30,000 cancer cases are registered between 1974-2002. The profile of cancer and data analysis including time trend analysis of adjusted incidence will be presented with emphasis on Kuwaitis - Non Kuwaitis comparisons and sex distribution.

Conclusions:

The most common cancers are breast cancer followed by Colon, Corpus Uteri and Thyroid among females and Lung, NHL, Leukemia, Prostate and Colon among males.

Key Words: *Cancer Registration; Epidemiology; Kuwait;*

Funding Agency: *None*

Oncology

Category: Clinical

159

Cancer of the Oral Cavity in Kuwait, (1981-2002)

*Behbehani E¹, El Hattab O²

¹ Department of Surgical Sciences, Faculty of Dentistry, Kuwait University² Kuwait
Cancer Registry, HMJ CSS, MOH, Kuwait.

Introduction:

Cancer of the head and neck represents about 5-10 % of all malignant tumors. Cancer of the oral cavity accounts for about 35% of head and neck cancers. The aim of this study was to study the epidemiology of cancer of the oral cavity in Kuwait and its pattern between the years 1981-2002.

Methods:

The data from the Kuwait Cancer Registry were used 1981-2002.

Results:

Cancer of the oral cavity is common among males (66.7%) in comparison to females. This is true among both Kuwaiti males (53.8) as well as non Kuwaiti (70.1 %). Cancer of the oral cavity is rare before 30 years of age and it increases with age. About 35% of cases are above 60 years of age. Median age is 51.0 years. Cancer of the salivary glands including the parotid gland represents about 39% while, different parts of the mouth represent 23.5 % and the tongue represents 19%. Time trend analysis of oral cavity cancer among males and females and among Kuwaitis and Non Kuwaitis between 1981 and 2002 is presented.

Conclusions:

Incidence among Non Kuwaiti males and females are higher than corresponding Kuwaiti males and females. There is a slight increase in cancer of the oral cavity among males and females. The increase could be attributed to the increase of smoking habit among people in Kuwait.

Key Words: *Cancer; Oral Cavity; Kuwait;*

Funding Agency: *None*

Oncology

Category: Clinical

160: Moderated

**Quality of life assessment in head and neck cancer patients at Kuwait
Cancer Control Center**

Thotathil ZS, Al-Saleh KA, Jamal B, Naseer MA

Head Neck and Lung Unit, Dept of Radiation Oncology, Kuwait Cancer Control Center, Shuwaikh,
Kuwait

Introduction:

More patients are now surviving cancer due to early detection as well as improved cancer therapeutics. Quality of life (QOL) issues have thus come into focus and treatment strategies are often modified due to these concerns.

Methods:

This is a cross-sectional study of patients on follow up at Kuwait Cancer Center. Quality of life data was collected using the EORTC QLQ-30 and HN-35 questionnaires. All patients had head and neck cancer and were free of disease at last follow up. We analyzed the scores for the entire population and also compared scores for the cohort of patients above and below 60 years of age.

Results:

Our database contains responses from 199 patients, 53 of them above 59 years of age. Most of the patients were males (74:26). Major diagnoses included laryngeal cancer cases accounted for 27 %, thyroid cancer 20% and oral cavity cancers 17%. 74% of pts had follow up of more than 2 years while 57% had follow up over 5 years. Over 90% of them had radiotherapy, while 64% had surgery and 13% also had chemotherapy. Overall, our patients did better on all scales other than physical functioning when compared to EORTC pretreatment reference values. The group of older patients had better Global health score and overall quality of life when compared to the younger population. Among the functional scales, the older population did significantly better on the emotional scale while there was no difference on the physical, role, cognitive or social functioning scales.

Conclusions:

Our QOL data indicates that our patients are doing well in the post treatment phase when compared to international references. Within this group, our older patients appear to have a better quality of life. This could in part be due to differing aspirations and goals between the different generations of patients.

Key Words: *Cancer; Head and Neck; Quality;*

Funding Agency: *None*

Oncology

Category: Clinical

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Clinical Profile of Children with Febrile Neutropenia - A KCCC Study

Mittal R, Hubert M, Nemeč J

Unit of Pediatric Oncology, Department of Medical Oncology

Introduction:

To study the complete clinical profile and outcome of children with febrile neutropenia.

Methods:

This a prospective study conducted over a period of 2 years in the pediatric oncology unit of KCCC. All children who were admitted with a diagnosis of febrile neutropenia were included in the study. The children were treated according to the dept's protocol of treating febrile neutropena.

Results:

A total of 34 episodes of febrile neutropenia were recorded. These children were treated with various types of chemotherapy regimens according to their primary tumor. The median age was 13 years with male female ratio of 23:11. The sarcomas were the most common diagnosis. The median day of onset of fever was Day 9. The median duration of fever was 3 days, The median days for the recovery of ANC were 5 days, and for platelet 7 days. Fever was the only presenting symptom in majority of the cases. Out of 4 symptomatic patients with cough, 2 showed evidence of pneumonia. Only one episode showed positive blood culture for H. Influenzae. The empirical antibiotic policy for the hospital was changed from a combination of ceftizidime/amikacine to tazobactam/amikacin from early 2003. Hence only 6 episodes were treated on ceftizidime/amikacine, while rests were treated on tazobactam/amikacin combination. The 2nd line antibiotics were used in only 4 episodes, while anti fungals were used in 3 episodes. All except one patient recovered from febrile episode without any complication. The patient who died was a case of Hemophagocytic syndrome, and had severe immune deficiency due to primary disease. She developed progressive chest infection, and did not respond to any therapy.

Conclusions:

The occurrence of febrile neutropenia is a common side effect, particularly after more aggressive chemotherapy. It can be safely managed in wards by adhering to the standard protocol for the treatment of these patients. The fatality rate with proper care is very low.

Key Words: *Febrile neutropenia; Chemotherapy; Childhood cancers;*

Funding Agency: *None*

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Primary extra nodal lymphomas: analyses of clinical characteristics a single centre experience

* Bhat GM¹, Al-Shemmari S¹, Sajnani KP¹, Gyarfaz J¹, Ameen R²

¹Kuwait Cancer Control Centre, Medical Oncology, Lymphoma and BMT Division, Kuwait, KUWAIT, ²Faculty of Allied Health Sciences, Department of Medical Lab Sciences, Kuwait University, Kuwait, KUWAIT.

Introduction:

Primary extra nodal Non-Hodgkin's lymphoma has varied presentations. Emphasised in this study are the clinicopathological characteristics and outcome of extra nodal Non-Hodgkin's Lymphomas according to the primary sites of the disease.

Methods:

A retrospective analysis of 615 patients treated for Non-Hodgkin's lymphoma between January 1989 to December 2003 was done. 150 patients (24.39%) were categorized as extra nodal lymphoma. The cases diagnosed prior to 1994, were converted into REAL classification. The characteristics of patients were as follows: Median age 46 years (15-86) with 95 males and 55 females. Pathological subtypes were follicular and other low grade variants in 27, diffuse large and other high grade subtypes in 112, MALT variety in 11 patients. IPI among the high-grade histology were low risk-71, low intermediate-17, high intermediate-10, high-6, and data missing in 8 patients. 60 patients (40%) presented with primary extra nodal, 64 (42.6%) with regional lymph node involvement and 26 (17.3%) with extensive involvement. Patients were treated with all three modalities chemotherapy, surgery, and radiotherapy alone or in various combinations. 6 received no treatment.

Results:

Distribution of extra nodal sites according to the primary site was gastrointestinal tract (58) musculoskeletal (16) tonsil (15) mediastinal (14) oral cavity and sinuses (11) liver & spleen (6 each) CNS (5) thyroid (4) testis, kidney, lung, tongue, salivary gland (2 each) skin, pleura, ovary, vagina, pancreas (1 each). After a median follow-up of 25 months (0-179), overall survival was 88% and disease free survival was 78%. Out of 18 dead, 14 were due to disease recurrence/progression.

Conclusions:

Achievement of complete remission shows favorable prognosis. Poor prognostic factor identified was high grade histology. Age, IPI index and disseminated disease did not affect the survival in our study thereby differing from nodal NHL. Incidence, distribution and outcome were comparable to other studies; however median follow up was short.

Key Words: Primary; Extranodal; Non-Hodgkin's Lymphoma;

Funding Agency: None

Hemoglobin Level as a Prognostic Factor of Cancer of Cervix Treatment in Kuwait

*Abuzallouf S, El-Hattab O, Vasishta S, Varghese A

Department of Radiotherapy and Epidemiology, Kuwait Cancer Control Center, Kuwait.

Introduction:

In 2002, cancer of cervix represented 3.4 % of all cancer cases among Kuwaiti females and 4.9% of all cancer cases among non-Kuwaiti females. Age standardized incidence rate (ASIR) for cancer of cervix was 4.8 per 100,000 among Kuwaiti females and 4.2 per 100,000 among non-Kuwaiti females. Radiotherapy is an essential component in the treatment of patients with locally advanced cervical cancer. Several large studies of patients with carcinoma of cervix treated by radiotherapy have demonstrated that anemia at presentation is a poor prognostic factor predicting for decreased local control of disease and overall patient survival. The aim of this study was the evaluation of hemoglobin level before and during radiotherapy treatment and its role as a prognostic factor on treatment results of patients treated for cancer of cervix.

Methods:

One hundred and seven patients with cervical cancer were registered and managed at KCCC during 1995-1999. The pre-treatment and mid treatment hemoglobin levels were found for 47 patients only. Follow up was done for these cases aiming at evaluation of overall and disease free survival. Statistical analysis was done using SPSS statistical package version 10.0.

Results:

The median age of patients was 45 and ranged from 26 up to 80 years. Kuwaiti patients represented 21.3% of cases. The most common stage was stage IIb representing 51.1% followed by IIIb representing 27.7%. Stage 1b and IIa represented 12.8%. About 89.4% were Squamous cell carcinoma while adenocarcinoma was 6.4%. Treatment outcome revealed 18 relapses (38.3%). Disease free survival for cases with pre-treatment hemoglobin level less than 12 was 16.3% while for those with hemoglobin level equal to or more than 12 was 62.9%. The difference was significant statistically ($P= 0.02$).

Conclusions:

Pretreatment hemoglobin level is an important prognostic factor in patients with cervical cancer undergoing radiotherapy.

Key Words: Cancer Cervix; Radiotherapy; Hemoglobin level;

Funding Agency: None

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Estrogen Receptor Alpha and Beta (ER-alpha and -beta) Gene and Protein Expression in Breast Cancer Cell Lines: Verification by RT-PCR and Western Blotting

*Al-Bader MD¹, Ford CHJ², Jacob J¹, Jacob LJ¹, Mohan SS¹

¹ Departments of Physiology and Surgery², Faculty of Medicine, Kuwait University

Introduction:

Two estrogen receptor isoforms are known to exist, ER-alpha and ER-beta. In this study, the expression of ER isoforms in breast cancer cell lines was studied to see whether both ERs, as well as any other variants, are expressed at the mRNA and protein level.

Methods:

Three breast cell lines: two which are known to be ER+ve (MCF7 and T47D) and one reported as ER-ve (MDA-MB231) were used in this experiment. For gene expression studies RT-PCR methodology was applied; primers were used that detect ER-alpha and ER-beta isoforms and their variants. For protein measurements Western Blotting was the method of choice and the antibodies used were: two monoclonal antibodies raised against the steroid binding domain or the hinge region of the ER-alpha, named ER-alpha-S and ER-alpha-H, respectively, and a polyclonal antibody against the ER-beta.

Results:

All cell lines expressed the ER-alpha and ER-beta gene and protein isoforms, however, the MDA-MB231 cell line showed a different pattern of expression of the variants whereby some variants were expressed only in this cell line and not in the ER+ve cell lines.

Conclusions:

Cell lines that have been reported to be positive for ER-alpha (MCF7 and T47D) are also positive for ER-beta. Interestingly the cell line which has been reported to be ER-ve showed positivity for both ER isoforms (see abstract by Ford, CHJ). The presence of ER variants in breast cancer cell lines, created by alternative splicing, where entire exons are skipped, has promoted the hypothesis that tamoxifen resistance and estrogen independent tumor growth could be caused by these variants which may explain why many estrogen receptor positive tumors develop resistance to anti-estrogens such as tamoxifen. We are currently working on the expression of these isoforms and their variants in breast cancer tissue to try and highlight what this means in development, progression and treatment of breast cancer.

Key Words: *Estrogen Receptor (ER); Breast Cancer; RT-PCR and Western Blotting;*

Funding Agency: *Kuwait University Grant # MY 01/02*

Oncology

Category: Basic Sciences

165: Moderated

Assessment of ER Status in Human Breast Cancer Cell Lines by Flow Cytometry

*Ford CHJ¹, Al-Bader MD², Mathew A¹, Rego BG¹

¹ Departments of Surgery and ² Physiology, Faculty of Medicine, Kuwait University.

Introduction:

The evaluation of estrogen receptor (ER) status is an important prognostic indicator in patients with breast cancer. It is now known that the ER consists of two major isoforms – ER-alpha ('classical' ER) and ER-beta. The exact role of ER-beta remains unclear. The objective of this study was to assess ER-alpha and ER-beta in human breast cancer cell lines using different anti-ER antibodies and a novel flow cytometric method.

Methods:

Three anti-ER antibodies (monoclonal anti-ER-alpha-H [hinge] & anti-ER-alpha-S [steroid-binding domain]; polyclonal anti-ER-beta) were used to assess ER status in MCF7, MDA-MB231 and T47D breast cancer cell lines maintained in cell culture. After trypsinisation of confluent monolayers, isolated cells were treated with paraformaldehyde and Triton X-100 followed by Hepes buffer/NP40 to isolate the nuclei. Following incubation with 1^o antibodies and appropriate controls for 1 hr at 37^oC, cells were incubated with fluorescein isothiocyanate-conjugated 2^o antibodies and the % of ER positive nuclei analysed on a Coulter EPICs XL flow cytometer.

Results:

MCF7, T47D and MDA-MB231 were found to be positive for nuclear ER with all 3 antibodies.

Conclusions:

Flow cytometric determination of nuclear ER in breast cancer is a sensitive technique; cell lines which are reported as being ER-alpha positive (MCF7, T47D) are also ER-beta positive; a cell line which is reported as being negative for 'classical' ER (MDA-MB231), which is used extensively in biomedical research as a control ER-cell line, is in fact ER+. This study forms part of a larger investigation of ER-alpha and ER-beta expression in breast cancer (see abstract by Al-Bader, M) and in addition to these results being of importance to biomedical research in terms of which lines are truly ER+ or ER- , if they are reproduced in breast cancer cells from patients they will have a profound impact on how ER status is assessed, and hence on treatment options for patients, in the future.

Key Words: *Estrogen Receptor (ER); Breast Cancer; Flow Cytometry;*

Funding Agency: *Kuwait University Grant # MY 01/02*

Pathology

Category: Graduate (Resident)

166: Moderated

Biliary tract cancer: a review of cases from Mubarak Al-Kabeer

*Ali RH¹, Al-Unen ER¹, Junaid TA^{1,2}

¹ Department of Histopathology, Mubarak Al-Kabeer Hospital, Kuwait

² Department of Pathology, Kuwait University Faculty of Medicine

Introduction:

Biliary tract cancers (BTC) are rare but extremely lethal because of late presentation and delayed diagnosis. Cholelithiasis, chronic cholecystitis and obesity, risk factors for BTC, are highly prevalent in Kuwait, yet there is little or no information on the epidemiology or the clinicopathological characteristics of these cancers here. The present study is designed to provide information on the clinical and pathological features of BTC diagnosed at Mubarak AL-Kabeer Hospital over a period of 16 years and to compare the findings with those reported elsewhere.

Methods:

All cases diagnosed as gallbladder or bile duct cancer between 1989 and 2004 were retrieved from the surgical pathology files of Mubarak Al-Kabeer Histopathology Unit. Histopathology slides stained with hematoxylin and eosin (H&E) were reviewed and classified according to the WHO classification of BTC. Supplementary special and immuno stains were used as indicated. Data of patients were obtained from histopathology request forms or hospital files where available.

Results:

Twelve (12) cases were archived over the study period; 9 of these were gallbladder cancers. Ten (10) of the twelve patients were males (83%). The youngest patient was 45 years old and the oldest 76 years old. Four patients were Kuwaitis. Most tumors were adenocarcinoma (67%) while 3 (25%) showed squamous differentiation. Two cancers (17%) had lymph node metastases.

Conclusions:

BTCs are rare in surgical pathology materials at Mubarak Hospital as elsewhere, are mainly adenocarcinomas (67%), and located in the gallbladder (75%). In contrast to all previous reports, however, males were predominantly affected (83%). A study of a larger series is urgently needed to confirm or refute this anomaly.

Key Words: *Biliary tract cancer; Gallbladder cancer; Bile duct cancer;*

Funding Agency: *None*

Pathology

Category: Clinical

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Ventricular Tumours In Kuwait

Al-Nashmi N, *Katchy KC, Mallik AA, Alexander S, Zaid F
AlSabah Hospital- Pathology Department

Introduction:

Tumors within the ventricular system of the central nervous system may be primary or secondary. Irrespective of origin, they are often associated with symptoms of intracranial hypertension and hydrocephalus. Besides they pose a challenge to neurosurgeons because of their location. Some have a predilection for certain age groups. The objective of this study is to analyze the pathology and epidemiology of ventricular tumors in Kuwait.

Methods:

All ventricular tumors examined in the Pathology Department of Al-Sabah Hospital between 1999 and 2004 were identified in the departmental records. The following factors were analyzed: pathology, sex, and age.

Results:

14 males and 7 females, aged between 2 and 70 years, had ventricular tumors. Most (71%) were under 40 years of age. Only 14% of the patients were children. There were 15 benign and 6 malignant tumors. The former comprised the following: ependymoma-4, neurocytoma -4, colloid cyst-2, pineocytoma-2, and 1 each of choroids plexus papilloma, meningioma and cavernous hemangioma. Most patients (87%) with these tumors were less than 40 years old. The malignant tumors occurred mostly (67%) after the age of 40 years and comprised lymphoma-3, anaplastic ependymoma-2, and choroid plexus carcinoma-1.

Conclusions:

Ventricular tumors in Kuwait are predominantly benign adult disease. Ependymoma and neurocytoma are the most common histological types.

Key Words: Central Nervous System; Ependymoma; Neurocytoma;

Funding Agency: None

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Pituitary Adenomas in Kuwait

Ziad F*, Katchy KC, Mallik AA , Al-Nashmi N, Alexander S
Dept of Pathology, Al Sabah Hospital Kuwait

Introduction:

The advent of immunohistochemistry has opened a new vista in histologic evaluation of pituitary tumors. It has been established that raised serum hormone level may not necessarily be as a result of hormone production by the tumor. This has management implication. The objective of this study is to document the clinical and pathological features of pituitary adenomas in Kuwait.

Methods:

The reports of all pituitary adenomas diagnosed in the Department of Pathology, Al-Sabah, Hospital for the period 1994 to 2004 were reviewed. Patient's data- age, sex, clinical presentation and hormonal profile were analyzed. Since 1997, immunohistochemistry for hormones is routinely done on all pituitary adenomas. For this study, it was done retrospectively for adenomas reported prior to 1997.

Results:

58 males and 42 females, aged between 16 and 69 years, had pituitary adenoma. The peak frequency occurred a decade later in males than females. Four cases for which immunohistochemistry could not be done were dropped from further analysis. There were 47 functional and 49 silent adenomas composed of 26 hormone negative, 22 lactotroph (14 females, 8 males), 19 somatotroph, 17 gonadotroph, 8 plurihormonal, 3 corticotroph, and 1 thyrotroph tumors. Two lactotroph adenomas were silent. Of the rest 3 also showed growth hormone reactivity. All 19 (13 males, 6 females) with somatotroph adenoma had acromegaly. Prolactin was also present in 7 tumors. 14 gonadotroph, 5 plurihormonal, 1 corticotroph and 1 thyrotroph adenomas were silent. A strong male predilection (4 to 1) was observed in the hormone negative tumors. 6 males and 4 females presented with apoplexy. In 9 patients, prolactinemia was due to stalk effect.

Conclusions:

There is no significant difference in the frequency of functional and silent pituitary adenomas in Kuwait. Lactotroph and somatotroph adenomas are the most common functional tumors.

Key Words: Adenoma; Pituitary; Kuwait;

Funding Agency: None

Emergency Obstetric Hysterectomy In Kuwait: a clinico-pathological analysis

Katchy KC¹, Ziad F¹, Al-Nashmi N¹, Diejomaoh FME²

¹ Dept of Pathology Al Sabah Hospital Kuwait ² Dept of Obstetrics and Gynecology Faculty of Medicine Kuwait University and Maternity Hospital

Introduction:

Peripartum hysterectomy is life saving in cases of massive, uncontrollable hemorrhage. In many cases, pathological examination of the hysterectomy fails to find a satisfactory cause of the bleeding. The major objective of the present study is to analyze the histological findings in peripartum hysterectomy specimens and correlate them with the clinical diagnosis, epidemiological factors and number of tissue blocks examined.

Methods:

The records of all peripartum hysterectomy specimens examined in the department between 1995 and 2001 were reviewed. Age, parity, number of abortions, pre-operative clinical diagnosis, histological findings and number of tissue blocks were the factors analyzed. A minimum of 10 blocks from the cervix or lower uterine segment was arbitrarily regarded as adequate. Statistical analysis was by Chi-square test.

Results:

There were 58 peripartum hysterectomies out of 80065 deliveries. Most patients (65%) were aged between 30 and 40 years and without history of abortion (78%). The number of hysterectomy increased with parity up to 5 and then declined. Most common clinical diagnoses were placenta praevia (35), atonic uterus (9) and post-partum hemorrhage after vaginal delivery (PPH) (9). The number of blocks examined varied from 2 to 53. Satisfactory pathology was found in 40 and absent in 18 cases. There were 33 adherent placentas of which 30 were associated with placenta praevia. Amniotic fluid embolism was found in 7 patients with a median age of 35 years, low parity (5) and no abortions (6). Five had atony or PPH. Adequate tissue blocks (>10) were significantly associated with positive pathological findings, $P < 0.05$, Chi-square was 5.756

Conclusions:

Adherent placenta, for which multiparity was a risk factor, was the most common pathological finding in peripartum hysterectomy in Kuwait. An adequate number of tissue blocks (10 plus) is significantly associated with positive pathological finding.

Key Words: Hysterectomy; Peripartum hemorrhage; Tissue-blocks;

Funding Agency: None

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Submandibular gland swelling in Kuwait

*Alexander S, Katchy KC, Ziad F, Al-Nashmi N, Mallik AA
Department of Pathology, Al-Sabah Hospital, Kuwait

Introduction:

Diseases of the submandibular glands are a heterogeneous group with swelling as a common clinical presentation. The objective of this study is to determine the pattern of submandibular gland disorders in Kuwait.

Methods:

The histology and clinical features of all submandibular glands examined between 1995 and 2004 by the Pathology Department of Al-Sabah Hospital were reviewed and analyzed.

Results:

During the study period 50 males and 18 females had adnectomy for submandibular gland swelling. Most patients (74%) were aged between 20 and 50 years with a peak relative frequency in the 30 to 40 years age range. The swelling was unilateral in 63 and bilateral in one patient. Sialadenitis was the most frequent pathological diagnosis (84%). It was associated with stone in 22 patients. Sialolithiasis alone was present in 2 patients. There were 6 cases of neoplasm- 5 pleomorphic adenoma and 1 lymphoblastic lymphoma- and 1 case of hydatid cyst. Patients with lymphoma and hydatid cyst respectively were less than 10 years old. In the latter, hydatid cyst was subsequently detected in the lung and liver.

Conclusions:

Submandibular gland swelling in Kuwait is predominantly a unilateral inflammatory disorder with a male predilection. Malignancy appears rare at this site

Key Words: Submandibular gland; Sialadenitis; Pathology;

Funding Agency: None

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The relationship between inflammatory markers, lipoproteins and antioxidant vitamins in patients with rheumatoid arthritis.

*Refai TMK¹, Eissa H², Al-Salem IH³, Kamal MM⁴

¹Clinical Pathology Department(Amiri Hospital Kuwait),(2&4)Physical Medicine and Rehabilitation Department(Physical Medicine Hospital,Kuwait), ³Rheumatology Department

Introduction:

The association between rheumatoid arthritis and increased risk of atherosclerosis and coronary heart disease is well recognized. The role of chronic inflammation, dyslipoproteinemia, and low levels of antioxidant vitamins (vitamin A and E) in the development of coronary heart disease and atherosclerosis is being established. Our aim was to study the relation between lipid profile abnormalities, antioxidant vitamins and inflammatory markers in patients with rheumatoid arthritis.

Methods:

30 patients with rheumatoid arthritis and 20 apparently healthy volunteers as a control group were studied. The following parameters were measured for all included subjects: markers of inflammation; CRP, RF, ESR, and VCAM (Vascular Cell Adhesion Molecule), lipid parameters; total cholesterol (TC), triglycerides, direct HDL and LDL cholesterol and Lp (a) and antioxidant vitamins A and E.

Results:

The inflammatory markers (CRP, ESR and VCAM) were significantly higher in patients compared to controls ($P < 0.01$). Total cholesterol and LDLc in rheumatoid arthritis patients were significantly higher compared to the controls ($p < 0.05$). Also Lipoprotein (a) was significantly higher in rheumatoid arthritis patients compared to the controls ($p < 0.01$). Vitamins A and E were significantly lower in rheumatoid arthritis patients compared to the control group ($p < 0.01$). A significant positive correlation was found between TC, LDL-C, Lp(a) and VCAM ($p < 0.001$, and $p < 0.01$ and $p < 0.01$) respectively. A significant negative correlation between vitamins E and A and VCAM ($p < 0.05$ and $p < 0.05$) in patients was also observed. A significant negative correlation was also found between Lp(a) and both vitamins (E and A) ($p < 0.01$ and $p < 0.001$) respectively.

Conclusions:

The association of VCAM with high lipid parameters and low levels of antioxidant vitamins, might explain the association of chronic inflammatory processes with atherosclerosis and the high risk of cardiovascular disease in patients with rheumatoid arthritis.

Key Words: Rheumatoid Arthritis; Vitamin A&E; Dyslipoproteinemia;

Funding Agency: None

Pathology

Category: Graduate (Basic Sciences)

172: Moderated

Detection of HPV in squamous cell carcinoma and inverted papilloma of the head and neck in Kuwait and the expression of p53, bcl2, and ki67.

*Ahmed DA, Al-Mulla F, Al-Ayadhy B, Francis I
Departments of Pathology, Kuwait University Faculty of Medicine

Introduction:

Human papilloma virus (HPV) has been associated with several benign and malignant tumors in humans however, with variable frequency. The role of HPV in such tumors in Kuwait is not known. This study evaluates the association of HPV with squamous cell carcinoma (SCC) and inverted papilloma (IP) of the head and neck region using two staining methods: standard immunohistochemistry (IHC) and catalyze signal amplification (CSA). Expression of HPV is compared between the two techniques and correlated with expression of P53, bcl2, Ki67 proliferative marker as well as the tumor type and degree of differentiation.

Methods:

Tissue section of 31 SCC and 19 IP were re-examined by light microscopy to evaluate the lesion. Representative paraffin sections were processed for immunohistochemistry and catalyze signal amplification for detection of HPV as well as standard immunostaining for p53, bcl2 and ki67. H&E sections were evaluated by light microscopy for classification and grading of tumors.

Results:

HPV antigen was detected by CSA in 47% of SCC and 31 % of IP compared to 31.6% and 0% by IHC respectively. SCC showed positive immunostaining for p53 (92 %), bcl2 (10 %), and ki 67 (94 %) while IP showed immunostaining for p53 (89 %), bcl2 (5.3 %), and ki 67 (100 %)

Conclusions:

Our data indicated that HPV is associated with SCC and IP tumors in Kuwait. The CSA technique appears to be more sensitive than IHC in HPV antigen detection in paraffin sections. P53 and ki67 overexpression might play a role in the pathogenesis and growth of both tumors.

Key Words: *Head and neck carcinoma; Immunohistochemistry; Human papilloma virus (HPV);*

Funding Agency: *None*

Pathology

Category: Clinical

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Diagnosis of Spindle Cell Lipoma - Review of five cases.

*Pathan SK¹, Kapila K², Bahiyah EH¹, Mallik MK¹, Al-Manae NM¹, Sheikh ZA¹, Das DK², Francis I², Abdeen S².

¹ Department of Cytology, Mubarak Al-Kabeer Hospital, Jabriya; ² Department of Pathology, Kuwait University Faculty of Medicine.

Introduction:

Spindle cell lipoma (SCL) is a relatively uncommon benign neoplasm arising in subcutaneous tissue of the shoulder, back or neck of older male patients. It represents approximately 1.5% of lipomatous tumours. This study was undertaken to determine the frequency of SCL in our set up and document the cytomorphologic features for recognition.

Methods:

Five (0.68%) of a total of 730 lipomatous lesions aspirated over a two year period (2003-2004) in the cytology laboratory of Mubarak Al-Kabeer Hospital were diagnosed to be SCL. Papanicolaou and MGG stained smears from these cases were reviewed and correlated with histology where available.

Results:

All 5 patients were males with an average age of 48 years (range 30-73 years). In 2 cases each the tumor was located in the shoulder and nape of neck respectively. While in one case it was present in the left cheek. Most of the patients presented as a slow growing painless mass (duration ranged from 1 month to 24 years and size ranged from 2x1 cm to 12x15 cm). In the entire cases spindle shaped cells were seen scattered singly or in aggregates with mature adipose tissue, collagen and myxoid matrix. Many of the spindle cells had nuclear grooves and intranuclear inclusions. Mast cells were moderate to abundant in 60% of the cases.

Conclusions:

Cytologic findings of SCL are fairly characteristic. One should be careful in differentiating it from other soft tissue tumours such as atypical lipoma, nodular fasciitis and myxoid liposarcoma. Also, it must be remembered that 25% SCL may arise at sites other than shoulder, back or nape of neck.

Key Words: Aspiration cytology; spindle cell lipoma.; ;

Funding Agency: None

Pathology

Category: Clinical

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Extrauterine malignancies diagnosed on cervical cytology in Mubarak Al-Kabeer Hospital.

*Bahiyah EH¹, Kapila K², Abdulsatar S², El-Hattab O³, Al-Juwaiser AA¹, Mallik MK¹, Mahmoud SA⁴, Francis IM².

¹ Department of Cytology, Mubarak Al-Kabeer Hospital; ² Department of Pathology, Kuwait University Faculty of Medicine; ³ KCC, Kuwait Cancer Registry; ⁴ Department of Pathology, Al-Adan Hospital, Kuwait.

Introduction:

Extrauterine malignant neoplasms shed into vagina or uterus is infrequent, usually of glandular type and only rarely squamous cell carcinomas or sarcomas. It is important to recognise them as their presence will determine the extent of tumor and nature of investigations to be done. This study was done to document the frequency and type of extrauterine malignancies seen in cervical smears in Mubarak Al-Kabeer Hospital.

Methods:

Over a 13 year period (1991-2003) 58 cervical smears from 80,092 cases screened in Mubarak Al-Kabeer Hospital were reported to have glandular cell abnormality. Seven of the 13 cases (11 - adenocarcinoma, 2-suspicious for adenocarcinoma) had an extrauterine neoplasm. Smears from these 7 cases and one referred case from Adan were reviewed and compared with histology where available.

Results:

The mean age was 52 years (range 45-60 years). The site of the primary neoplasm was ovary (3 cases), breast (3 cases), and one case each from the rectum and the bladder. Two cases had bilateral involvement of the ovaries by endometrioid and mucinous cystadenocarcinoma. Two were ductal breast carcinomas and one of them was documented to have a second tumor namely endometrial adenocarcinoma. It was the latter tumor which was identified in the cervical smear. The third breast case had bilateral lobular carcinoma which was first detected in the cervical smear.

Conclusions:

Metastasis to the uterus is a rare phenomenon. It should be entertained as a differential diagnosis of a positive cervical smear in a postmenopausal woman experiencing abnormal uterine bleeding especially if the tumor cells are seen in a clean background.

Key Words: *Cervical cytology; Metastatic extrauterine neoplasm;*

Funding Agency: *None*

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Cervical cancer and precursor lesions in Kuwait-biopsy findings at the Maternity Hospital

*Kapadi SN, Goel A, Subramanya NB, Junaid TA
Department of Histopathology, Maternity Hospital, Kuwait.

Introduction:

Cervical cancer alone is responsible for 5% of all cancer deaths worldwide and has become epidemic in several countries. The potential threat of cancer is central to Papanicolaou smear screening programmes and histologic interpretation of biopsy specimens. The present study reports the prevalence of dysplasia and invasive cancers of the uterine cervix in biopsy materials at the Maternity Hospital Kuwait.

Methods:

Cervical biopsies received within 2 ½ yrs in the histopathology unit of the Maternity Hospital Kuwait were reviewed. Patients' bio-data and clinical information were extracted from case files and request forms. Routine hematoxylin & eosin (HE) was supplemented with special stains when relevant and immunostained for human papilloma virus (HPV) when morphologically suspected.

Results:

A total of 235 cases were archived. 142 patients (60.42%) were Kuwaitis. Patients age range was 17-62 years with a peak incidence of dysplasia and cancer (44 cases; 44.44%) in the 5th decade. CIN 1 was diagnosed in 32 (13.62%), CIN 2 in 13 (5.53%), CIN 3 in 19 (8.09%) cases. Nineteen invasive carcinoma were seen, 17 squamous carcinoma and one case each of mucinous adenocarcinoma and high grade stromal sarcoma. HPV related changes were detected in 30 (12.77%) cases, 109 (46.38%) showed chronic inflammation and 27 biopsies were not diagnostic.

Conclusions:

Our findings indicate an increasing prevalence of cervical cancer in Kuwaiti females and support the call for a national screening programme.

Key Words: Cervical cancer; Dysplasia; Human papilloma virus (HPV);

Funding Agency: None

Pathology

Category: Clinical

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Donate Blood, save life.

*Al-Halabi HY, Boland G, Al-Ayyadhi O, Ameen R, Dashti R, Al-Qllaf E
Kuwait Central Blood Bank

Introduction:

Blood transfusion administration services, Kuwait Central Blood Bank (KCBB) is the overall administration for national blood transfusion services, that collects, processes, distributes blood and its components for all Kuwait hospitals and even neighboring countries. Aim: To compare the amount of blood component issued from year 2000 and year 2003.

Methods:

Method: 1. Collecting the annual reports of blood component issued to major government Kuwait hospitals. 2. Calculating the total of blood components issued to each hospital. 3. Comparing the total of blood components issued between year 2000 and 2003 by calculating the percent of increase in request.

Results:

hospital	2000	2003	%
Amiri	7182	7553	5
Sabah	12504	17938	43
Mubarak	7972	9740	22
Ibn- Sina	7456	8575	15
Adan	4283	6104	42
maternity	4099	6408	56
Farwania	4221	6100	44
Jahra	4275	6760	58
Razi	2577	3731	44
K.C.C.C	6564	8964	36

Conclusions:

From year 2000 to 2003, the request for different blood component increased. The increase exceeded 40 % in some hospitals. This is most likely due to high population, improvement of supportive care of diseases that needs blood transfusion, variety of transfusion dependent diseases such as thalassaemia, anemia, lymphoma, leukemia, sickle cell anemia and others. Regardless of the cause, the needs are increasing and since each type of blood component has an important role in saving lives, so donation must not stop, to keep the flow going to fulfill our duty towards humanity.

Key Words: *Transfusion administration services; Blood components; Transfusion dependent*
Funding Agency: *None*

Pathology

Category: Clinical

177: Moderated

Association Of Plasma Homocysteine With Haematological And Biochemical Variables In Patients With Cerebrovascular Disease.

*Marouf R¹, Mojiminiyi OA¹, Qurtom M³, Abdella NA², Al-Wazzan H³, Al-Humood S¹, Abdul Samad M³, Al-Shayeb AR³, Muzaini H¹, Abdullah R¹, DAS kCC¹.

¹Departments of Pathology, ²Medicine, Kuwait University Faculty of Medicine and ³Ministry of Health, Kuwait.

Introduction:

Raised plasma total homocysteine (tHcy) is a risk factor for athero-thrombotic vascular disease, but the mechanism of the association is poorly understood. This is partly because the determinants of tHcy have not been extensively studied. The aim of this study is to evaluate the determinants and associations of tHcy in patients with cerebrovascular disease (CVD).

Methods:

In this case-control study, the plasma concentration of tHcy, lupus anticoagulant, protein C, protein S, and antithrombin were measured in 102 (60 males and 42 females) patients, 167 (87 males and 80 females) controls. Serum vitamin B12, folate, red cell folate, creatinine, lipid profile, fasting glucose and blood counts were also determined. Creatinine clearance was calculated using the MDRD formula. Univariate and multivariate analyses were used to determine associations of tHcy.

Results:

21.4% of patients had hyperhomocysteinemia. Mean (95%CI) tHcy was higher in male patients 13.31 (11.78 to 14.84) $\mu\text{mol/L}$ than female patients 12.80(9.78 to 15.82) $\mu\text{mol/L}$. On binary logistic regression analysis, the significant ($p<0.05$) determinants of tHcy were urea, creatinine and GFR. Comparing patients with control subjects showed tHcy, age, weight, fasting glucose, serum creatinine, total cholesterol, LDL-cholesterol and Factor VIII were significantly ($p<0.05$) higher, while HDL-cholesterol was significantly lower in patients. Lupus anticoagulant was not associated with tHcy and not detected in patients and controls. Deficiency of vitamins B12 and folate were not associated with tHcy. Multivariate logistic regression analysis showed significant association of tHcy with CVD (OR= 5.71) in the presence of other traditional CVD risk factors.

Conclusions:

The determinants of tHcy in patients with CVD are age and GFR markers. Our results show tHcy is a significant risk factor in patients with CVD but the above determinants should be kept in mind when using tHcy as a risk factor for CVD.

Key Words: *Homocysteine; Cerebrovascular disease; Hematological risk factors;*

Funding Agency: *MG02/00*

Markers of GFR and Renal Abnormalities in Correlation With Clinical and Hematological Parameters in Patients with Sickle Cell Disease

*Marouf R¹, Mojiminiyi OA¹, Abdella NA², Kortom M³, Al-Wazzan H³.

¹Departments of Pathology and ²Medicine, Faculty of Medicine, Kuwait University,

³Ministry of Health, Kuwait.

Introduction:

Renal disease is a significant cause of morbidity in patients with sickle cell disease (SCD). Hyperfiltration and proteinuria are common manifestations of sickle nephropathy, but the determinants and correlations of proteinuria with changes in GFR have not been studied. Cystatin C has been suggested as a marker of GFR. The aim of this study was to evaluate the correlations of markers of GFR with proteinuria and clinical parameters in patients with SCD.

Methods:

24 h urine collection was performed for estimation of urine protein and creatinine clearance in 59 patients with SCD. The results were correlated with serum Cystatin C, beta-2 microglobulin (B2M), creatinine and GFR derived from serum creatinine (Cockcroft-Gault, modified MDRD formulae and Cystatin C (cc GFR)) as well as with clinical and haematological parameters.

Results:

Comparison of the different methods for calculated GFR showed that the proportion of patients with hyperfiltration (GFR > 140 mL/min) were 36.73% (MDRD), 54.17% (Cockcroft-Gault) and 13.95% (cc GFR). Proteinuria was present in 22.9% of the patients. As markers of GFR, Cystatin C had significant ($p < 0.05$) correlation with B2M ($r_s = 0.66$) but not with serum creatinine. Proteinuria was significantly ($p < 0.05$) correlated with age ($r = 0.330$) and Hb ($r = -0.351$). Hb was significantly lower in patients with proteinuria compared to those without. Degree of proteinuria was significantly higher in patients with avascular necrosis of the hip compared to those without. Cystatin C and B2M were significantly higher in patients with proteinuria but serum creatinine was not.

Conclusions:

Proteinuria is common in patients with SCD and it is associated with abnormalities of GFR as well as complications of the disease. We recommend routine screening for proteinuria to allow for early detection and intervention.

Key Words: Sickle cell anemia; Cystatin C; Glomerular Filtration Rate (GFR);

Funding Agency: Kuwait University Research grant

Pathology

Category: Graduate (Basic Sciences)

179: Moderated

Platelet Apheresis ,should we count cycles or target platelet yields

*Al-Sheikh K, Cuizon J, Al-Kanderi G

Kuwait Central Blood Bank,Quality Control Section

Introduction:

Single donor platelet (SDP) is the only collection procedure in Kuwait Central Blood Bank (KCBB) for platelet component from donors who meet our criteria and fulfill the requirements of international standards. Platelet apheresis can be achieved either by collecting a fixed number of cycles (we used to collect 6cycles) or by depending on the predetermined target platelet yield. The total platelet count per pack collected using the first procedure was showing low total yield and therefore we choose to evaluate both procedures to choose the best meets our requirements and AABB(2) standards.

Methods:

Platelet apheresis for both procedures was collected by Haemonetics MCS+ cell separators, following manufacturer instructions. Pre-donation weight, height, haematocrit (Hct) and platelet count were determined and entered into the machine. At the end of each donation process total platelet count was calculated .1- 53 runs were done based on fixing the number of cycles (6cycles each).2- 43 runs were done based on fixing total platelet yield (3.0×10^{11} /collection)

Results:

By analyzing the results from both procedures, we come out with the following results: 1- 26.4% of the collected platelet apheresis units using the first technique were of low unacceptable total platelet yield, i.e. Less than 3.0×10^{11} /collection. (low count in range of 2.67 ± 0.21) 2- 6.97% of the collected platelet aphaeresis units using the second technique were of low unacceptable total platelet yield, i.e. less than 3.0×10^{11} /collection.

Conclusions:

We choose based on the results to do the platelet apheresis procedures depending on fixing the needed target platelet yield ,and target platelet yield were increased to 4.0×10^{11} to reduce the percent of un-acceptance. Meanwhile, this procedure is time saving and much easier

Key Words: Single donor platelet; American association of blood bank; Total platelet yield;

Funding Agency: None

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Blood indices performance by haematology analyzers: a comparison between Coulter Maxm and ADVIA 120

Al-Mosawi A, Al-Ansari S, Al-Jutaily J, Varghese M
Department of clinical laboratory, Armed forces hospital, Kuwait

Introduction:

The accurate assessment of whole blood indices plays an important role in evaluating haemostatic function and therapeutic decision. Therefore, a generation of hematology analyzer providing accurate measurement would hold a promise in reaching that aim. A study was performed to compare blood cells indices measured by two haematological analyzers and to establish the clinical significance of that difference.

Methods:

Blood indices (white blood cells; WBC, red blood cells; RBC, platelets; Plt and hemoglobin; Hb) obtained from two hematology analyzers (Coulter Maxm and ADVIA 120) were compared using standard flow cytometric method. We have studied 96 samples for patients sent daily to hematology laboratory (Armed Forces Hospital) during the period of one week.

Results:

No significant difference was found in the control level between both analyzers ($p = 0.7$, Mann-Whitney) when compared at the normal level. Except for Hemoglobin, which showed a non-linear relationship ($p < 0.01$, Passing and Bablok method comparison), a good linear agreement between both instruments for counting WBC, RBC and Plt (linearity $p > 0.1$) was found with no bias (difference v average method) being detected. A similar result was found using Mann-Whitney test ($p > 0.05$) for all the specified indices.

Conclusions:

The difference between both analyzers was of little statistical and clinical significance.

Key Words: *Coulter; ADVIA; Blood Indices;*

Funding Agency: *None*

Pathology

Category: Undergraduate

181: Moderated

**Comparison Of Methods For The Assessment Of Urine Concentration
In Patients With Microalbuminuria – Is Urine Creatinine Our Best**

*El-Hammasi KS¹, Abbas JM², Al-Husainan KY², Abdullah A², Mojiminiyi OA^{1,2}

¹Kuwait University Faculty of Medicine; ²Biochemistry laboratories, Mobark Al-Kabeer Hospital, Kuwait

Introduction: The gold standard method for assessing urine microalbumin (MA) excretion is 24 hour urine collection but this is tedious, expensive and often inaccurate. Most commonly used alternative is early morning urine MA which depends on the patient's state of hydration and urine concentration. Urine creatinine concentration is routinely used to correct for changes in urine concentration but studies have shown that the specific gravity (SG) could be used. However, urine osmolality is the gold standard method of estimating urine concentration. The aim of this study was to compare the use of urine osmolality and SG with the widely used creatinine for estimation of urine concentration in the assessment of microalbuminuria.

Methods:

162 consecutive urine specimens received for MA estimation were analysed for MA, creatinine, SG, and osmolality. The MA:creatinine ratio was used to classify patients as normo- (n = 125), micro- (n = 30) or macro-albuminuric (n = 7) according to guidelines.

Results:

Urine creatinine showed moderate but significant ($p < 0.0001$) correlation with SG ($r_2 = 0.46$) and osmolality ($r_2 = 0.38$). However, the MA:creatinine ratio showed significant correlation with MA:SG ratio ($r_2 = 0.92$; $p < 0.0001$) and MA:osmolality ratio ($r_2 = 0.92$; $p < 0.0001$). MA:osmolality and MA:SG showed significant correlation with each other ($r_2 = 0.93$; $p < 0.0001$). Using linear regression analysis, the corresponding cut-off values for classification of patients as micro- and macroalbuminuric are, respectively, 0.17 and 2.2 for the MA:SG ratio and 0.26 and 6.2 for MA:Osmolality ratio.

Conclusions:

The poorer correlation of creatinine with urine osmolality and specific gravity suggests that it is a poor indicator of urine concentration. Our results show that urine osmolality or specific gravity may provide more reliable estimates of urine MA measurements and we propose that the above cut-off values be used for classification of patients' MA status

Key Words: *Microalbumin; Urine Creatinine; Urine concentration;*

Funding Agency: *None*

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APOE Genetic Polymorphism in Schizophrenic Patients from the Psychological Diseases Hospital

Akanji AO¹, Fatania HR¹, Ohaeri JU², Al-Shammari S³, Al-Rawdan R⁴, Zaid T¹,
Shihab PK¹

¹ Departments of Pathology and Biochemistry , Kuwait University Faculty of Medicine ;² Psychological Diseases Hospital, Kuwait; ³ Department of Medicine, Faculty of Medicine, Kuwait University; ⁴ Central Blood Bank, Ministry of Health.

Introduction:

Apolipoprotein E is one of several proteins found in lipoprotein particles. It is also expressed in the central nervous system and is theorized to play a role in neuropsychiatric disease. Certain genotypes of the ApoE gene have been already implicated as risk factors in Alzheimer's disease.

Methods:

We studied 2 groups of age-matched subjects: (1) Group A: 106 healthy control subjects recruited from the Central Blood Bank; (2) Group B: 45 patients with a diagnosis of schizophrenia. Each subject had APOE genotyping by validated PCR/restriction digestion methods. Results obtained were compared between both groups.

Results:

The APOE allele frequencies for Groups A and B subjects were respectively: E4 (9.0 vs. 7.78%); E2 (5.7 vs. 0.0 %); E3 (85.4 vs. 92.2 %). The genotype frequencies were: E3E3 (73.6 vs. 84.4 %); E3E4 (17.0 vs. 15.6 %); E4E4 (0.0 vs. 1.4 %); E2E4 (0.0 vs. 0.0 %); E2E3 (0.0 vs. 6.8 %); E2E2 (0.0 vs. 1.4 %). There were no significant differences in allele/genotype frequencies between patients with CHD and controls.

Conclusions:

In this study: (i)None of APOE genotypes appeared to be a risk to the development of schizophrenia.

Key Words: *APOE Genetic Polymorphism; Schizophrenia; PCR restriction digestion;*

Funding Agency: *Kuwait University Research Administration Grant*

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APOE Genetic Polymorphism and Acute Coronary Syndromes in Kuwait

*Akanji AO¹, Fatania HR¹, Suresh CG², Shihab PK¹, Zubaid M¹

¹ Departments of Pathology, Biochemistry and Medicine, Kuwait University Faculty of Medicine ; ² Department of Cardiology, Mubarak Al-Kabeer Hospital, Kuwait.

Introduction:

The genetic contribution to development of coronary heart disease (CHD) remains controversial. There is little information from the Arabian Gulf on the subject, although CHD remains the greatest cause of adult mortality in the region. In this study, we investigated the relationship of a putative genetic marker, APOE polymorphism, with the development of acute coronary syndromes in Kuwait.

Methods:

We studied 2 groups of age-matched subjects: (1) Group A: 106 healthy control subjects recruited from the Central Blood Bank; (2) Group B: 74 patients within 24hr of admission for acute myocardial infarction. Each subject had APOE genotyping by validated PCR/restriction digestion methods and admission troponin levels measured by automated ELISA. Results obtained were compared between both groups.

Results:

The APOE allele frequencies for Groups A and B subjects were respectively: E4 (9.0 vs. 12.2%); E2 (5.7vs. 4.7%); E3 (85.4 vs. 83.1%). The genotype frequencies were: E3E3 (73.6 vs. 68.9%); E3E4 (17.0 vs. 21.6 %); E4E4 (0.0 vs. 1.4 %); E2E4 (0.9 vs. 0.0 %); E2E3 (6.6 vs. 6.8 %); E2E2 (1.9 vs. 1.4 %). There were no significant differences in allele/genotype frequencies between patients with CHD and controls. However, with CHD, those with E4 allele (23%) had higher admission troponin levels than those without the allele (77%) - median (range) ng/ml: 1.6 (0.01-87.0) vs. 1.30 (0.01-54.9), $p < 0.05$ - suggesting a severer disease course in the former.

Conclusions:

In this study: (i) APOE genotypes did not appear to specifically confer susceptibility to CHD; (ii) patients with CHD and an APOE4 allele are likely to present with a severer disease course.

Key Words: *APOE Genetic Polymorphism; Coronary Heart Disease; PCR restriction digestion;*

Funding Agency: *Kuwait University Research Administration Grant*

Pathology

Category: Clinical

184: Moderated

LDL Species heterogeneity in Arab Patients with Coronary Heart

* Mathew R¹, Amre A², Zubaid M¹, Akanji AO¹

¹ Departments of Pathology and Medicine, Kuwait University Faculty of Medicine ;

²Department of Cardiology, Mubarak Al-Kabeer Hospital, Kuwait.

Introduction:

LDL is heterogeneous and its quality rather than quantity (especially content of the small dense fraction, sdLDL) correlates best with cardiac disease risk. LDL heterogeneity had hitherto been assessed by complex ultracentrifugation and/or NMR techniques. This study investigates LDL heterogeneity in coronary heart disease (CHD) using a modified PAGE technique.

Methods:

The case control study had 2 groups of subjects (n=127) matched for LDL levels : (i) Grp 1 : 45 (36M/9F) patients, aged 57.5±9.8 yr, with proven myocardial infarction (MI), and (ii) Grp 2 : 82 (42M/40F) patients, aged 48.7±9.4 yr, on follow-up at the Lipid Clinic (LC). All submitted fasting blood samples for : (i) lipid analysis (TC, TG, HDL, LDL, Apo A1, Apo B); and (ii) high resolution, non-gradient PAGE (LIPOPRINT®, Quantimetrix, USA), which separates LDL into 7 subfractions : LDL 1-2 (large, buoyant, pattern A) and LDL 3-7 (small, dense pattern B) and gives LDL particle size.

Results:

58% and 48% respectively of the Grps 1 & 2 patients had diabetes. Fasting glucose was similar in the 2 groups but Grp 2 had greater values for TC, TG, VLDL and HDL (p<0.01). Although total LDL levels were similar in both groups, LDL 1/2 levels (pattern A) were higher in Grp 2 and LDL 3-7 (pattern B) greater with Grp 1. Patterns A and B had respective positive and negative correlations with Apo A1/HDL (p<0.01). Mean LDL particle size in Grp 2 was greater than in Grp 1 (250.3±1.8 vs. 264.7.2 Å, p<0.01).

Conclusions:

Patients with CHD have greater amounts of sdLDL, in comparison to other subjects with identical LDL levels. LDL sub-fractionation can identify increased CHD risk with normal LDL levels, and be useful in optimizing primary and secondary CHD prevention program.

Key Words: Small dense LDL; Coronary heart disease; PAGE (Polyacrylamide gel

Funding Agency: KURA Grant # MG 01/03

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Is the association of adiponectin with insulin resistance independent of its relationship with obesity In Kuwaiti Patients with Type 2 Diabetes?

*Mojiminiyi OA¹, Abdella NA², Al-Arouj M³, Abdullah BN³, George S¹, Pinto C², Mathew R¹

¹ Department Pathology, Kuwait University, Faculty of Medicine; ² Department of Medicine, Kuwait university, Faculty of Medicine ; ³ Ministry of Health, Kuwait.

Introduction:

The extent to which the association of adiponectin with insulin resistance (IR) is dependent on its relationship with obesity is not clear. This study evaluates the association between obesity, adiponectin and IR in patients with type 2 diabetes and varying degrees of IR.

Methods:

Adiponectin, leptin, high-sensitivity C-reactive protein (hs-CRP), fasting insulin and glucose were determined in 102 Type 2 diabetic patients. Patients were classified as obese (BMI \geq 30.0 kg/m²) or nonobese (BMI <27.0 kg/m²) and, on the basis of IR (homeostasis model assessment ratio (HOMA-R)), as either insulin sensitive (HOMA-R <3.6) or insulin resistant (HOMA-R >3.6).

Results:

Adiponectin and BMI were not significantly different between male and female patients. Obese insulin-sensitive patients had higher ($p = 0.03$) adiponectin levels (median = 19.28ng/ml) than obese IR patients (median =14.00ng/ml), despite similar BMI and waist circumference. In nonobese patients, adiponectin levels were higher ($p < 0.0001$) in insulin-sensitive patients (median = 27.28ng/ml) than in those with IR (median = 16.68 ng/ml). Adiponectin showed significant ($p < 0.05$) Spearman rank correlation with age ($r_s = 0.32$), BMI ($r_s = -0.29$); waist circumference ($r_s = -0.28$); hs-CRP ($r_s = -0.17$); insulin ($r_s = -0.19$) and HOMA-R ($r_s = -0.19$) but, partial correlation analysis, after controlling for age, showed that adiponectin was significantly ($p < 0.05$) correlated with leptin ($r = -0.18$); hs-CRP ($r = -0.22$); BMI ($r = -0.26$) and waist circumference ($r = -0.29$) but the correlation with insulin and HOMA-R was not statistically significant.

Conclusions:

Although within each classification of obesity, lower adiponectin levels were associated with IR, the relationship between obesity, adiponectin and IR is not one of dependent cause and effect. We conclude that adiponectin concentrations are closely related to obesity and obesity-related factors but the relationship with IR is complex and probably age-dependent.

Key Words: *Adiponectin; Insulin Resistance; Diabetes;*

Funding Agency: *None*

Pathology

Category: Clinical

186: Moderated

High Prevalence of HR2 Haplotype in Arabs in Kuwait with a High Risk of Developing Venous Thrombosis

*Jadaon MM, Dashti AA

Department of Medical Laboratory Sciences, Kuwait University Faculty of Allied Health Sciences

Introduction:

Venous thromboembolism (VTE) occurs due to a number of hereditary and acquired disorders of hemostasis. A polymorphism in Factor V gene (A4070G; named HR2) has been reported to be a possible risk factor for the development of VTE, with a high prevalence of 9.5-15.2% in patients of different ethnic groups in different parts of the world. Population prevalence of HR2 haplotype and the risk of developing VTE due to HR2 haplotype have not yet been tested in Arabs.

Methods:

188 VTE Arab patients and 100 healthy Arab subjects were examined for HR2 using PCR, RFLP and agarose gel electrophoresis. Tests for other risk factors were done previously using clotting methods, including levels of proteins C, S and antithrombin, and presence of activated protein C resistance and lupus anticoagulants. Tests for factor V Leiden and Prothrombin G20210A mutations were also done previously using PCR, RFLP and agarose gel electrophoresis.

Results:

Data obtained showed that 31 patients and 7 healthy subjects had HR2 haplotype, with a statistically significant difference in prevalence (16.5% and 7%, respectively; p-value < 0.05). Furthermore, among the individuals having HR2 haplotypes, 13 patients and none of the normal subjects had one or more additional risk factors for VTE (Table 1).

Conclusions:

the prevalence of HR2 in Arabs is quite high, with an odd ratio of 2.62 for developing VTE. Moreover, Coexistence of HR2 haplotype with other genetic/acquired defects of VTE is quite common in Arabs. Testing for HR2 haplotypre should be included to the panel of tests usually done for patients with VTE.

Table 1.	HR2
APC-R (FVL heterozygous)	6
APC-R (FVL heterozygous) + ProthrG-A (heterozygous)	1
APC-R (FVL heterozygous) + ProthrG-A (heterozygous) + PS Deficiency	1
PC Deficiency	1
PS Deficiency	2
PC + PS Deficiencies	2

Key Words: HR2 haplotype; venous thrombosis; Arabs;

Funding Agency: None

Pathology

Category: Clinical

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Determinants of Serum Serotonin Concentration and Its Association with Serum Cholesterol In Patients with Major Depressive Disorder

Olusi SO*, Fido AA

Departments of Pathology and Medicine, Faculty of Medicine, Kuwait University.

Introduction:

In 1996, we (Olusi and Fido) reported an association between low serum cholesterol concentration and major depressive disorders (MDD) especially suicides and violent deaths. We hypothesised that low serum cholesterol may be associated with low serum serotonin. This study was designed to test this hypothesis.

Methods:

We determined the age, sex, body mass index (BMI), fasting serum glucose (FSG), leptin, total cholesterol, LDL-cholesterol, HDL-cholesterol, triglyceride and serotonin concentrations in 570 healthy adults and in 100 patients with MDD. Serum leptin and serotonin concentrations were estimated by using commercially available immunoassay kits while the other serum analyses were estimated on the SYNCHRON CHEMISTRY ANALYSER. Using both univariate and multiple regression analyses, we determined the associations among serum serotonin and the biochemical variables in both patients and controls.

Results:

In univariate regression analysis, serum serotonin concentration was significantly inversely related with age ($r = -0.5, P = 0.001$); BMI ($r = -0.34, P = 0.001$); FSG ($r = -0.29, P = 0.001$); total cholesterol ($r = -0.29, P = 0.001$); LDL-cholesterol ($r = -0.31, P = 0.001$); and leptin ($r = -0.22, P = 0.05$) in the healthy population. In a multiple regression model, serum serotonin lost its associations with total cholesterol and LDL-cholesterol after adjusting age, sex and BMI, both in the depressed patient group and in the control group.

Conclusions:

We concluded from these results that the reported association between serum serotonin and cholesterol concentrations in normal and in depressed people are due to confounding effects of age, sex and BMI and that serum serotonin concentration may therefore not be useful in mood assessment.

Key Words: Serum serotonin; Cholesterol; Depression;

Funding Agency: None

Pathology

Category: Clinical

188: Moderated

Serum Resistin Concentrations are Neither Associated with Body Mass Index Nor With Indices of Carbohydrate and Lipid Metabolism in Obese and Non-Obese Subjects.

Olusi SO*, Mathew R, George S

Department of Pathology, Faculty of Medicine, Kuwait University.

Introduction:

There are inconsistent reports in the literature linking resistin, a newly discovered adipocyte hormone, with obesity and insulin resistance. We thought that the inconsistent results might be due to the relatively small number of samples investigated in most of the studies. We therefore decided to look at the roles of resistin in obesity, carbohydrate and lipid metabolism in 300 apparently healthy adults.

Methods:

We measured the concentrations of resistin in the sera of 300 apparently healthy adults (170 women and 130 men) using the commercially available Human Resistin Kit from LINCO Research, USA. We also determined the age, sex, body mass index (BMI) and measured the fasting serum concentrations of glucose, total cholesterol (TC), LDL-cholesterol (LDL-C), HDL-cholesterol (HDL-C), and triglyceride (TG). Appropriate statistical methods were used to examine the associations between resistin and the variables.

Results:

The mean age of the subjects was 41 plus or minus 10 years (range 15-80 years). Their mean BMI was 27.53 plus or minus 0.56 kg/m². One hundred forty of the subjects were obese (BMI greater than 30 kg/m²) while 88 had ideal BMI (20-25 kg/m²). The mean serum concentration of resistin in the total population was 1.58 plus or minus 0.46 ng/ml. The mean for males (1.36 plus or minus 0.15 ng/ml) was not significantly ($P=0.7$) different from that of females (1.02 plus or minus 0.14 ng/ml). Similarly the mean serum concentration of resistin in obese (1.6 plus or minus 0.84 ng/ml) was not significantly different from that of the non-obese (1.52 plus or minus 0.67 ng/ml). Both univariate and multiple regression analyses showed no significant associations between serum resistin concentration and any of the variables either in the obese or non-obese subjects.

Conclusions:

We concluded that serum resistin is not associated with either obesity or glucose or lipid metabolism in man.

Key Words: Serum Resistin; Obesity; Glucose and Lipids.

Funding Agency: None

Pathology

Category: Clinical

189: Moderated

Urinary Cytology in detecting BK virus in kidney transplant recipients.

*Kapila K¹, Nampoory MRN², Pacsas AS⁴, Nair MP², Halim MA², George SS¹, Francis IM¹

¹ Department of Pathology, Kuwait University Faculty of Medicine; ²Department of Nephrology, Hamad Al-Essa Kidney Transplant Centre, Shuwaikh; ³Department of Medicine, Kuwait University Faculty of Medicine; ⁴Department of Microbiology, Kuwait University Faculty of Medicine.

Introduction:

BK virus (BKV) infections are sub clinical and lead to viral latency within kidney tissue. Renal transplant recipients (RTR) are at risk of reactivation of BKV which may lead to severe derangement of the renal function and loss of allograft. BKV nephropathy affects 3-9% of renal allografts and up to 40% graft loss has been reported. Decoy cells are the hallmark of BKV infection and are readily identified in Papanicolaou stained cytospin preparations of urine or by immunocytochemistry or electron microscopy. This is a preliminary report to evaluate the efficacy of urine cytology in detecting BKV.

Methods:

Papanicolaou stained cytospin preparations from eight transplant recipients were studied. Urine sediment from three of these patients was fixed in glutaraldehyde and processed for ultra structural examination. All the 8 cases had previously tested positive for BKV by PCR in urine or blood or both. Renal biopsies pre and post BKV detection were also evaluated for morphologic evidence of BKV.

Results:

The age ranged from 23-63 years and there were 5 males and 3 females. The interval between renal transplant and urine cytology ranged between 2-5 years. Urine from females was difficult to assess due to vaginal contamination. BKV was seen in 2 of the 5 urine specimens from male recipients. In the urine, the infected cells had rounded nuclei with dense, gelatinous or granular basophilic inclusion often with a rim of granular chromatin. Viral particles suggestive of BKV were identified in 2 of the 3 specimens on ultra structural examination. One of these urines did not show cytologic evidence of BKV. Kidney biopsies showed morphologic features suggestive of BKV infection in two of three cases detected on cytology.

Conclusions:

Routine screening for the presence of decoy cells in urine, a sign of enhanced polyoma virus replication in the urinary tract provides a simple sensitive means for the diagnosis of BKV nephropathy in RTR.

Key Words: *Urine cytology; BKV Nephropathy; Renal transplant;*

Funding Agency: *None*

Medullary thyroid carcinoma: A cytomorphological and immunocytochemical study of 11 cases.

*Das DK¹, Mallik MK², George SS¹, Haji BE², Razak SA², Pathan SK², Sheikh ZA², Dey P³, Francis IM¹.

¹Department of Pathology, Kuwait University Faculty of Medicine; ²Cytopathology Unit, Mubarak Al-Kabeer Hospital; ³Cytopathology Unit, Hussain Makki Juma Center for Specialized Surgery.

Introduction:

Medullary thyroid carcinoma (MTC) is a relatively rare thyroid malignancy of neuroendocrine (C-cell) origin. Its wide spectrum of growth pattern and varied cytomorphological features may pose difficulty in the preoperative fine needle aspiration (FNA) cytology diagnosis, which is important for management. The present study, based on 11 cases from 10 patients is an attempt to study the cytomorphological features and immunocytochemical characteristics of this neoplasm.

Methods:

The papanicolaou and MGG stained FNA smears of 9 cases of thyroid nodules and 2 metastatic lymph nodes, diagnosed during 1996 – 2003, were studied for cytomorphological features. Immunocytochemical staining was available in 5 cases and in 4 it was performed on archival material.

Results:

Age of the patients ranged from 23 to 70 years (median, 36 years). Male to female ratio was 6:4. The initial cytodiagnoses were MTC in 7, MTC/follicular neoplasm (1), MTC/undifferentiated carcinoma (1), and metastatic MTC in lymph nodes (2). The smears showed high, moderate and low cellularity in 5, 5 and 1 cases respectively. Average number of cells in 11 cases was as follows: plasmacytoid (23.8%), oval (23.9%), small round (20.3%), spindle-shaped (14.9%), triangular (8.2%), polyhedral (3.5%), large dendritic cells (0.6%), giant cells (1.7%) and miscellaneous (3.2%). Predominant cell pattern was plasmacytoid (2 cases), oval (1), small round (2), spindle (2) and mixed (4). Morphologically amyloid like material was present in all the cases. Azurophilic granules, intracytoplasmic lumina with secretions and intranuclear cytoplasmic inclusions were present in 9, 7 and 6 cases respectively. 8 of 9 cases and 3 of 3 cases were positive for calcitonin and chromogranin respectively.

Conclusions:

The study demonstrates the varied cytomorphology of MTC, the prior knowledge of which makes the diagnosis easier. Immunocytochemical staining on FNA smears can confirm the diagnosis.

Key Words: Medullary thyroid carcinoma; Fine Needle Aspiration (FNA) cytology; Calcitonin;
Funding Agency: None

Pathology

Category: Clinical

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Ultra sound guided fine needle aspiration cytology of thyroid

Amir T, Dey P, Jassar A, Boarki K, Hebbar HG, Ghoneim I, Zubair M, Labib M, Pasigan C

Department of Cytology and Department of Radiology, Hussain Makki Juma Center for Specialized Surgeries, Kuwait Cancer Control Center.

Introduction:

In this present study we have analyzed our experience of Ultra sound (US)guided fine needle aspiration cytology (FNAC) of thyroid in the last one year period.

Methods:

A total of 205 cases of US guided fine needle aspiration cytology were performed in the year 2003. All the lesions were non palpable. FNAC was done in these cases with the help of real time US. 23 G needle was used and at least two passes were made. Multiple smears were made for Haematoxyline and Eosin stain and Diff Quick stain.

Results:

There were a total of 205 cases. The size of the lesion in US ranged from 3mm to 2.5cm. Material was adequate in all the cases except four cases (3-5mm size). Out of the 201 cases, there were 7 cases of papillary carcinoma of thyroid (one was a recurrent case in thyroid bed), 9 cases of follicular lesions, 1 metasatic carcinoma and rest 184 cases of benign lesions. The diagnosis of the benign lesions were colloid goiter, lymphocytic thyroiditis, colloid goiter with cystic changes and benign cells only.

Conclusions:

US guided FNAC is an important helpful tool to locate the small non palpable lesions of thyroid. It helps to get adequate material in the lesion of interest. Without US guidance FNAC, we would probably miss many small sized papillary carcinoma of thyroid.

Key Words: Thyroid; Ultra sound; Cytology;

Funding Agency: None

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Fine needle aspiration cytology of Hodgkin's lymphoma with histological correlation. Experience of Hussain Maki Jumaa Center for Specialized Surgeries.

*Jogai S, Adesina AO, Dey P, Amanguno HG, Jassar A, Francis IM

Departments of Cytology and Pathology, Hussain Maki Juma Center for Specialised Surgeries

Introduction:

Fine needle aspiration Cytology (FNAC) has a well established role as the first line investigation modality in the evaluation of lymph node enlargement. The role of FNAC in Hodgkin's lymphoma(HL) diagnosis is now finding an increasing acceptance. The present study is a 5 year cytology experience at HMJCSS. It is an evaluation of 79 cases in which HL was the cytological diagnosis or the main differential diagnosis based on cytological features. Our aim was to assess the accuracy of FNAC as a diagnostic tool in HL.

Methods:

Cytology records at the HMJCSS were searched from Jan2000 to Dec2004 for all cases which the diagnosis was HL positive, suggestive/suspicious of HL, HL as a differential diagnosis and cases where ecurrence/relapse was reported. 79 such cases were found. Of these, in 46 cases a histopathologic follow-up was available in our center. In further 14 cases, FNAC was performed to rule out/confirm a recurrence. In these cases histopathological examination was not done as cytology smears showed diagnostic features of HL. For the purpose of this study the cytological diagnosis in the 46 cases with histological follow-up were divided into three categories: positive for HL, suggestive/suspicious of HL and HL as the prime differential diagnosis.

Results:

Of the 46 cases, 31 were diagnosed as HL, in 9 cases a diagnosis of suggestive/suspicious for HL was offered and in the remaining 6 cases HL was the prime differential diagnosis. On histology 42 of these cases were proven to be as HL. Only 4 cases showed no correlation of which three were proven to be Non-Hodgkin's lymphoma. Of these two were T cell rich B cell lymphoma, and one anaplastic large cell lymphoma. The fourth case with no correlation proved to be a case of metastatic carcinoma. The overall diagnostic accuracy for FNAC in this study was 91.3%.

Conclusions:

FNAC is an extremely useful, sensitive and specific technique for the diagnosis of primary and recurrent Hodgkin's lymphoma.

Key Words: *Fine Needle Aspiration (FNA) cytology; Hodgkin's lymphoma; Histopathology;*

Funding Agency: *None*

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Fine needle aspiration cytology and flow cytometry immunophenotyping of non-Hodgkin Lymphoma: In relation to WHO classification

Dey P, Amir T, Jassar A, Jogai S, Quallaf A, Shammari Z
Department of Cytology, Kuwait Cancer Control Center, Kuwait

Introduction:

In this present study we have done fine needle aspiration cytology (FNAC) and flow cytometry immunophenotyping (FCI) of non-Hodgkin Lymphoma (NHL) and we attempted to subclassify NHL in relation to WHO classification.

Methods:

We performed flow cytometry for immunophenotyping in 27 cases of cytologically diagnosed NHL. There were 16 primary and 11 cases of recurrent NHL. Twenty two cases had superficial lymph node enlargement and 5 cases had intrabdominal swelling. One pass of FNAC was used for cytology study and the other pass was used for FCI. FCI was performed with the help of following antibodies CD3, CD2, CD5, CD 4, CD 8, CD10, CD 19, Kappa, Lambda, CD20, CD23, CD45 and HLADR. FNAC diagnosis was combined with FCI findings to diagnose and subclassify NHL according to WHO classification as far as possible.

Results:

There were adequate sample for FCI in all the cases. FNAC coupled with FCI was helpful in diagnosis of NHL. Out of 25 cases of B cell NHL, 18 cases showed light chain restriction and in 7 cases we were unable to demonstrate light chain restriction. One case was diagnosed as T cell NHL. In one case no specific opinion was possible. FNAC combined with FCI helped in subclassification of NHL. There were 5 cases of small lymphocytic lymphoma (SLL), 4 cases of follicular lymphoma, 12 cases of large B cell NHL, one mantle cell NHL, 2 lymphoblastic lymphoma, one case of T cell NHL and one case of suggestive of NHL. SLL cases showed combined expression of CD 5 and CD 23 expression. Follicular NHL showed CD10 expression. T cell NHL showed predominant CD3 expression.

Conclusions:

FNAC combined with FCI is very helpful in diagnosis of NHL. In 72% cases of B cell NHL, lightchain restriction was helpful in diagnosis of NHL. Cytomorphology is essential for proper interpretation of FCI. With the help of judicious use of CD marker, WHO subclassification is possible in FNAC material of NHL.

Key Words: Lymphoma; Flow Cytometry; Cytology;

Funding Agency: None

Fine needle aspiration cytology Of metastatic transitional cell carcinoma

Dey P, Amir T, Jogai S, Jassar A

Department of Cytology, Kuwait Cancer Control Center, Kuwait

Introduction:

Fine needle aspiration cytology of metastatic transitional carcinoma of bladder is rare. In this present paper we have described the fine needle aspiration cytology (FNAC) of five cases of metastatic transitional cell carcinoma (TCC).

Methods:

In the last two-year period we diagnosed a total of five cases of metastatic transitional cell carcinoma from bladder out of 7500 cases of FNAC. Aspiration cytology of these cases was performed with the help of 5cc syringe and 22-gauge needle. Both May Grunwald Giemsa and Haematoxyline and Eosin stains were done in each case. Detailed cytologic features were studied along with clinical history.

Results:

There were four cases of metastatic lymph nodes and one case of metastatic skin lesion. All the TCC cases were primarily in the urinary bladder and were of high grade on histopathology.(grade 3) Three cases showed bladder muscle involvement and two cases showed superficial TCC at the time of primary diagnosis. FNAC smears showed abundant cellularity. The cells were present in discrete and also in small syncytial clusters. Nuclear position of the cell was central to eccentric. Many cells showed prominent nucleoli. Cercariform cells were noted in four cases. These cells are malignant cells with a nucleated globular body and a unipolar non tapering cytoplasmic process. Two cases showed intranuclear inclusions. Prominent cytoplasmic vacuoles were noted in three cases. In addition cell cannibalism and attempted pearl formations were noted in two cases.

Conclusions:

Clinical history along with the certain cytologic features such as the presence of cercariform cells, cells with eccentric nuclei and intranuclear inclusions are helpful to diagnose metastatic TCC on FNAC material.

Key Words: *Transitional cell carcinoma; Lymph node; Cercariform cell;*

Funding Agency: *None*

Pathology

Category: Graduate (Basic Sciences)

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Cytologic grading: Relation to chromatin fragment and nuclear hole indices in duct carcinoma of breast

* Abodief WT, Dey P, Al-Jassar A

Department of Cytology, Kuwait Cancre Control Center (KCCC)

Introduction:

Nuclear holes and chromatin fragments are often noted in high grade malignancies. However, there is no study available on cytology grade and the above mentioned features in carcinoma of breast. Aim of Study: is to detect any correlation between the cytologic grades of breast carcinoma alongwith the number of nuclear holes and chromatin fragments.

Methods:

Randomly selected 50 Kuwaiti female cases of ductal carcinoma of breast were submitted to cytology grading using Robinson's criteria (Robinson et al., 1994). Intra-cytoplasmic nuclear chromatin fragments and nuclear holes were counted visually in 20 high power fields per patient and the data was expressed per 1000 malignant cells. Two independent observers (WTA and PD) studied separately all these cases. ANOVA Test was also done and showed no significance where p-value was > 0.05.

Results:

Average number of nuclear chromatin fragments was 4.07 ± 0.92 , 10.83 ± 5.44 and 16.89 ± 7.45 in grade 1, 2 and 3 carcinomas. Anova test was done. The results showed significant p-value in case of comparing grade 1 with 2 and grade 2 by 3 (p-value < 0.05). However, there is no significant correlation between different grades of carcinoma and nuclear holes where the average number of nuclear holes was 2.14 ± 4.66 , 1.11 ± 0.76 and 2.50 ± 1.89 .

Conclusions:

1.Nuclear chromatin fragment is an important indicator of grading of ductal carcinoma of breast.2.Nuclear holes can not be used as an indicator of grading of ductal carcinoma of breast. References:Robinson I A, Grace Mckee, Nicholson A, Arcy J D, Jackson P A, Cook M G and Kissin M W: Prognostic value of cytological grading of fine-needle aspirates from breast carcinomas. 'The Lancet' Vol 343 * April 16, 1994

Key Words: Grading and breast; Fragments; Nuclear Holes;

Funding Agency: None

Cytologic grading and cell cannibalism in ductal carcinoma of breast

* Abodie WT, Dey P, Al-Jassar A

Department of Cytology, Kuwait Cancer Control Center (KCCC).

Introduction:

Cell cannibalism is an interesting phenomenon. The described cannibalistic cells found in this study were composed of a cell with a crescent-shaped nucleus engulfing another cell with round to oval faded nucleus. This means a tumor cell with in another tumor cell such that smaller tumor cells are found in the cytoplasm of the larger tumor cells with crescent shaped nuclei. Cell cannibalism is considered a dependent cytological feature of malignancy (Gupta & Dey, 2003) There are no systemic study on cell cannibalism in relation to breast carcinoma. Aims and objectives: In this present study we have correlated the cytologic grade of breast carcinoma along with number of cell cannibalism.

Methods:

Fifty cases of unequivocal ductal carcinoma diagnosed on cytology were selected randomly in the study. Cytologic grade was done with the help of Robinson's criteria (Robinson's et al., 1994). Cell cannibalism was counted in 30 high power fields (x40 objective) and expressed as number of cannibalism per 1000 malignant cells. It means that the number of cannibalistic cells are counted visually per 1000 malignant cells present in 20 high power fields.

Results:

There were 50 cases of ductal carcinoma consisting of 14 cases of grade 1, 18 cases of grade 2 and 18 cases of grade 3. Average cell cannibalism was 1.07 ± 0.83 , 2.67 ± 1.03 and 4.89 ± 1.94 respectively in grade 1, 2 and 3 carcinomas. Anova test showed high significant P value of cell cannibalism in different grades of breast carcinoma (P value < 0.01).

Conclusions:

Cell cannibalism is an important indicator of grading of ductal carcinoma of breast. 1) References: Robinson A, Grace Mckee, Nicholson A, Arcy JD, Jackson PA, Cook MG and Kissin MW: Prognostic value of cytological grading of fine needle aspirates from breast carcinoma. The Lancet Vol 343* April 16, 1994.2) Gupta K and Dey P: Cell Cannibalism: Diagnostic Marker of Malignancy. Diagnostic Cytopathology Vol, 128, No 2, 2003.

Key Words: Breast; Cytologic grading; Cannibalism;

Funding Agency: None

Green tea protects against Aspirin induced gastritis

Asfar S¹, Abdeen S², Mathew TC³, Dashti H^{2,3}, Mathew K¹, Akhtar N², Jacob S³

Departments of Surgery¹, Pathology² and Anatomy³. Faculty of Medicine, Health Science Center, Kuwait University

Introduction:

In a previous study we showed that green tea has a protective effect against fasting-induced atrophy of small intestinal mucosa. We aimed to answer this question: Would drinking green tea affect aspirin-induced gastritis?

Methods:

Male Wistar rats (250 - 300 gm) were used for this study. Ten rats were used for each group. All rats had free access to rat chow and water and libitum unless otherwise indicated. Group I "control": The rats were fasted overnight and in the morning were given 1.5 ml of drinking water by gavage, following that they were returned to their cages with free access to food and water. After 24 hours they were sacrificed, the stomach removed and fixed in 10% formaldehyde. Group II: After overnight fasting animals were given 15 mg of aspirin in 1.5 ml water by gavage (50 mg/Kg) then they were returned to their cages with free access to food and water. They were sacrificed after 24 hours, the stomach removed and fixed in 10% formaldehyde. Group III: Two weeks before the experiments, the drinking water bottles of these animals were changed with green tea solution. At the end of the two weeks they were fasted overnight and given aspirin and then sacrificed like Group II.

Histopathological grading of the gastric mucosa:

G0 = Normal gastric mucosa

G1 = Vascular congestion, mild acute inflammation in the lamina propria.

G2 = Haemorrhagic infarction of the upper half of the gastric mucosa

G3 = Full thickness haemorrhagic infarction of the gastric mucosa

Results:

Group I: no abnormal mucosal changes. Group II: aspirin caused mostly GI changes in the gastric mucosa. Group III: most of the mucosa was normal with only focal GI changes.

Conclusions:

Drinking green tea protects the gastric mucosa from the injurious effect of aspirin.

Key Words: Gastritis; Aspirin; Green tea;

Funding Agency: None

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Alcohol induced gastritis: The protective effect of green tea

Abdeen S¹, Mathew TC³, Dashti H^{2,3}, Mathew K², Akhtar N¹, Jacob S³, Asfar S²

Departments of Pathology¹, Surgery² and Anatomy³. Faculty of Medicine, Health Science Center, Kuwait University

Introduction:

We have previously shown that ingestion of green tea for two weeks prior to fasting protected the intestinal mucosa of rats from atrophy. In this study we aim to find out if green tea consumption would have a protective effect on the gastric mucosa against alcohol-induced gastritis.

Methods:

Male Wistar rat (250–300 gm), were used for these experiments. Ten rats were used for each group. All animals were fed standard rat chow and water ad libitum unless otherwise indicated. Group I ‘control’: The animals were fasted overnight and in the morning were given 1.5 ml of drinking water by gavage. After 2 hours, the animals were sacrificed, the stomach removed and fixed in 10% formaldehyde for histopathologic studies. Group II: These animals were fasted and treated like Group I but instead of water, they were given 1.5 ml of 100% alcohol by gavage and likewise sacrificed after 2 hours. Group III: Two weeks before the experiments, the drinking water of these animals were replaced by green tea solution. On day 15, the animals were fasted overnight and in the morning were given alcohol like Group II.

Histopathological grading of the gastric mucosal changes:

G0 = Normal gastric mucosa

G1 = Vascular congestion, mild acute inflammation in the lamina propria.

G2 = Haemorrhagic infarction of the upper half of the gastric mucosa

G3 = Full thickness haemorrhagic infarction of the gastric mucosa

Results:

Group I: gastric mucosa was completely normal. Group II rats showed no normal gastric mucosa, there was severe mucosal damage (G3 & G2) with some G1 changes. In Group III, the mucosal damage was mostly G1 and few G2 with no G3 changes.

Conclusions:

Drinking green tea ameliorated the effect of absolute alcohol on the gastric mucosa of rats.

Key Words: Gastritis; Green Tea; Alcohol;

Funding Agency: None

Pathology

Category: Clinical

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Cost effectiveness of drotrecogin alfa (activated) for the treatment of severe sepsis.

Bahzad M, Shamsa M, Al-Qattan AM, Al-Mulla A, Alisher AI
Department of Anaesthesiology & ICU, Al Sabah Hospital, Kuwait City, Kuwait

Introduction:

Drotrecogin alfa (activated) is licensed by FDA, USA for the treatment of severe sepsis in patients with multiple organ failure.

Methods:

We constructed a model to assess the cost effectiveness of drotrecogin alfa (activated) from the perspective of the Kuwait National Health Service when used in adult intensive care units. Patient outcomes from a 28-day international clinical trial (PROWESS) and a subsequent follow-up study (EVBI) were supplemented with Kuwait data.

Results:

Cost effectiveness was assessed as incremental cost per life year and per quality adjusted life year saved compared to placebo alongside best usual care. Applying the 28-day mortality outcomes of the PROWESS study, the model produced a cost per life year saved of KD 2304 and cost per quality adjusted life year saved of KD 3340. Equivalent results using actual hospital outcomes were KD 3825 per life year and KD 6025 per quality adjusted life year.

Conclusions:

Drotrecogin alfa (activated) appears cost effective in treating severe sepsis in Kuwait intensive care units.

Key Words: Severe Sepsis; Drotrecogin alfa (activated); Cost and treatment;

Funding Agency: Lilly Company

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Allergic sensitization in asthmatic school children and its relationship to asthma severity

Al-Dowaisan A¹, Arifhodzic N¹, Behbehani N², Al-Mousawi MS¹, Khan MR¹,
Paniker R¹

¹Al-Rashed Allergy Centre, Kuwait; ² Department of Medicine, Kuwait University.

Introduction:

Attempts to evaluate the association between allergen sensitisation and asthma severity had produced conflicting results especially if the pollens are the offending allergens. The relationship between sensitization and clinical symptoms appears to be complex, with factors other than allergens (e.g. air pollution, viral infections etc.) also contribute to asthmatic activity. Objective: To assess the relationship between sensitization to different allergens and asthma severity in school children in Kuwait.

Methods:

Two hundred sixty one asthmatic children (age 7-16); sensitized to either indoor or outdoor allergens have been enrolled in the study. 111 age and sex matched healthy children served as controls. Skin prick test was performed (Stallergenes, France) with extracts of dust mites, cat fur, molds and local pollens for all children. A severity score in asthmatic group was obtained by adding symptoms, spirometry results and drug consumption.

Results:

The prevalence of positive skin prick test to the main inhalant allergens was very high in asthmatic children (87.0%) vs. 26.1% in controls, (p<.001). The pattern of sensitization among asthmatic children was 19.2% to indoor allergens only, 49.3% to outdoor allergens (local pollens) only and 31.5 % to both indoor and outdoor allergens. Children sensitized to indoor allergens had mild asthma in 53.3%, moderate in 43.2%, severe asthma in 3.5% of cases. Similar results were obtained in children sensitized to outdoor allergens only (57.2%, 39.3% and 2.9% respectively). The difference between the two groups was not statistically significant.

Conclusions:

Majority of our asthmatic children are atopic to outdoor more than indoor allergen. There is no relationship between pattern of sensitization and asthma severity. There might be other nonspecific factors beside allergens which contribute to the clinical symptoms.

Key Words: Asthma; Sensitization; Pollen;

Funding Agency: None

Pediatrics

Category: Clinical

201: Moderated

Difference in the body composition of children with diabetes mellitus type1 , compared with controls.

*Molla AM¹, Al-Sanae H⁴, Saldanha W⁴, Molla A³, Shukkur M²

¹Department of Pediatrics, ²Statistics , Kuwait University Faculty of Medicine, ³Faculty of Allied Health Science , ⁴Department of Pediatrics, Amiri Hospital, Kuwait.

Introduction:

Diabetes mellitus type1 is high in Kuwait. We have carried out a case control study to assess the body composition and relevant biochemical parameters among the diabetic children and age matched controls to detect any predictable risk factor.

Methods:

Body composition was estimated by using Quadscan 4000 (Body stat) bio-impedance analyzer. Important variables of body composition obtained by this method includes weight, height, waist,hip, fat (% and kg), lean (kg), total body water(%), extracellular water, intracellular water, body cell mass, impedance index, asal metabolic rate, body mass index, and waist/hip ratio. Biochemical variables from fasting blood samples included cholesterol, Triglyceride, and lipid profile. One hundred twenty nine cases of type1 diabetes and one hundred thirty nine age matched controls were included. Descriptive statistics median and mean are used to describe the results. The difference of the medians was tested by Mann Whitney test. A value of ≤ 0.05 is taken significant.

Results:

Age, weight, and height of the cases and the controls were very closely matched. The cholesterol and HDL levels of the female cases were significantly higher compared to the female controls ($p < 0.001$). The waist, hip and waist/hip ratio of the cases were significantly higher than the controls ($p < 0.05$). The rest of the variables of both body composition and blood biochemistry were very similar and the difference was not significant.

Conclusions:

The results have demonstrated a significant difference between the diabetic cases and the controls in some component of their body composition without any predictive value.

Key Words: *Body composition ; Lipid profile; Bio-impedance;*

Funding Agency: *None*

Pediatrics

Category: Clinical

202: Moderated

Epidemiology of childhood meningitis in Kuwait

Husain E¹, Al-Shawwaf F², Bahbahani F³, Al-Nabi MH⁴, Al-Fotooh KA⁴, Hilmi M⁵, Al-Ateeqi N⁶, Abo-Talib A⁷

¹Infectious Diseases Hospital, ² Mubarak Al- Kabeer Hospital, ³Amiri Hospital, ⁴Adan Hospital, ⁵Farwaniya Hospital, ⁶Sabah Hospital, ⁷Jahra Hospital. Kuwait

Introduction:

The introduction of the conjugate *Haemophilus influenzae* type b (Hib) and the conjugate pneumococcal vaccines had made a significant impact on the epidemiology of meningitis in children. In Kuwait, *Haemophilus influenzae* type b was the leading cause of bacterial meningitis prior the introduction of Hib conjugate vaccine in 1996. Objective: Evaluate the epidemiology of meningitis among children in Kuwait after the introduction of conjugate Hib vaccine as part of routine childhood vaccination.

Methods:

A multicentre retrospective chart review of previously healthy children admitted with a diagnosis of meningitis in the period 2001-2003.

Results:

A total of 169 children had a diagnosis of meningitis and underwent lumbar puncture during the study period. Aseptic meningitis was found in 86 (50.8%) of patients. Bacterial meningitis was caused by the following organisms: *Neisseria meningitidis* (49%), Group B streptococci (18%), *Streptococcus pneumoniae* (18%), tuberculosis (6%), gram negative organisms (6%), and *Haemophilus* spp (1.5%). The mean age was 3 ±3.6 years. Majority (67%) were less than 5 years of age. Eleven percent required admission to the intensive care unit. Ten percent of 158 children with follow up were left with permanent sequelae; 8 with motor palsy, 4 with hydrocephalus, 2 with deafness and 2 with seizures. The majority of the neurological sequelae were in patients who had *S. pneumoniae* meningitis (4 motor palsy, 2 hydrocephalus, 1 seizure).

Conclusions:

Meningitis remains a significant cause of morbidity in children less than five years of age in Kuwait. After the introduction of conjugate Hib vaccine, *N. meningitidis* has become the leading bacterial cause of meningitis. *S. pneumoniae* was responsible for majority of neurological sequelae of bacterial meningitis.

Key Words: Meningitis; Pediatrics; Kuwait;

Funding Agency: None

Clinical and molecular genetic analysis of idiopathic generalized epilepsy in Kuwaiti Arab children

*Haider MZ¹, Habeeb Y², Al-Tawari A³, Al-Bloushi M², Al-Anzi H⁴, Zaki M⁴,
Al-Nakkas E⁴

¹Department of Pediatrics, Faculty of Medicine, Kuwait University; ² Department of Pediatrics, Mubarak Al-Kabeer Hospital; ³ Pediatric Neurology Unit, Al-Sabah Hospital;

⁴ Department of Pediatrics, Farwania Hospital, Kuwait

Introduction:

Idiopathic generalized epilepsies (IGEs) are common types of epilepsy in childhood. Previous reports suggest that IGEs have a predominant genetic etiology. Recently, gene mutations have been found in epilepsy patients in Caucasian populations. The objective of this study was to investigate the association of 3 different genes with IGE in Kuwaiti children.

Methods:

This study included forty five Kuwaiti patients with a confirmed diagnosis of epilepsy. Most patients have had a diagnostic EEG with generalized spike-wave discharges. All patients were evaluated by a validated seizure questionnaire. The clinical type of epilepsy was determined by trained neurologist/pediatrician. Blood samples were collected, DNA was isolated and analyzed by molecular methods. A FokI polymorphism in neuronal nicotinic acetylcholine receptor alpha-4 subunit (CHRNA4) gene was detected by PCR-RFLP. A missense mutation (Ser248Phe) in CHRNA4 gene was analyzed by PCR-RFLP using HpaII. A C121W mutation in sodium-channel beta-1 subunit (SCN1B) gene was screened by a PCR-RFLP method using HinPI. A 2-bp deletion in Cystatin B gene was detected by PCR-RFLP using XcmI.

Results:

The incidence of three FokI polymorphism genotypes in Kuwaiti IGE patients was 1,1 (85%), 1,2 (14%) and 2,2 (1%) respectively. The missense mutation Ser248Phe of CHRNA4 gene was not detected in Kuwaiti IGE patients. The C387G transversion resulting in C121W change in third exon of the SCN1B gene was detected in only 1/45 patients. The patient carrying this mutation exhibited febrile seizures. The incidence of 2 bp deletion in Cystatin B gene was found to be 4% (2/45).

Conclusions:

The data obtained from molecular analysis show a lack of association between three different genes and expression of IGE in Kuwaiti children. This is different from findings reported from Caucasian populations of France, Australia and USA in which a strong association has been reported between IGE and these genes.

Key Words: Epilepsy; Gene; Mutation;

Funding Agency: None

Pediatrics

Category: Clinical

204: Moderated

Application of tandem mass spectrometry to newborn screening of inborn metabolic disorders in Kuwait: A preliminary study

*Abdel-Hamid ME¹, Ramadan D², Girish Y³

¹Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Kuwait University; ^{2,3}Departments of Pediatrics and Clinical Biochemistry Unit, Sabah Hospital.

Introduction:

The application of tandem mass spectrometry for newborn screening of inborn errors of metabolism was started in the early 1990. These diseases include amino acidemias, fatty acid oxidation disorders and organic acidurias. Since September 2004, we have started collection and analysis of patient blood samples using tandem mass spectrometry in cooperation with pediatrics and clinical biochemistry unit/MOH. The aims of this study are to validate the tandem mass spectrometry procedure, to determine the impact of newborn screening using tandem mass spectrometry on the overall detection rate of inborn errors of metabolism in Kuwait and to evaluate the costs of analysis.

Methods:

A tandem mass spectrometer operated in positive electrospray ionization mode was used. Analysis of the samples was done using a stable isotopically labeled internal standard mixture of amino acids and acylcarnitines. The blood spots were extracted, derivatized and analyzed using a special mass program. Urine samples might be also analyzed to confirm organic acidurias disorders. A NeoLynx program for automatic screening of metabolic disorders was used

Results:

Validation of tandem mass spectrometry procedure using blood samples spiked with selected amino acids or acylcarnitines at normal and abnormal concentrations ($\mu\text{mol/l}$) gave % RSD 15%, % DEVs $\pm 20\%$ and %recovery $<14\%$. Since September 2004, a total of 97 samples were screened in our laboratory using tandem mass spectrometry. The following metabolic disorders were identified and confirmed by other reference laboratories: 4 PA/MMA, 1 IVA, 1 HMG, 1 CPT-type I, 1 MSUD, 1 ASA, 2 VLCAD, 2 LCHAD and 1 SCAD.

Conclusions:

Tandem mass spectrometry is a validated and powerful technique for newborn screening of a broad range of metabolic disorders. Early discovery of these disorders is essential to avoid serious complications. Economically, the costs of analysis per sample are significantly low compared to running costs.

Key Words: *Tandem mass spectrometry; Newborn screening; Metabolic disorders;*

Funding Agency: *Research Administration, Kuwait University*

Pediatrics

Category: Clinical

205: Moderated

Hb F levels in patients with sickle cell disease in Kuwait

Adekile AD^{*1}, Al-Kandari MJ², Haider MZ¹, Marouf R³, D'Souza M¹, Sukumaran J¹

¹Department of Paediatrics, Faculty of Medicine Kuwait University; ²Department of Paediatrics, University of Aberdeen; ³Department of Pathology, Faculty of Medicine, Kuwait University

Introduction:

Kuwaiti patients have their beta-S mutation on a chromosome with the Arab/India haplotype which is associated with a high HbF level and a mild clinical course. There have been no previous studies of HbF levels in Kuwaiti patients to document the transition from early childhood to adult values, to identify any sex differences and the influence of co-existent beta-thalassaemia trait.

Methods:

Hematological records of 149 SCD patients, made up of 94 SS and 55 S-beta-thalassaemia; 83 males, 66 females aged 0.25 to 60 years (mean 10.5±1.8), were analyzed. The following parameters were extracted from the records for each patient: age, sex, CBC, HbF, HbS, HbA2 and beta-globin genotype. All hematological and DNA tests had been carried out using standard methods. The results were analyzed using SPSS statistical software.

Results:

The mean HbF in the whole population was 21.6 ± 8.1%. The values were not significantly different between males and females, SS or S-beta-thal. When the age groups were analyzed, the HbF level was highest (28.9±10.9%) in those below 5 years. Indeed, patients 2 years old or less had a mean level of 31.9±13.0%. When the SS patients were analyzed according to their beta-globin genotype, those with significant beta-thal trait (2-gene deletion) had the lowest Hb F.

Conclusions:

The study has confirmed the high HbF of our patients and shown that patients below 5 years have levels close to 30%. At this level, patients are usually symptom free. This explains why Kuwaiti patients do not present in hospital before the age of 5 years, unlike patients in Africa or America who present within the first year of life. This is also probably why complications like stroke and functional asplenia are not common.

Key Words: *Sickle cell anemia; Hb F; Kuwait;*

Funding Agency: *Kuwait University Research Administration Grant*

206: Moderated

Reliability of urine dipstick test in the detecting of urinary tract infection in symptomatic children

Ali SH, Moodambail AR, Hamrah EB, Nakhi HB, Sadeq S
Department of Pediatrics, Aladan Hospital, Kuwait

Introduction:

Urinary tract infections (UTI) are common in children. Early diagnosis and treatment is important to avoid renal damage. Urine dipstick test implements nitrites and leukocyte esterase (LE) as indicators of urinary tract infection. The aim of this study was to determine the reliability of urine dipstick test in detecting UTI in symptomatic children.

Methods:

A prospective study included 132 pediatric patients admitted to the pediatric department in a district hospital in Kuwait who were clinically suspected of having UTI because of fever and/or urinary symptoms. The urine samples were tested by dipstick and urine culture.

Results:

A total of 132 patients were included in the study according to a certain well defined inclusion criteria. Age ranged from 3 days to 11 years mean age was 26 months. There were 81 females and 51 males with (female to male ratio 1.5:1). Eighty nine (67.4 %) of the urine samples were culture positive. The calculated sensitivity, specificity, positive and negative predictive values for positive nitrites were 38.2%, 88.37 %, 87.18% and 40,86 % respectively. These values for Leukocyte esterase were 85.39%, 58.14%, 80.85% and 65.79 % respectively. This means that nitrites, has a high specificity i.e. its presence rules in the disease whereas Leukocyte esterase is more sensitive in detecting UTI than nitrites, its absence makes UTI less probable. When both tests were positive, then the calculated sensitivity, specificity positive and negative predictive values were 74%, 88%, 91% and 67%.

Conclusions:

Our data has shown that dipstick test has a high positive predictive value for the presence of UTI when both nitrites and LE tests are positive in symptomatic children. We recommend the conduction of a bigger study on a larger population, with recording the method of urine collection and ensuring fast handling and processing of the samples.

Key Words: *Leukocyte esterase; Nitrites; Urinary Tract Infections (UTI);*

Funding Agency: *None*

Fatty acid oxidation in Kuwait: A case series and review

Bin-Nakhi HA*, Sadeq S, Hamrah EB, Al-Naqeeb N**, Qabazard Z*

* Pediatric Department, Al Adan Hospital, Kuwait.

** Pediatric Department, Neonatal unit, Al Adan Hospital, Kuwait.

Introduction:

Fatty acid oxidation disorders (FAOD) are rare autosomal recessive inherited metabolic conditions that lead to accumulation of fatty acids and decrease in cell energy metabolism. Early identification and treatment of these disorders have the potential to improve outcome and may be life-saving in some cases. Recent advances in tandem mass spectrometry (TMS) promises an increase in the number of identified patients with FAOD. This paper will highlight the clues that can be obtained from history, clinical examination, and simple bedside tests characteristic for FAOD in order to raise the index of suspicion of these disorders among all pediatricians working in a society with high consanguineous marriage rate, such as Kuwait.

Methods:

The records of 15 patients admitted in Al- Adan hospital and diagnosed as FAOD were reviewed.

Results:

Eleven males and four females, came from 6 families. The mean age of clinical presentation was 1.5 month (range: 1 day – 4 months). The final diagnosis was very long chain acyl-CoA dehydrogenase deficiency (VLCAD) in ten patients and long chain 3-hydroxyacyl-Coa dehydrogenase deficiency (LCHAD) in five patients. Eleven (73%) of the patients presented in the neonatal period. Twelve patients (80%) had a positive family history . History of consanguinity was positive in eleven patients (73%). Physical findings are usually non-specific, eight (53%) had hepatomegaly and four (27%) had marked hypotonia. Five patients died within 1-2 year of diagnosis. The other 6 patients are living on dietary management and four of them are neuro-developmentally normal.

Conclusions:

Our data indicates that FAOD is a serious disease that exists in our community. Its precise incidence in Kuwait is not known yet, since this case series of 15 cases of VLCAD/ LCHAD is only the tip of iceberg. Newborn screening for FAOD by using TMS is strongly recommended.

Key Words: *Fatty acid oxidation disorders; Tandem mass spectrometry; Long chain acyl-CoA*
Funding Agency: *None*

The incidence and spectrum of atrioventricular septal defect in Kuwait

Al-Hay AAA, Shaban LA, Uthman B
Chest Hospital, Paediatric Cardiology Unit

Introduction:

There is two well known major atrioventricular septal defects (AVSD). At one end of the spectrum is partial AVSD (PAVSD) also termed ostium premium atrial septal defects and at the other end is the complete AVSD (CAVSD). An intermediate AVSD (IAVSD) is a less common variant between these two. The purpose of this study was to determine the incidence and the spectrum of AVSD in Kuwaiti patients.

Methods:

The medical records of 110 Kuwaiti patients were collected retrospectively from 1992 to 2004.

Results:

CAVSD was found in 84 (76.4%), IAVSD in 13 (11.8%) and PAVSD in 13. 88 (80%) had AVSD with balanced ventricle and 22 (20%) had unbalanced. The median annual incidence of AVSD was 3.4 (per 10,000 live births). The median annual incidence of CAVSD was 2.65, IAVSD 0.38, PAVSD 0.38, balanced AVSD 2.68 and unbalanced was 0.77. 69 (62.7%) had Down's syndrome. Unbalanced AVSD was seen in 8.7% of trisomy 21 and 39% of normal chromosomes ($p < 0.001$). Female to male median incidence ratio was 1.3 to 1. Nine patients (8.2%) were asymptomatic, 76 (69.1%) had heart failure, 18 (16.4%) cyanosis, 7 (6.3%) failure to thrive and/ or recurrent chest infections.

Conclusions:

This was a population-based study. The incidence of AVSD in Kuwait were two times that of the USA experience. IAVSD was reported as the rarest form of AVSD in the Canadian study and was as frequent as PAVSD in our patient population.

Key Words: Congenital heart disease; Down's Syndrome; Atrioventricular septal defect;

Funding Agency: None

Pediatrics

Category: Clinical

209: Moderated

The surgical outcome of complete atrioventricular septal defect repair: risk factors for hospital mortality and re-operation.

*Al-Hay AAA, Shaban LA, Uthman B
Chest Hospital, Paediatric Cardiology Unit

Introduction:

To evaluate surgical outcome and to identify risk factors for hospital mortality and re-operation after repair of complete atrioventricular septal defect in Kuwait.

Methods:

89 consecutive children underwent repair between January 1992 and December 2003 at Chest Hospital. The studied risk factors were demographic (age at operation, weight, sex, presence of Down), cardiac (the degree of left atrioventricular valve "LAVV" regurgitation, presence of a hypoplastic LAVV, single papillary muscle at LAVV and additional heart lesions), and surgical variables (cardiopulmonary bypass time and aortic cross clamp time). Fisher's exact test was used.

Results:

70% were Kuwaiti and 61% were females. 69 (78%) had Down syndrome, 19 had normal chromosomes and 1 had other syndromes. The median weight at primary repair was 4.5 Kg. A two patch technique was used in 92%. The 30 day mortality was 8 (9%). The causes of death were pulmonary hypertensive crisis in 4, low cardiac output state in 3 and sepsis in 1. The presence of a single papillary muscle of LAVV and LAVV hypoplasia were the significant risk factors for hospital death ($P < 0.01$, Odds ratio 2.2). Seven (8%) patients required re-operation, 5 of which were for repair of LAVV and 2 for closure of residual ventricular septal defect. There was no significant risk factors for re-operation.

Conclusions:

Our 13 year review confirms that a complete atrioventricular septal defect can be operated with low hospital mortality and with a low risk of re-operation and were comparable to international rates.

*Key Words: Congenital heart disease; Complete atrioventricular septal defect; Down's
Funding Agency: None*

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Total intravenous anesthesia (TIVA) and balanced sevoflurane anesthesia for ENT surgery in children

Agzamov AI, Al-Qattan AM, Dubikaitis AY, Quresher MI

Department of Anesthesiology & ICU, Al-Sabah Hospital, Kuwait City, Kuwait

Introduction:

It was the aim of this study to compare total intravenous anesthesia (TIVA) with balanced anesthesia using sevoflurane for ENT-surgery in children regarding the influence on hemodynamics, recovery, side-effects and costs.

Methods:

80 children, ages 3-12 years, were randomly assigned to TIVA (group 1, n = 40) and balanced anesthesia (group 2, n = 40), respectively. TIVA with propofol (2 mg/kg) and remifentanyl (1 microgram/kg/min) and maintained with propofol (5 mg/kg/h) and remifentanyl (0.01 microgram/kg/min). Controlled ventilation was performed with an air/oxygen mixture (1:1). Balanced anesthesia was induced with sevoflurane (8 Vol.%) in a mixture of nitrous oxide/oxygen (2:1). For ventilation, the patients of both groups used for intubations mivacurium (0.2 mg/kg) with monitoring using TOF. Hemodynamic parameters, awakening time, recovery time, side-effects and costs for anesthetic agents and relaxants were registered.

Results:

Our study showed significantly higher heart rate ($p < 0.05$) and significantly lowers mean arterial pressure ($p < 0.05$) during balanced anesthesia than during TIVA. Between the two groups there were no statistically significant differences regarding awakening time, recovery time and incidence of postoperative vomiting. In the TIVA-group, pain due to injection of propofol occurred in 10 patients (24.4%) and in group 2 sevoflurane-induced excitation during induction was registered in 22 patients (56.4%). There were no significant differences between the costs for TIVA and balanced anesthesia.

Conclusions:

We conclude that both TIVA and balanced anesthesia performed with short-acting anesthetics, are suitable anesthetic methods for ENT operations in children. Because balanced anesthesia with sevoflurane led to higher heart rates, this kind of anesthesia should be used with caution in children with heart diseases. The main advantage of both methods is their short recovery time.

Key Words: *TIVA Propofol; Sevoflurane anesthesia; ENT Surgery;*

Funding Agency: *Abbott and SKG Companies*

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Anesthesia with sevoflurane for ENT-surgery in children. A comparison with isoflurane.

Al-Qattan HA, Agzamov AI, Al-Qattan AM, Dubikaitis AY, Litvak T
Department of Anaesthesiology, Al Sabah Hospital, Kuwait City, Kuwait

Introduction:

Sevoflurane, a short acting volatile anesthetic agent, is of great potential interest in pediatric anesthesia. Its use for ENT surgery in children was compared with isoflurane in this study.

Methods:

Altogether 40 children participated in the investigation. In 18 (median age 4.2 years), isoflurane was used. The remainder (median age 4.0 years) were anesthetized with sevoflurane. After premedication with midazolam and atropine, anesthesia was induced by mask (the agent in O₂/N₂O, 40/60) using a Mapleson D system. The trachea was intubated without the use of muscle relaxants and the children were then allowed to breathe spontaneously at fresh gas flows set high enough to avoid re-breathing. Oxygen saturation (SpO₂), inspired and expired gas concentrations, respiratory rate (RR), heart rate (HR), ECG and blood pressure were followed. Equianaesthetic concentrations of the agents were used and induction characteristics were comparable between the two agents.

Results:

RR and end-tidal CO₂ tensions were similar in the two groups. HR and systolic blood pressures were, however, higher with sevoflurane. Cardiac arrhythmias were seen more frequently with halothane (61%) than with sevoflurane (5%). During emergence, postoperative nausea/vomiting was more frequent after isoflurane anesthesia. Initially, postoperative excitement occurred more often after sevoflurane, when paracetamol was given during anesthesia, which was reduced ($P < 0.01$) when paracetamol was given at the time for pre-medication.

Conclusions:

It is concluded that sevoflurane is an excellent induction agent, and maintains heart rate and systolic blood pressure better than when halothane is used. The incidence of cardiac arrhythmia is lower with sevoflurane than with isoflurane.

Key Words: *Sevoflurane; Isoflurane; ENT Surgery;*

Funding Agency: *ABBOTT COMPANY*

Pediatrics

Category: Clinical

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The reversal of rocuronium with pyridostigmine during sevoflurane anaesthesia in children.

Al-Qattan HA, Agzamov AI, Al-Qattan AM, Hanan AH
Department of Anaesthesiology, Al Sabah Hospital, Kuwait City, Kuwait

Introduction:

This study investigates the effect of pyridostigmine administered at different levels of recovery of neuromuscular function after rocuronium during sevoflurane anaesthesia in children.

Methods:

One hundred sixty patients aged 3 to 10 years, ASA physical status 1 or 2 were randomized to 4 groups: a spontaneous recovery group; or, reversal with pyridostigmine 0.25 mg/kg with glycopyrrolate 0.01 mg/kg at one of three times: 5 minutes after rocuronium administration; at 1% twitch height (T1) recovery; or at a 25% twitch height (T25) recovery.

Results:

Anaesthesia was induced with propofol (1 – 2 mg/kg) and maintained with 2-3% sevoflurane and 50% nitrous oxide. Atropine (0.015 mg/kg) and, after calibrating the TOF-Watch, rocuronium (0.6 mg/kg) were then administered. Maximal block occurred 1.1 ± 0.5 min (mean, SD) after rocuronium administration. In the spontaneous recovery group, the clinical duration (recovery to T25) was 40.1 ± 8.8 min and the recovery index (time between T25 and T75) 19.9 ± 9.8 min. Recovery to TOF >0.9 from the time of rocuronium administration was reduced by approximately 30% in the pyridostigmine groups compared to the spontaneous recovery group. There was no significant difference among the three pyridostigmine groups.

Conclusions:

When pyridostigmine was given at T1 or T25, the time from pyridostigmine administration to TOF >0.9 was shorter than for the group receiving pyridostigmine 5 minutes after rocuronium.

Key Words: Rocuronium; Pyridostigmine; Anaesthesia;

Funding Agency: Al Ganim Company

213: Moderated

Inhibition of phosphoinositide 3-kinase prevents diabetes-induced vascular dysfunction in the perfused mesenteric vascular bed

*Hares NG, Cherian A, Yousif MHM, Benter IF

Department of Pharmacology & Toxicology, Kuwait University Faculty of Medicine.

Introduction:

Mortality from cardiovascular disease is three times higher in diabetic patients than in the general population. The signaling mechanisms involved in regulating altered vascular reactivity in diabetes are not fully understood. The aim of this study was to investigate the role of phosphoinositide 3-kinase (PI3K) in development of diabetes-induced altered vascular reactivity to selected vasoconstrictors and vasodilators in the perfused mesenteric bed of streptozotocin (STZ)-diabetic rats.

Methods:

4 groups of female Wistar rats (200-250g) were used. Group I was control non-diabetic-vehicle treated animals (n=11). Group II was control non-diabetic rats that received treatment with the PI3K inhibitor LY294002 (n=6). Group III was diabetic rats without treatment; diabetes was induced by a single intraperitoneal (i.p.) injection of 55mg/kg STZ (n=6). Group IV was diabetic rats that received treatment with LY294002 (n=6). Treatment with LY294002 (1.5mg/kg/i.p./daily) was started on the same day as the induction of diabetes and continued everyday for four weeks. At the end of the study, animals were sacrificed and the mesenteric beds were isolated to measure changes in perfusion pressure in response to vaso-active agonists.

Results:

Hyperglycemia persisted in the diabetic animals and was 570 ± 16.3 mg/dl at four weeks compared to 90.0 ± 2.8 mg/dl in the control animals ($p < 0.05$). STZ treatment produced an increase in the vasoconstrictor responses to norepinephrine (NE) and endothelin-1 (ET-1) ($p < 0.05$). The vasodilator responses to carbachol and histamine were significantly attenuated in the perfused mesenteric bed of the diabetic rats. Inhibition of PI3K by chronic administration of LY294002 produced a significant improvement in diabetes-induced abnormal vascular reactivity to the vaso-active agonists.

Conclusions:

Potential strategies aimed at inhibiting PI3K may represent promising novel approaches for the treatment of vascular complications in diabetes.

Key Words: Phosphoinositide 3-kinase (PI3K); Diabetes; Mesenteric vascular bed;

Funding Agency: College of Graduate Studies, Kuwait University

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Angiotensin-(1-7) attenuates development of hypertension and end-organ damage in spontaneously hypertensive rats with chronic nitric oxide synthesis inhibition

*Benter IF¹, Yousif MHM¹, Anim JT², Juggi JS³, Hoteit LJ¹, Abraham S¹

¹Department of Pharmacology & Toxicology, Faculty of Medicine, Kuwait University;

² Department of Pathology, Faculty of Medicine, Kuwait University; ³Department of Physiology, Faculty of Medicine, Kuwait University.

Introduction:

Cardiovascular risk factors such as hypertension, hyperlipidaemia, and diabetes are associated with endothelial dysfunction. Reduced bioavailability of nitric oxide (NO) is an underlying abnormality in these conditions. This study examined the effect of angiotensin-(1-7)[A-1-7] in comparison to captopril (C) on the development of hypertension and end-organ damage in spontaneously hypertensive rats (SHR) chronically treated with NO synthesis inhibitor L-NAME (SHR-L-NAME).

Methods:

Group 1 was SHR controls drinking regular water, Group 2 was SHR drinking water with L-NAME (80mg/L for four weeks) (SHR-L-NAME), Group 3 was SHR-L-NAME treated with A-1-7 (1mg/kg/day ip), and Group 4 was SHR-L-NAME drinking water with C (300mg/L). Blood pressure, vascular reactivity, cardiac function, and morphology of the hearts and kidneys were determined.

Results:

L-NAME significantly elevated mean arterial blood pressure (268 ± 10 mmHg) as compared to SHR controls drinking regular water (165 ± 6 mmHg). The administration of A-1-7 or C significantly attenuated elevation of blood pressure in SHR-L-NAME (216 ± 9 and 228 ± 8 mmHg, respectively, $p < 0.05$). Morphological studies of the kidneys showed that treatment with A-1-7 or C minimized the renal hyperplastic occlusive arteriosclerosis and fibrinoid vasculitis that were observed in vehicle treated SHR-L-NAME. Only C could prevent the development of pathology in the hearts. In isolated perfused hearts, recovery of left ventricular function from 40 minutes of global ischemia was better in A-1-7 or C-treated SHR-L-NAME. The impaired vascular responsiveness to norepinephrine and carbachol in the perfused mesenteric vascular bed of SHR-L-NAME was significantly improved by A-1-7 or C treatment.

Conclusions:

These results suggest that in hypertensive individuals with endothelial dysfunction and chronic NO deficiency, treatment with angiotensin (1-7) may be able to attenuate blood pressure and end-organ damage similar to ACE inhibition.

Key Words: Angiotensin; Nitric oxide; Hypertension;

Funding Agency: Kuwait University Research Administration Grant

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Downregulation of rho-kinase expression in pregnant rat aorta: role in attenuated vascular reactivity during pregnancy

*Katuo MG¹, Oriowo MA¹, Khan I²

¹Departments of Pharmacology and Toxicology, Faculty of Medicine, Kuwait University ;

²Department of Biochemistry, Faculty of Medicine, Kuwait University

Introduction:

Normal pregnancy is associated with attenuated vascular responsiveness to vasoconstrictor agents. This study examines the role of the rho-kinase pathway in mediating the decreased vascular reactivity to arginine vasopressin (AVP) in pregnant rat aorta.

Methods:

Adult female Wistar rats (250-300 g) were used in this investigation. Pregnant rats were used at sixteen-nineteen days of pregnancy while age matched non-pregnant littermates were used as controls. Sections of the aorta were used to study vascular reactivity or expression of Rho-kinase by Western immunoblotting. AVP-induced contraction was tested in the presence and absence of a number of antagonists. Differences between mean values were evaluated for statistical significance using student's t-test. Differences were considered significant when $p < 0.05$.

Results:

AVP induced concentration dependent contractions of aortic segments from non-pregnant and pregnant rats. Pregnancy did not alter the sensitivity to AVP but significantly ($p < 0.05$) reduced the maximum contraction (31.0 ± 6.3 g/g wt versus 133.0 ± 32.2 g/g wt, $n=6$ in non-pregnant rats). AVP-induced contraction was significantly reduced in a Ca^{2+} -free (0.1 mM EGTA) medium. The reduction (92.7%) was greater in aorta segments from non-pregnant rats than in tissues from pregnant rats (76.7%). Nifedipine (1 microM) significantly ($p < 0.05$) reduced AVP-induced contraction in artery segments from non-pregnant rats (from 107.9 ± 24.0 to 29.8 ± 9.4 $n=6$) but not pregnant rats. The Rho-kinase inhibitor Y-27632 (10 microM) significantly reduced AVP responses (from 107.9 ± 24.0 to 22.4 ± 7.8 , $n=6$, $p < 0.01$) in aorta from non-pregnant but not pregnant rats. ROCK-I and ROCK-II were expressed in the rat aorta and the level of expression was significantly ($p < 0.05$) reduced in pregnancy.

Conclusions:

These results suggested that pregnancy attenuated AVP-induced contraction by inhibiting Ca^{2+} mobilization and Ca^{2+} sensitivity of the myofilaments.

Key Words: Rho-kinase; Pregnancy; Arginine vasopressin;

Funding Agency: College of Graduate Studies, Kuwait University

216: Moderated

Protein kinase C activation stimulates cyclic AMP production in human eosinophils and inhibits degranulation

*Ezeamuzie CI, Taslim N

Department of Pharmacology, Faculty of Medicine, Kuwait University.

Introduction:

Degranulation of eosinophils and the release of toxic products are crucial components of the pathophysiology of allergic diseases, especially asthma. The PKC activator phorbol myristate acetate (PMA) is a potent inhibitor of eosinophil degranulation and leukotrienes release. Since intracellular cAMP is a powerful inhibitor of eosinophil degranulation, we investigated whether the inhibitory effect of PMA on degranulation was mediated by cAMP in a PKC-dependent manner.

Methods:

Highly purified eosinophils were isolated from peripheral blood of normal donors by the immunomagnetic method. Following pre-incubation with cytochalasin B (5 microg/ml) for 5 min degranulation was induced with 30 nM C5a. The eosinophil peroxidase (EPO) and eosinophil cationic protein (ECP) released into the supernatant were measured by the o-phenylenediamine and EIA methods, respectively.

Results:

C5a-induced release of EPO and ECP was potently inhibited by PMA (IC₅₀: 3nM and 5nM, respectively). The inhibition by PMA, but not histamine, was significantly reversed by the PKC inhibitor Ro 31-8220 (1 microM). In the presence of the rolipram (5 microM), PMA stimulated a pronounced increase in intracellular cAMP, with a potency about 400 times that of histamine (EC₅₀: 55 nM vs. 22.5 microM). The inactive PMA analogue, 4-alpha-PMA, had no such effect. Chelation of internal or external calcium had no effect on PMA-induced cAMP response, but abolished that induced by histamine. The cAMP production by PMA, but not histamine, was significantly reversed by the the PKC inhibitor Ro 31-8220 (1 microM). Increases in cAMP were positively correlated with inhibition of degranulation.

Conclusions:

These results show for the first time that in human eosinophils, PMA, via activation of PKC, can stimulate adenylyl cyclase and consequently elicit cAMP production. It is therefore, suggested that this PKC-mediated stimulation of cAMP production may be the basis for the potent anti-degranulatory effect of PMA.

Key Words: Protein kinase C; Eosinophil Degranulation; Cyclic AMP;

Funding Agency: This work was supported by Kuwait University Research Administration

Microarray-based gene expression profiling in diabetes: role of receptor tyrosine kinases in vascular dysfunction

*Canatan H¹, Benter IF¹, Yousif MHM¹, Akhtar S²

¹ Department of Pharmacology and Toxicology, Kuwait University Faculty of Medicine, Kuwait; ² Centre for Genome-based Therapeutics, The Welsh School of Pharmacy, Cardiff University, UK

Introduction:

The alteration of vascular reactivity in diabetes is associated with increase in phosphorylated epidermal growth factor receptor (EGFR) that may play a key role in diabetes-induced vascular dysfunction signaling. These effects were attenuated in diabetic rats treated either with RTKs (genistein) or EGFR specific (AG1478) inhibitors. Gene expression changes in diabetic rats and the effects of the two inhibitors were assessed using microarray gene expression profiling technology.

Methods:

Diabetes was induced, in female Wistar rats, by STZ. Four groups were studied: 1: untreated controls; 2: diabetic rats without treatment; 3 and 4: diabetic rats treated with genistein or AG1478, respectively. Total RNA was isolated from mesenteric bed tissues. The hybridization to the array slides carried out following MWG protocol. Arrays were scanned for Cy3 and Cy5 using Affymetrix 428 Array Scanner, CA, USA. The microarray data analysis packages, ImaGene and GeneSight (BioDiscovery, CA, USA), were used for gene expression profiling analyses.

Results:

Using microarray profiling on 10000 genes/slide, we determined that 569 genes showed a change in expression, by at least two fold (302 genes were upregulated whereas 267 genes were downregulated). Treatment with AG1478 reduced the number of genes to 436 (186 upregulated and 250 downregulated). However, treatment with genistein reduced the number of genes showing change in expression, by two fold or greater, to 168 genes (47 upregulated, 121 downregulated).

Conclusions:

EGFR signaling pathway is likely to play a key role on the onset of cardiovascular complications, such as the alterations in the reactivity of blood vessels, linked with diabetes. Microarray gene expression profiling showed that the number of gene expression changes induced in the mesenteric bed tissues of diabetic animals were attenuated by approximately 70 % and 30 % in genistein and AG1478 in the mesenteric tissues of treated animals, respectively.

Key Words: Microarray profiling; Vascular dysfunction; Epidermal growth factor receptor

Funding Agency: Kuwait University Research Administration

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The role of tyrosine kinase-mediated pathways in diabetes-induced alterations in responsiveness of rat carotid artery

*Yousif MHM¹, Benter IF¹, Abraham S¹, Oommen E¹, Akhtar S²

¹ Department of Pharmacology & Toxicology, Kuwait University Faculty of Medicine;

² Centre for Genome-based Therapeutics (CGT), Welsh School of Pharmacy, Cardiff University, UK.

Introduction:

Signaling via receptor tyrosine kinases (RTKs), such as the EGFR and other non-receptor TKs have been implicated in the development of pathologies in hypertension and diabetes. The objective of this study was to investigate the role of specific RTKs in the development of diabetes-induced cardiovascular complications.

Methods:

We examined the ability of chronic administration of AG1478, a specific inhibitor of epidermal growth factor receptor (EGFR) tyrosine kinase (TK) activity, to modulate the altered vasoreactivity of isolated carotid artery ring segments to common vasoconstrictors and vasodilators in streptozotocin (STZ)-induced diabetes. Four groups of female Wistar rats (200-240g) were used in this study. Groups I and II were control (non-diabetic)-vehicle treated and control-AG1478 treated animals (n=8); respectively. Group III was diabetic rats without treatment; diabetes was induced by a single intraperitoneal (i.p.) injection of 55mg/kg STZ (n=8). Group VI was diabetic-AG1478 treated animals. Treatment with AG1478 (1.5 mg/kg/i.p. alt diem, n=8) was started on the same day as the induction of diabetes and continued every other day for four weeks.

Results:

Hyperglycemia persisted in the STZ-treated animals at four weeks as compared with the control animals. The vasoconstrictor responses induced by norepinephrine (NE), endothelin-1 (ET-1), and angiotensin II (Ang II), were significantly increased whereas vasodilator responses to carbachol and histamine were significantly reduced in the carotid artery of STZ-diabetic rats. Inhibition of EGFR TK by AG1478 treatment produced a significant reversal in diabetes-induced changes in responsiveness to the examined vasoconstrictors and vasodilators.

Conclusions:

Results of this study suggest that potential strategies aimed at inhibiting EGFR may represent promising novel approaches for the treatment of vascular complications in diabetes.

Key Words: Diabetes; Carotid artery; Tyrosine kinase;

Funding Agency: Kuwait University Research Administration

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Oxygen species as a possible mechanism of menadione genotoxicity

*Cojocel C¹, Novotny L², Thomson MS¹

¹Department of Pharmacology & Toxicology, Faculty of Medicine, Kuwait University;

²Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Kuwait University

Introduction:

Menadione (2-methyl-1, 4-naphtoquinone) or vitamin K3 is lipid soluble and promotes the hepatic biosynthesis of blood clotting factors.

Methods:

Superoxide anion formation was measured after incubation of rat liver and kidney microsomes with menadione. The genotoxic potential of menadione was investigated using the unscheduled DNA synthesis (UDS) and alkaline elution assays. The carcinogenic potential of menadione was determined by a DC autorography method.

Results:

In the mammalian cells (A 549) used for alkaline elution and UDS assays, menadione was cytotoxic at concentrations above 30 nmol/ml. The use of S9 fractions decreased the cytotoxicity of menadione. Superoxide anion was generated in a concentration- and time-dependent manner when menadione was incubated with microsomes. In the concentration range of above 20 nmol/ml menadione was genotoxic in the UDS test in absence of metabolic activation. In the presence of metabolic activation the menadione-induced DNA damage and repair was greatly reduced. Treatment of rats with menadione caused no significant formation of single-strand breaks of DNA isolated from nuclei. Menadione-induced DNA repair in A 549 cells was concentration-, time-, and temperature-dependent.

Conclusions:

These results indicate that menadione undergoes redox cycling with formation of reactive oxygen species which cause DNA damage and repair.

Key Words: Menadione; DNA damage; Genotoxicity;

Funding Agency: None

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Substance P depresses inhibitory synaptic transmission in rat nucleus accumbens.

*Parvathy SS¹, Ananthalakshmi KVV¹, Matowe WC², Kombian SB²

¹ Department of Applied Therapeutics, and ² Department of Pharmacy Practice, Faculty of Pharmacy, Kuwait University.

Introduction:

The major projection cells of the nucleus accumbens (NAc) are GABAergic which are under a strong inhibitory influence from neighboring GABAergic neurons via axon collaterals. They therefore depend on afferent excitation to produce their output. Substance P (SP) is co-localized with GABA in these neurons. We examined if SP affected this strong collateral inhibition to influence the physiology of the NAc.

Methods:

400 μ m forebrain slices containing the Nac were generated and GABA(A) receptor mediated IPSCs were recorded in whole-cell voltage clamp mode. Drugs were applied at final concentration by bath perfusion. ANOVA and t-test (paired or unpaired) were used to analyze data.

Results:

SP caused a dose-dependent decrease in evoked IPSC amplitude, with maximum depression of $-35.7 \pm 4\%$ (n=4) and an EC₅₀ of 0.12 μ M. At 1 μ M, SP depressed the IPSC by $-25.7 \pm 1.7\%$ (n=7, p < 0.05). This depression was present without changes in holding current, input resistance and decay rate (τ ; 11.1 ± 1.9 ms vrs 9.8 ± 2.2 ms, n=7, p>0.05) of IPSCs. It was mimicked by a neurokinin-1 (NK1) receptor-selective agonist, [Sar⁹, Met (O²)¹¹]-SP ($-29.1 \pm 10.8\%$, n=4, p<0.05) and blocked by: (1) NK1 receptor antagonist, L 732 138 ($-1.1 \pm 4.8\%$; n=5, p> 0.05), (2) SCH23390 ($-1.8 \pm 3.8\%$, n=6, p> 0.05), a dopamine D1-like receptor antagonist (3) 8-cyclopentyltheophylline ($-1.1 \pm 4\%$; n=6, p>0.05), an adenosine A1 receptor antagonist.

Furthermore, it was attenuated by exogenous adenosine ($-8.2 \pm 2.2\%$; n=5), dipyrindamole ($-10.0 \pm 5.5\%$; n=5), rolipram ($-1.3 \pm 5.3\%$, n=4) and barium ($-4.0 \pm 3.7\%$; n=3) all at p>0.05.

Conclusions:

These data show that SP, acting on NK1 receptors, depresses inhibitory synaptic transmission indirectly by enhancing extracellular dopamine and adenosine levels. SP, therefore, acts in the NAc to modulate inhibitory afferent inputs using dopamine and adenosine as intermediate modulators.

Key Words: IPSC; Neuropeptides; Neuromodulation;

Funding Agency: Kfas Grant # 98-07-09.

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Role of peripheral substance P and bradykinin in the cough reflex and bronchoconstriction in guinea-pigs

* El-Hashim AZ¹, Amine S²

¹ Department of Applied Therapeutics; ²Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Kuwait University, Kuwait.

Introduction:

It has been shown that sensory C-fibres, which contain substance P, neurokinin A and neurokinin B, are implicated in cough and bronchoconstriction. However, whether SP, released from C-fibres, can directly stimulate peripheral cough receptors to induce cough is still unclear. In this study we investigated the ability of aerosolized SP (10^{-10} , 10^{-4} , 10^{-3} M) to induce either cough or bronchoconstriction in guinea pigs. We have also examined whether pre-treatment of animals with a combination of the neutral endopeptidase inhibitor, phosphoramidon (10^{-3} M), and the diaminopeptidase (DAP) IV inhibitor, diprotin A (10^{-3} M), enhances the airway response to SP. Moreover, we also assessed whether aerosol pre-treatment of guinea pigs with either SP or bradykinin, at 10^{-4} M, affects the citric acid induced cough and/or bronchoconstriction.

Methods:

Guinea pigs (GP), n= 65 in total, were placed in a transparent whole body plethysmography box. Cough was assessed visually, acoustically and by analysis of the flow signal. Bronchoconstriction was measured using enhanced pause (Penh) as an index. A one way analysis of variance was used to assess differences between multiple groups and an unpaired t-test was used to test difference between two groups.

Results:

Challenge of guinea pigs with substance P, only at 10^{-3} M, resulted in significant bronchoconstriction but only a weak and variable cough response (1.07 ± 0.63 ; $P > 0.05$). Pretreatment of guinea-pigs with both phosphoramidon and diprotin A resulted in a small non-significant increase in the cough response (2.8 ± 0.89 v 1.07 ± 0.63 ; $P > 0.05$) but significantly enhanced SP induced bronchoconstriction ($P < 0.05$). Moreover, exposure of guinea pigs to SP (10^{-4} M) prior to citric acid challenge (0.6M) resulted in a significant ($P < 0.05$) enhancement of the citric acid induced- bronchoconstriction but not the citric acid induced-cough (11.6 ± 1.5 vs. 12.6 ± 1.8 $P > 0.05$). However, exposure of guinea pigs to bradykinin (10^{-4} M) prior to the citric acid challenge resulted in a significant enhancement of the cough response (9.2 ± 1.9 vs. 25.1 ± 2.5 ; $P < 0.05$) but not the bronchoconstriction ($P > 0.05$).

Conclusions:

These data show that substance P may be involved in bronchoconstriction induced via activation of C-fibres in guinea pigs but does not support a major peripheral role for SP in cough signalling. The data also show that SP and bradykinin induce different types of airway sensitizing effects to citric acid.

Key Words: Cough; Bronchoconstriction; Substance P;

Funding Agency: Kuwait University

222: Moderated

Cholecystokinin-induced excitatory synaptic depression in the nucleus accumbens is mediated by cyclic AMP and protein kinase A.

*Ananthalakshmi KVV¹, Parvathy SS¹, Matowe WC², Kombian SB²

¹ Department of Applied Therapeutics; ² Department of Pharmacy Practice, Faculty of Pharmacy, Kuwait University.

Introduction:

Cholecystokinin is a peptide that is abundant in the nucleus accumbens (Nac) and has been implicated in certain psychiatric disorders. We recently reported that cholecystokinin (CCK) excites Nac cells and depresses evoked EPSCs in the rat Nac through activation of CCKB receptors. The latter effect was indirect through enhancement of GABA release. The present study was sought to determine the second messenger system(s) that couple(s) the CCKB receptors to the observed CCK effects.

Methods:

400 um forebrain slices containing the NAc were generated and EPSCs recorded in whole-cell patch mode. Drugs were applied at final concentration by bath perfusion. ANOVA and t-test (paired or unpaired) were used to analyze data.

Results:

Bath application of CCK-8S or CCK-8US induced inward currents (29.3 ± 5.0 pA, n=6; $p < 0.05$) and depressed evoked EPSCs ($-31.6 \pm 5.3\%$; n=6; $p < 0.05$). Pretreatment with forskolin (50 uM), an activator of adenylyl cyclase (AC) blocked both the inward current and the synaptic depression induced by CCK-8S ($-0.3 \pm 2.3\%$; n=5; $p > 0.05$). Inhibition of phosphodiesterase type IV, a cAMP-specific enzyme, with rolipram (10 uM) also prevented both CCK-8S effects ($-6.4 \pm 11.1\%$; n=4; $p > 0.05$). Furthermore, application of a membrane permeable cAMP analog, 8-bromo-cAMP (1 uM) blocked the CCK-8S effects ($6.5 \pm 9.4\%$; n=4; $p > 0.05$). Finally, inhibition of PKA with H89 (1 uM) blocked the CCK-8S-induced cellular and synaptic effects ($3.2 \pm 4.2\%$; n=4; $p > 0.05$). However, depression of the evoked EPSC ($-69.8 \pm 4.6\%$; n=6; $p < 0.05$) induced by baclofen (1 uM), a selective GABA(B) receptor agonist, was not blocked by pretreatment with H89 ($-52.5 \pm 8.7\%$; n=6; $p > 0.05$) or forskolin ($-61.0 \pm 5.4\%$; n=5; $p > 0.05$).

Conclusions:

These findings indicate that CCKB, but not GABA(B), receptors are coupled to the AC-cAMP-PKA signal transduction pathway in the NAc to cause excitation and depression of excitatory synaptic transmission.

Key Words: EPSC; Neuropeptides; Signal Transduction;

Funding Agency: KFAS Grant # 98-07-09.

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Green tea intake produced behavioral anti-nociceptive changes in rats with sciatic nerve ligation neuropathy

*Renno WM¹, Saleh FH¹, Al-Khalidi G², Ismael H², Asfar S³

¹Departments of Anatomy, ²Pharmacology and ³Surgery, Health Sciences Center, University of Kuwait.

Introduction:

This study evaluated the clinical and the behavioral anti-nociceptive effects of green tea intake on mechanical hyperesthetic state induced by unilateral partial ligation of the sciatic nerve in rats.

Methods:

Peripheral neuropathy was induced in four groups of rats (n=6rats) by setting four loose ligatures around the sciatic nerve. The sham (n=6 rats) and experimental groups were allowed free access to water. The third group was allowed a free access to green tea two weeks before and after surgery, while the fourth group was given the green tea only after the surgery. The fifth group was allowed free access to green tea only two weeks prior to surgery. The clinical observations and behavior nociceptive tests were performed for four consecutive weeks after surgery. Foot positioning was evaluated blindly as follows; beside the body 3, lateral to the body is 2 and caudal positioning of the foot is 1. The toe spread reflex was assigned 1 (absent and toes are clubbed together), 3 (persisting toes are widely apart and free space are clearly identified) and 2 (delayed or weak response, toes are not clubbed together totally and some space could be identified between toes). Mechanical hyperalgesia and tactile allodynia were assessed by the withdrawal response to pressure and by applying filaments of different forces to the planter surface of the hindpaw and recording responses.

Results:

The clinical evaluation of the groups treated with green tea showed a significant improvement in their toe spread ($p<0.001$) and foot positioning ($p<0.001$) compared to non-treated animals. In addition, these groups showed a significant decrease in the behavioral mechanical hyperalgesia ($p<0.0001$) and allodynia ($p<0.0002$) in sensory neuropathy induced in the sciatic nerve ligation model.

Conclusions:

These results show that green tea intake can significantly reverse or reduce the clinical picture and behavior hyperalgesia seen in surgically-induced peripheral sensory neuropathy.

Key Words: *Green Tea; Neuropathy; Hyperalgesia;*

Funding Agency: *None*

Pharmacy

Category: Undergraduate

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The promotion of pharmaceutical products in Kuwait

*Barghash H, Ball DE

Department of Pharmacy Practice, Faculty of Pharmacy, Kuwait University

Introduction:

The promotion of pharmaceutical products is important because of unethical tactics employed by the drug industry despite the presence of laws or ethical codes. Little is known about pharmaceutical promotion in Kuwait. A study was carried out to describe the regulations governing pharmaceutical promotion in Kuwait, the strategies employed by pharmaceutical companies and exposure to promotion amongst government physicians.

Methods:

Semi-structured interviews were conducted with government medicine regulators and pharmaceutical company agents. A structured questionnaire about promotion was completed by 31 physicians working in government hospitals and polyclinics selected by convenience sampling.

Results:

Kuwait has a law that prevents the advertising of medicines to the public but does not have a ethical code for drug promotion. Drug companies in Kuwait generally have similar strategies for the promotion of their products centering on detailing and distributing promotional literature. Drug representatives mostly visit doctors every month, spending 10 minutes, offering drug samples and small gifts like pens. Although physicians regard promotion as a good information provider, they report their main source of drug information is journals and books.

Conclusions:

The promotion of drugs in Kuwait is similar to other countries. Kuwait, however, lacks necessary controls and needs to develop them in the future.

Key Words: Pharmaceutical Promotion; Advertising; Pharmaceutical Regulation; Funding Agency: None

Pharmacy

Category: Clinical

225: Moderated

Medicine price survey in Kuwait

Ball DE¹, Tisocki K¹, Al-Saffar N^{1,2}

¹ Department of Pharmacy Practice, Faculty of Pharmacy, Kuwait University;

² Department of Pharmaceutical Services, Ministry of Health, Kuwait.

Introduction:

Public concern has been expressed about the apparent high cost of medicines in Kuwait. A medicine price survey was conducted in Kuwait using the methodology of Health Action International (HAI) and the World Health Organization (WHO).

Methods:

Public sector medicine prices were obtained from Central Medical Stores (CMS). Twenty-five public health pharmacies and 25 private pharmacies were selected from 5 health areas of Kuwait City using HAI/WHO methods. The availability and price of the innovator brand product (IB) and lowest priced generic equivalent (LPG) of 35 medicines was surveyed in each pharmacy. The median price ratio (MPR) compared to international reference prices was calculated. Affordability was calculated as the number of day's wages needed to purchase model treatments for the lowest paid government worker.

Results:

Thirty-two (91.4%) of the study medicines were available at CMS. Median availability was 12% for both IBs and LPGs at public pharmacies and 84% and 0% respectively at private pharmacies. The median public procurement MPR for IBs was 5 i.e. five times higher than the reference price, and for LPGs was 1. The median MPRs for medicines in the private sector were 17.5 and 15.7 for IBs and LPGs. Innovator brand ciprofloxacin tablets in the private sector had the highest MPR (110). A month's treatment of ranitidine required 3.6 day's wages for Kuwaiti workers and 28.5 day's wages for expatriates when purchasing the brand product in a private pharmacy.

Conclusions:

Public sector medicines are procured at low prices compared to international reference prices which indicates high efficiency of the public procurement system in Kuwait. However, private pharmacy medicine prices are much higher than reference prices with some being unaffordable to people with low wages. Contrary to international trends, buying generic medicines in private pharmacies does not result in significant cost savings for patients.

Key Words: *Medicine Prices; Generic Medicines; Pharmacoeconomics;*

Funding Agency: *None*

Pharmaco-economics of implementing centralized intravenous additive service at KOC Ahmadi Hospital

*Abou Dheir L, Mortgage N, El-Zoebi E, Martin V
KOC, Ahmadi Hospital,

Introduction:

The current reconstitution method of antibiotics on the wards involves reconstitution of the dry powder with appropriate diluents using needle and syringe. Drug administration includes the volume control IV administration system (VCS) where the reconstituted antibiotics injected in to a calibrated chamber in the main line. This procedure has a number of disadvantages, including the risk of microbiological or particulate contamination as well as the risk of needle-stick injury. Ideally, Hospital Pharmacist should be seeking to provide wards with IV drugs in a reconstituted form. Implementation of CIVAS (Centralized Intravenous Additive Service) at KOC Ahmadi Hospital include a piggyback IV admixture system (PBS) where drug reconstitution carried out in aseptic Class 1 isolator under direct control and supervision of a pharmacist. Objectives: To assess the potential of CIVAS at the levels of cost benefit consideration, nursing time reduction on reconstitution and administration, in addition to increase patient safety and service satisfaction.

Methods:

Retrospective data collection was carried out on the wards to determine the type and numbers of antibiotics reconstituted upon the ward. Then we standardized the doses and selected from antibiotics the one with once daily dose administration with same spectrum of activity.

Results:

Most commonly reconstituted antibiotics were Ceftriaxone and Cefotaxime, third generation Cephalosporins, both have same spectrum of activity and safety profile but different pharmacokinetic properties. Ceftriaxone has 6-8 hours half life permitting once daily dosing while Cefotaxime has half life of 1 hour necessitating more frequent dosing. The use of Ceftriaxone resulted in a 75% reduction in the frequency of antibiotic administration per patient and cost saving over KD.20, 00.00 per year.

Conclusions:

Implementation of CIVAS has demonstrated considerable cost optimization, considerable time saving, safety and satisfaction.

Key Words: CIVAS; IV Admixtures; Antibiotic reconstitution;

Funding Agency: None

Pharmacy

Category: Clinical

227: Moderated

Using clinical data to estimate gentamicin initial dosing parameters in adults

*Al-lanqawi Y¹, Abdul-Malek K², Al-Anezi K³, Thusu A⁴, Sharma P⁵, Capps P⁶

Department of¹ Pharmacy, ² Intensive care, ³ Surgery and⁴ Medicine – Al-Amiri Hospital, ⁵ Health Sciences Computer Center and⁶ Department of Pharmacy practice- Faculty of Pharmacy - Kuwait University.

Introduction:

Gentamicin has a narrow range between its therapeutic and toxic levels. This has prompted the development and wide use of pharmacokinetics dosing methods in various patient populations and the need for monitoring gentamicin level. Substantial inter-patient variability exists in gentamicin clearance (Cl_{gent}) and volume of distribution (V_d). The study objectives were to: (a) calculate the actual Cl_{gent} and V_d for the study population; (b) derive an initial dosing equation for estimating Cl_{gent} and V_d, and (c) compare it with 4 other methods regarding predictive ability in estimating Cl_{gent} and V_d.

Methods:

56 patients were used to calculate Cl_{gent} and V_d using the Sawchuk-Zaske method. In the first group (47 patients), regression analysis was used to determine a correlation between creatinine clearance (Cl_{cr}) and Cl_{gent}, and V_d and body weight (BW). Based on actual Cl_{gent} and V_d values, the predictive ability of the estimated parameters from the regression equations was evaluated against 4 dosing methods, using mean error (ME) (bias), mean squared error and root mean squared error (MSE and RMSE, respectively) (precision). All methods were also evaluated independently in a second group (9 patients).

Results:

(a) the mean (± sd) for Cl_{gent} and V_d, was 4.0 (±1.8) L.h⁻¹ and 16.8 (±6.7) L, respectively. (b) the equation was: Cl_{gent} = (0.788) (Cl_{cr}) +0.952 (r = 0.701) and V_d = (0.164) (BW) +5.681 (r = 0.532). The study method was found to be less biased (ME=0.01 L.h⁻¹) and more precise (MSE=1.69 L²/h², RMSE=1.02 L.h⁻¹), with no difference in precision (MSE=36.2 L², RMSE=4.6 L) with regards to predicted Cl_{gent} (p<0.05) and V_d, respectively. This precision was confirmed in the second group of 9 patients.

Conclusions:

The dosing method developed in this study provided a reliable estimation of Cl_{gent} and V_d. It is planned to use this method at Amiri Hospital to help provide more individualized patients dosing information for physicians.

Key Words: *Gentamicin; Pharmacokinetics;*

Funding Agency: *None*

Attitudes of Kuwaiti patients towards diabetes and diabetes care

Al-Meshal S, Tisocki K, Al-Saffar N

Department of Pharmacy Practice

Faculty of Pharmacy

Introduction:

Positive attitudes of diabetic patients toward good diabetes care can help patient's motivation and improve self-care practices leading to better outcomes. The objective of this study was to measure the attitudes of patients in Kuwait towards diabetes care using a validated survey tool the Diabetes Attitude Scale; Version 3 (DAS-3) developed in the United States.

Methods:

The DAS-3 questionnaire was adapted and translated into Arabic. It measured patient's attitudes on five subscales: 1) need for special training of health professionals to provide diabetes care, 2) seriousness of type 2 diabetes, 3) value of tight blood glucose control, 4) psychosocial impact of diabetes, and 5) attitudes toward patient autonomy. The questionnaire was administered to 120 diabetic Kuwaiti patients presenting at six polyclinics, selected within the Hawally and Capital health governorates.

Results:

The study found a difference in patients attitudes towards diabetes compared to other surveys conducted in developed countries. While patient had highly positive attitudes towards the need for training of health care professionals and towards patient autonomy, their attitudes were lower towards the value of tight glucose control and the seriousness of type 2 diabetes, compared to findings of other studies.

Conclusions:

The adapted Arabic version of DAS-3 was found to be a valid instrument to measure attitudes of Kuwaiti patients towards diabetes and its treatment. The results of this study suggest that patients' attitudes need to be improved towards the value of tight blood glucose control as this may significantly affect their self-care practices. Further studies are needed to determine which interventions are successful for improving patients' attitudes in Kuwait and how pharmacist can deliver effective diabetes education via their regular contact with diabetic patients to improve disease outcomes.

Key Words: Diabetes; Patient education; Pharmaceutical care;

Funding Agency: Self-funded

Pharmacy

Category: Clinical

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Kuwaiti opinion towards disposal of excess medications from Households

*Abahussain E, Matowe WC

Department of Pharmacy Practice, Kuwait University, Faculty of Pharmacy.

Introduction:

When disposed of improperly, leftover medications may accumulate in the environment. Over time this has the potential to affect flora and fauna adversely by changing the balance in their ecosystems. This study was carried out in order to determine the ways that leftover medicines are disposed of from households in Kuwait, and the knowledge of consumers concerning appropriate methods for the disposal of medications.

Methods:

A survey questionnaire was administered by pharmacists to 300 Kuwaiti consumers approaching from five hospital pharmacies to obtain medicines. The survey detailed questions on respondents' demographic data, sources of medications coming into the household, opinions regarding the disposal of leftover medications, and the respondents' specific disposal practices.

Results:

The mean age of respondents was 37.9 years. Almost half (45.4%) of the respondents had obtained medications on physicians' prescriptions more than 3 times in the past year. The major reason cited by respondents (32.6%) for having left over medications was that the physician had changed the medications. A large majority (76.5%) reported that they throw away unused or expired medications into the dustbins, which would then end up in the municipal waste disposal system. Most respondents knew that this method was not ideal and suggested that a safer method would be to return the left over medications to the pharmacy for proper disposal.

Conclusions:

There is a need to establish medication return program in Kuwait, which encourages patients who have unwanted medications to return them to pharmacy for proper disposal. Segregation of the household medical waste at the source is an important step that could be implemented to successfully manage medical disposal. Other actions include decreasing the quantity of drugs dispensed, minimizing medications which are taken on an as needed basis.

Key Words: Household medication waste; Medical Waste Management; Health and Funding Agency: None

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Adsorption of Basic Esters of Pheynylcarbamic Acid on Activate Carbon

Stankovicova M¹, Bezakova Z¹, *Novotny L²

¹Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Kuwait University, Kuwait

²Department of Pharmaceutical Chemistry, Comenius University, Bratislava, Slovakia

Introduction:

Active charcoal is an adsorbent capable of binding other substances in a relatively large amounts. This is often used in studies of structure-activity relationships when it serves as a model for the study of hydrophobic interactions. We present results of the study of original 1-(4-methyl-1-piperaziny)-3-methoxy-2-propyl esters of carbamic acids with a local anesthetic potential.

Methods:

The adsorption studies were carried out in phosphate buffer at pH 7.0 and 20°C. The concentrations of studied compounds were determined by UV spectrophotometer. Their Adsorbability was measured according to Freundlich model as an amount of the substance bound to active charcoal. The data were correlated with octanol-water partition coefficients as well as with their relative local anesthetic activity. The Freundlich adsorption constants of studied compounds were calculated from the dependence $\log c = f(\log m)$, where c is the equilibrium solute concentration (mg/l) and m is the amount of solute adsorbed (mg/g of ctivatedcarbon). The adsorption constants and correlation coefficients r were calculated by linear regression analysis.

Results:

The studied compounds were adsorbed within 15 min and an equilibrium of the adsorption was reached during 180 min. An adsorption of compounds on activated carbon was between 55 and 85 percent. The adsorption was highest for the 2-heptyloxy derivative and lowest for the 2-butoxy derivative. The dependence of value on relative local anesthetic activity at surface local anesthesia is the polynom of the second step ($r = 0.994$). The Freundlich adsorption constant, $1/N$, is a dimensionless parameter and Freundlich constants k (mg/g) determined were between 6.5 and 45.0 respectively ($r = 0.993 - 0.999$).

Conclusions:

Adsorbability reflects interfacial hydrophobic-hydrophilic interactions of local anesthetics and represents a convenient tool for investigating effects of changed chemical structure on their potential therapeutic action.

Key Words: *Esters of pheynylcarbamic acids; Active charcoal; Hydrophobic interactions;*

Funding Agency: *Grant Agency for Science, Ministry of Education*

Synthesis and evaluation of some cyclic enaminones

*Edafiogho IO, Rethish B

Department of Pharmacy Practice, Faculty of Pharmacy, Kuwait University, Kuwait.

Introduction:

Epilepsy is a serious neurological condition. 1 in every 200 adults and children in the United Kingdom has epilepsy. About 75% of people with epilepsy will have their epilepsy controlled with antiepileptic drugs. However, the search for antiepileptic compounds with more selective activity and lower toxicity is an area still under investigation. The objective of this research is to synthesize new cyclic enaminones and evaluate them for anticonvulsant activity.

Methods:

The synthesis of cyclic enaminones was achieved by reacting beta-hydroxyketo esters with appropriate amino compounds in our laboratory. About 80% of the project involving synthesis and spectrometric analysis were done in Kuwait University, while about 20% involving anticonvulsant evaluation was done in USA. The anticonvulsant evaluation was performed in maximal electroshock (MES), and subcutaneous metrazol-induced seizure models in mice and rats by the Epilepsy Branch of National Institutes of Health, Bethesda, USA.

Results:

The spectrometric analysis of the cyclic enaminone gave unique ultra violet, and infra red absorption patterns. One of the starting materials (E78) was anticonvulsant at 30 mg/kg orally in the rat. As expected, some cyclic enaminones (BRG7, BRG9, BRG11, E206, E220, and SNM 1) were anticonvulsant against xperimentally-induced seizures. In particular, BRG 9 was anticonvulsant in MES model at a dose of 100 mg/kg intraperitoneally at 15 minutes after dosing.

Conclusions:

The results from this study indicate a structure-activity relationship of cyclic enaminones as anticonvulsant agents. Anticonvulsant evaluation afforded one anticonvulsant beta-hydroxyketo ester (E78), and some anticonvulsant enaminones.

Key Words: Anticonvulsants; Enaminones; Evaluation;

Funding Agency: This work was supported by Kuwait University, Research Administration

Synthesis and anticonvulsant evaluation of new enaminones

*Samuel S¹, Edafiogho IO², Phillips OA¹

¹Department of Pharmaceutical Chemistry, and ²Department of Pharmacy Practice, Faculty of Pharmacy, Kuwait University, Kuwait

Introduction:

Introduction: Epilepsy affects nearly 2 million people in the United States alone, and medications remain the mainstay of treatment. About 70% of patients with epilepsy become seizure-free after a single antiepileptic drug treatment, while the remaining 30% experience recurrent seizures. Hence there is need for the development of new antiepileptic drugs. Enaminones with potent anticonvulsant activity had been reported from our laboratories. The objectives were to synthesis new Enaminones (EP-1 to EP-13) with structural modifications at the C-3, C-5 and C-6 positions; and to evaluate their pharmacological activities using the enaminone E-122 as reference compound.

Methods:

Materials and Methods: The condensation between the intermediate cyclohexanone derivatives and the appropriate primary and secondary amino compounds proceeded smoothly to yield the cyclic secondary (series I) and tertiary (series II) enaminone esters. Anticonvulsant activities were performed in the male Carworth Farms No 1 (CF1) mice, by the Antiepileptic Drug Development (ADD) Program, Epilepsy Branch, Neurological Disorders Program, National Institute of Neurological Disorders and Stroke, USA.

Results:

Results: The primary and secondary enaminone esters were synthesized, fully characterized by spectroscopic methods and evaluated for anticonvulsant property. All the new enaminones showed "class 3" anticonvulsant activity according to the ADD classifications, which refers to inactivity at 300 mg/kg. However, the reference enaminone E-122 showed "class 1" potent activity (i.e. active at <100 mg/kg).

Conclusions:

Conclusions: None of the new enaminone compounds showed potent anticonvulsant activity (class 3 activity). The results from this study will contribute significantly to the understanding of the structural requirements and structure-activity relationships of cyclic enaminone esters as potential anticonvulsant agents.

Key Words: *Anticonvulsants; Enaminones; Synthesis;*

Funding Agency: *Supported by Kuwait University Grant*

233: Moderated

Synthesis and antibacterial activity of new N-linked 5-triazolylmethyl oxazolidinones

*Phillips OA¹, Udo EE², Ali AAM³, Samuel S¹

¹ Department of Pharmaceutical Chemistry, Faculty of Pharmacy; ² Department of Microbiology, Faculty of Medicine; ³ Department of Chemistry, Faculty of Science, Kuwait University, Kuwait

Introduction:

Oxazolidinones are novel antibacterial agents active against multi-drug resistant Gram-positive bacteria. The objectives of our study were to synthesize new 5-triazolylmethyl oxazolidinones (4, 6a-k) and evaluate their antibacterial activity in comparison to linezolid, vancomycin and PH-027, a novel 5-triazolylmethyl oxazolidinone synthesized in our laboratories.

Methods:

A series of new 5-triazolylmethyl oxazolidinones were synthesized and their antibacterial activity against Gram-positive bacteria evaluated. Minimum inhibitory concentrations (MIC's) were determined by the agar dilution method on Mueller Hinton agar, in the absence and presence of 50% human plasma, with the medium containing dilutions of antibacterial agents ranging from 0.25-64 ug/ml. The organisms tested (n=38) consisted of standard reference strains and clinical isolates including methicillin-resistant *S. aureus* (MRSA, n=17), methicillin-susceptible *S. aureus* (MSSA, n=10), coagulase-negative staphylococci (CNS, n=7) and vancomycin-resistant enterococci (VRE, n=4). Calculated log of partition coefficient (ClogP) values were computed using CS ChemDraw Ultra software.

Results:

The compounds showed strong antibacterial activity against Gram-positive cocci with MIC range of 0.25-1 ug/ml. Activity was relatively superior to that of linezolid (MIC range 0.5-2 ug/ml), vancomycin (MIC range 0.5->32 ug/ml) and PH-027 (MIC range 0.5-1 ug/ml). Antibacterial activity of the most lipophilic compounds 4, 6d and 6k were significantly reduced in presence of 50% human plasma.

Conclusions:

Most of the compounds showed strong antibacterial activity superior to linezolid, vancomycin and PH027 against susceptible and resistant Gram-positive bacteria, including VRE strains. Varying the N-1 substitution on the piperazine ring did not cause significant variations in the antibacterial activity. However, compounds 6c (R=CF₃) and 6e (R=CH₃S) were identified to be the most active in this series.

Key Words: *Antibacterial; Gram-positive; Oxazolidinones;*

Funding Agency: *Supported by Kuwait University Grant*

234: Moderated

A high-performance liquid chromatographic method for determination of cyclosporine A in human blood and plasma using naproxen as internal standard

* Zaghoul A¹, Ahsan F²

¹Department of Pharmaceutics, Faculty of Pharmacy, HSC, Kuwait University

²Department of Pharmaceutical Sciences, School of pharmacy, Texas Tech University HSC

Introduction:

Therapeutic monitoring of cyclosporine A (CyA) is of critical importance because of transplanted organ rejection problems. All the available HPLC assay methods of CyA in biological fluids use internal standards (IS) that are not commercially available. Our purpose was to develop a simple, sensitive and reproducible HPLC assay method of CyA in human blood and plasma utilizing a commercial IS.

Methods:

Human blood and plasma samples (200 μ l) spiked with known concentrations of CyA and naproxen IS were pre-treated by liquid-liquid extraction with diethyl ether. The residue, after evaporation of the organic layer, was reconstituted in acetonitrile-0.04 M monobasic potassium phosphate buffer solvent mixture adjusted to pH 2.5. After washing with n-hexane, 30 μ l of the reconstituted solution was analyzed using an isocratic reversed phase HPLC system with ultraviolet detection at 205 nm. The separation was achieved using a stainless steel analytical column packed with 4 μ m Nova-Pak phenyl material and maintained at 75°C. At flow rate of 1 ml/min of a mobile phase consisted of acetonitrile-0.04M monobasic potassium phosphate (pH 2.5) (65:35 v/v), a good chromatographic separation between CyA and IS peaks was achieved.

Results:

Linear relationships between CyA concentration and AUC of CyA /AUC of IS were observed over the tested concentration range of 0.0033-0.0166 M for blood ($R^2 = 0.999$) and 0.002-0.0166 M for plasma ($R^2 = .998$). The intra- and inter-run precision and accuracy results were satisfactory and calculated in terms of SD, CV% and accuracy %.

Conclusions:

The low volume of blood or plasma needed (200 μ l), the availability of the IS (naproxen), the simplicity of the extraction process (no need for protein precipitation step), the short run time (5 min) and the low injection volume (30 μ l) make this method suitable for quick therapeutic monitoring of CyA in both human blood and plasma.

Key Words: *Cyclosporine A; Naproxen; HPLC;*

Funding Agency: *None*

235: Moderated

Improvement of physico-chemical properties of ibuprofen by crystal modification

*Nada AH¹, Al-Saidan SM², Mueller BW²

¹ Department of Pharmaceutics, Faculty of Pharmacy, Kuwait University, Kuwait; ²

Department of Pharmaceutical Technology and Biopharmacy, Kiel University

Introduction:

Ibuprofen is a widely used analgesic, characterized by poor flowability and compressibility. This work aims at changing the common crystal form of ibuprofen (Ib) to achieve optimized processing and manufacturing properties.

Methods:

Seven crystal modifications (Ib1-Ib7) were prepared by solvent change method using ethanol-water systems, in presence of some additives. The different forms were assessed regarding dissolution, morphology, particle size, density, thermal characteristics, flow properties and tableability.

Results:

Dissolution in phosphate buffer was found to be less discriminative and showed higher rates in comparison to water. Therefore, all dissolution experiments were run in water. Tween®-treated crystals (Ib7) exhibited the slowest rate. The other modifications (Ib1-Ib6) showed almost the same rate as that of the starting material, Ib. All the modified forms were larger, possessing granular shapes, but having the same polymorph of the starting crystals. The median particle size of the modified forms ranged between 730-800 micrometers, compared to 22 micrometers for the starting crystals. The density of the particles increased from 0.29 to 0.53 g/c. Powder compressibility was improved as indicated by lower Carr's Index and smaller Hausner ratios. This improvement is mainly due to increased particle size and changing the needle and plate like crystals of Ib into more granular forms. The flow properties were significantly improved as indicated by increased flow rate, decreased angle of repose and decreased flow index of cohesion, as determined by powder rheometry. The tableability of the powder was enhanced as indicated by increased T-

value. This is explained by better interlocking of granular modified forms, compared to the fine needle and plate crystals of Ib.

Conclusions:

Modified crystal forms of ibuprofen, with optimized processing characteristics, were achieved by solvent change technique in absence and presence of some additives, e.g. gelatin, Aerosil and phosphate buffer. Addition of Tween®-reduced the rate of dissolution to large extent.

Key Words: *Ibuprofen; Crystal modification; Physico-chemical Properties;*

Funding Agency: *This work was supported by Kuwait University (Research Administration)*

Pharmacy

Category: Basic Sciences

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Excipients influence on the release of poorly soluble drugs

* Khattab I¹, Darwish M², Fetouh MI²

¹ Pharmaceutics Department, College of Pharmacy, Kuwait University, Kuwait; ²

Pharmaceutics Department, Faculty of Pharmacy, Al-Azhar University

Introduction:

The purpose of this study is to apply factorial design to optimize the release of triametrene by using solid binary systems at different techniques; mixing, co-grinding and melting carrier method with different polymers at different drug polymer ratios.

Methods:

Solid binary systems at different drug/polymer ratios have been prepared according to factorial design. The used techniques were mixing, co-grinding and melting carrier method using gelucire 44/14, D-mannitol and β -cyclodextrin. Drug-carrier solid dispersions were prepared by melting the polymers gelucire and D-mannitol with the drug. The ground mixtures of drug with β -cyclodextrine in 1:1 and 2:1 molar ratios were prepared by co-grinding method. For physical mixture drug and carrier were mixed thoroughly in a mortar until a homogeneous mixture was obtained. Drug-carrier interactions were investigated by differential scanning calorimetry, infrared spectroscopy and x-ray diffraction. All prepared solid dispersions, ground mixtures or physical mixtures were filled in hard gelatin capsules; size 1, each capsule contains 10% or 20% drug in different carriers, and then tested for phase solubility studies and dissolution rate. Response surface methodology was used to generate contour plot to visually understand the impact of variables on the yield.

Results:

The percent drug released after 90 minutes (DP90) was 65%, 90% and 63% for solid dispersions containing 10% gelucire, 10% D-mannitol and (1:1) β -cyclodextrine, respectively. Formulations containing gelucire, D-mannitol and β -cyclodextrine 10% solid dispersions showed a remarkable decrease in $t_{1/2}$ which was 13, 14 and 28 minutes

respectively compared to that of the pure drug which gave a $t_{1/2}$ value of 276 minutes.

Conclusions:

The chosen polymers caused a notable increase in drug solubility and solid dispersion formulations showed higher dissolution rates and shorter $t_{1/2}$ over those prepared by physical mixtures.

Key Words: *Experimental design; Solid binary systems; Dissolution Enhancement;*

Funding Agency: *None*

Pharmacy

Category: Basic Sciences

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Studies on the development of ethanol-water co-solvent system for an optimal transdermal permeation of trimetazidine

*Krishnaiah YSR, Al-Saidan SM

Department of Pharmaceutics, Faculty of Pharmacy, Kuwait University, Kuwait

Introduction:

The broad objective of the present study was to design membrane-moderated transdermal therapeutic system (TTS) for trimetazidine. The present investigation was carried out to develop ethanol-water co-solvent system for an optimal transdermal permeation of trimetazidine.

Methods:

The in vitro permeation of trimetazidine was studied from water, ethanol and various proportions of ethanol-water co-solvent systems across excised rat epidermis up to 24 h. The amount of trimetazidine permeated (Q₂₄), flux of the drug (J) and drug retained in the skin membrane at the end of 24 h was estimated. The solubility of the drug in the selected solvent/ co-solvent systems was also determined.

Results:

The amount of trimetazidine permeated across excised rat epidermis from various vehicles was ranging from 1076.1±50.7 to 5272.2±565.2 µg/sq.cm at the end of 24 h. The flux of trimetazidine in water was 52.0±0.6 µg/sq.cm.h with a lag period of 0.8±0.1 h. On adding ethanol to water, the flux of trimetazidine increased and reached optimum level (233.1±3.8 µg/sq.cm.h) from the drug solution prepared with 50% v/v ethanol-water. But, the flux of the drug decreased there afterwards with an increase in ethanol concentration in the vehicle. However, the lag period for obtaining steady-state permeation of the drug was increasing with the increase in ethanol concentration of the vehicle. The drug showed highest solubility in 50% v/v ethanol-water. The increased permeation of trimetazidine across the excised rat epidermis with an increase in ethanol concentration in water might be due to the increased solubility of the drug in ethanol-water co-solvent systems.

Conclusions:

The results of the study showed that 50%v/v ethanol-water co-solvent system could be chosen as a solvent system for further studies in the development of membrane-moderated TTS of trimetazidine.

Key Words: *Transdermal; Trimetazidine; Ethanol-Water;*

Funding Agency: *This work was supported by Kuwait University Research Administration*

Pharmacy

Category: Basic Sciences

238: Moderated

Development of a reversed-phase HPLC method for the estimation of trimetazidine in drug reservoir systems and samples of skin permeates and skin membranes

Krishnaiah YSR, *Al-Saidan SM

Department of Pharmaceutics, Faculty of Pharmacy, Kuwait University, Kuwait

Introduction:

The objective of the present study was to develop and validate a reversed-phase HPLC (High Performance Liquid Chromatography) method for the estimation of trimetazidine in drug reservoir systems and samples of skin permeates and skin membranes involved in the development of membrane-moderated transdermal therapeutic systems.

Methods:

The chromatographic system consisted of Waters 2690 automatic sample injector with a loop of 250 μ l and Waters 996 Photodiode Array Detector. A reversed-phase Waters Symmetry C18 column (3.9 X 150 mm; 5 μ m) and Waters Symmetry C18 guard column (3.9 X 20 mm) were used. A standard curve was constructed for trimetazidine in the range of 0.2 to 20 μ g/ml using nimodipine as internal standard (5 μ g/ml). The mobile phase used was a mixture of acetonitrile, 0.005 M NaH₂PO₄ and 0.02 KH₂PO₄ in the ratio of 60:5:35 (pH adjusted to 4.0 with orthophosphoric acid). The filtered mobile phase components were pumped from the respective reservoirs at a flow rate of 0.9 ml/min. The column temperature was maintained at 40 degrees Celcius. The eluent was detected at 205 nm, and the data were acquired, stored and analyzed. Required studies were carried out to validate the HPLC method for its precision and accuracy in estimating rimetazidine in drug reservoir systems and samples of skin permeates and skin membranes.

Results:

A good linear relationship was observed between the concentration of trimetazidine and the ratio of the peak area of drug to that of internal standard with a high correlation coefficient ($r=0.9999$) in the range of 0.2 to 20 μ g/ml. The method was found to be precise (intra- and inter-day

variation was found to be less than 4.0%) and accurate (mean recovery 98.8%).

Conclusions:

The HPLC method was found to be highly precise and accurate for estimating trimetazidine in drug reservoir systems and samples of skin permeates and skin membranes.

Key Words: *Trimetazidine; High Performance Liquid Chromatography (HPLC); Reversed-*

Funding Agency: *This work was supported by Kuwait University Research Administration*

Pharmacy

Category: Basic Sciences

239: Moderated

Two new araC conjugates with sulfanylamide as potential cytostatics

*Novotny L¹, Phillips OA¹, Rauko P², Samuel S¹

¹ Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Kuwait University, Kuwait;

² Cancer Research Institute, Slovak Academy of Sciences. Bratislava, Slovak Republic

Introduction:

AraC (cytosine arabinoside) is routinely used for treatment of leukemias and lymphomas. However, because of its extensive degradation and limited activity in solid tumors, new analogues of araC are being tested. The aim of this work was to synthesize araC conjugates containing sulfanylamide functionality and evaluate their antileukemic activity.

Methods:

Synthesis of araC analogues was performed in anhydrous conditions using cyclocytine and 5'-chlorocyclocytidine as starting material. Elemental analysis and NMR, IR and UV spectrometry were used for structure confirmation. The analogs were tested for their cytotoxicity in L1210 leukemia cells in vitro and for therapeutic activity and toxicity in vivo in leukemia L1210-bearing mice.

Results:

Cytotoxicity expressed as IC₅₀ (μmol/l) of the two synthesized araC-sulfonamide conjugates A and B and araC are 18.2, 45.4 and 0.06 respectively. Both tested araC analogues are less active than araC. Consequently, in vivo experiment, both araC analogues were administered in 10-time higher doses than araC (400 μmol of the araC analogue A or B/kg of body weight per day versus 40 μmol of araC/kg of body weight per day; 5 days). However, therapeutic effect achieved was lower than in the case of araC (2- and 2.5-time lower) as reflected by the ILS (%) value (95.4 for araC, 48.3 for the conjugate A and 24.3 for the conjugate B). Cytotoxicity of A and B was approx. 100-times lower compared to the cytotoxicity of araC in vitro. The difference in therapeutic activity is much lower. The administered doses of the araC analogues were not toxic.

Conclusions:

The two araC analogues tested demonstrated cytotoxic and therapeutic activity similar to araC but at significantly higher concentrations. This is possibly caused by their high intracellular stability.

Key Words: *AraC (cytosine arabinoside); Sulfanilamide; Cytostatic activity;*

Funding Agency: *Kuwait University grant*

Physiology

Category: Graduate (Basic Sciences)

240: Moderated

relationships of early diabetic proteinuria with glomerular growth and hyperfiltration

*Malatiali SA, Barac-Nieto M

Department of Physiology, Faculty of Medicine, Kuwait University

Introduction:

This study explores the roles of glomerular growth, hyperfiltration, and growth hormone in the development of diabetic proteinuria.

Methods:

Diabetes was induced in male growth hormone-deficient rats with streptozotocin. Control, diabetic, insulin-treated, and phlorizin (PLZ, glucosuric agent)-treated diabetic rats were studied. At one-week diabetes, renal morphometry was performed on sections stained with Periodic acid-Schiff (PAS), cytoplasmic (anti-ezrin), or nuclear (anti-Wilm's Tumor-1) podocyte antibodies. Clearances of para-aminohippurate (PAH) and inulin were measured to estimate renal plasma flow and glomerular filtration rate (GFR). Daily protein excretion rate (PER) was also measured.

Results:

At one-week diabetes PER increased by 147.7%. Glomerular tuft area increased by 9.5% and ezrin positive (podocyte) area increased by 54%, with no change in PAS-positive mesangial matrix area or in podocyte nuclei number. Clearances of PAH and inulin both increased by 80% with no change in their ratio. Normoglycemia, achieved with PLZ or insulin, did not prevent tuft growth, but restored hemodynamics and PER to normal. Podocyte area was normalized by PLZ but not by insulin. Proteinuria was highly correlated with GFR ($r^2 = 0.6$) and less with podocyte area ($r^2=0.3$).

Conclusions:

Growth hormone is not required for development of early diabetic proteinuria, glomerular hypertrophy and hyperfiltration. Podocyte growth is an early event in diabetes and is reduced by normalization of the glycemia with PLZ but not with insulin, with which glycemia was more variable. Hyperfiltration and hyperperfusion detected early in diabetes

were due to pre-glomerular vasodilatation and were both prevented by normoglycemia, even in the absence of insulin. Thus, hyperglycemia is a major determinant of these changes. Proteinuria is strongly associated with glomerular hyperfiltration, weakly associated with podocyte hypertrophy and not associated with glomerular tuft growth.

Key Words: Diabetes; Proteinuria; Glomerular Filtration Rate (GFR);

Funding Agency: College of Graduate Studies, Kuwait University.

Physiology

Category: Basic Sciences

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Hyperthermia-induced vasoconstriction of the carotid artery and its role in heatstroke

*Mustafa S, El-Gazzar AH, Kalil M

Nuclear Medicine Department, Faculty of Medicine, Kuwait University.

Introduction:

Hyperthermia is a condition with significant impact on organ function. Clinical studies indicate that hyperthermia can cause heatstroke with cerebral ischemia and brain damage. It is also known that there are casualties related to high environmental temperature. This study is the first to examine the direct effects of heating carotid arterial smooth muscle which is the main arterial blood supply to the brain, and tested the hypothesis that hyperthermia induces arterial vasoconstriction and thereby decreases cerebral blood flow.

Methods:

Adult male New Zealand White rabbits (n=20) were used in this study. Carotid arterial segments were prepared and set up for isometric tension recording in organ baths containing Krebs solution. Cerebral blood flow was assessed using ^{99m}Tc -HMPAO (IV). Scintigraphic images were acquired using gamma camera and the average count was determined. Differences between mean values were tested for significance using Student t-test. They were considered significant if $P < 0.05$.

Results:

Heating produced reproducible temperature-dependent contractions of the carotid artery segments, which was proportional to the temperature. Hyperthermia to 43°C inhibited norepinephrine concentration-dependent contractions ($\text{ED}_{50} = 1\text{mM}$, 6mM for 37°C & 43°C respectively, $n=5$, $P < 0.05$). Heating also inhibited sympathetic electrical field stimulation (EFS) (70v , $2.5\text{-}50\text{ Hz}$) evoked frequency-dependent contractions (at 43°C , 25 Hz response was reduced by $40.2 \pm 3\%$, $n=5$, $P < 0.05$). The uptake of ^{99m}Tc -HMPAO was significantly reduced by $80.1 \pm 5\%$ ($n=4$, $P < 0.01$), indicating a decrease in cerebral blood flow.

Conclusions:

Our data indicate that hyperthermia-induced vasoconstriction of the

carotid artery is a crucial factor of cerebral ischemia and consequent brain damage of heatstroke. Based on these results and our previous finding of cooling-induced vasodilatation, cooling of the neck (cold neck collar) should be considered in the treatment of heatstroke.

Key Words: *Hyperthermia; Carotid artery; Tc99m- HMPAO;*

Funding Agency: *none*

Physiology

Category: Clinical

242: Moderated

Ten day hyperbaric oxygen treatment of rats in 3 ATA

*Klemetti E, Joseph B

Faculty of Dentistry, Kuwait University

Introduction:

Rat's blood oxygen partial pressure is about twice that in the humans, and the healing of wounds is rapid. Nevertheless, human hyperbaric oxygen (HBO) protocol has been commonly used in rat experiments. We tested if, for improving the healing of a bone wound in rat's mandible, the duration of HBO treatment could be shortened by using higher pressure than in human HBO therapy.

Methods:

Forty 275–300g male Wistar rats were used. Ten received HBO at 3.0 ATA for 60 minutes for ten days. Ten received HBO, according to human protocol, at 2.4 ATA for 90 minutes for twenty days. Ten and 20 day control groups didn't get HBO. All rats received a 1.5 mm hole in the inferior margin of the mandible, three (10 day rats) or seven (20 day rats) days, after starting HBO. After sacrifice at eight and 14 days after surgery, the healing holes were exposed and measured using a 0.1 mm resolution grid gauge. The holes were classified as bigger or as smaller than 0.2 mm by diameter.

Results:

Regarding healing outcome, no significant differences were found between 10 and 20 day HBO, 10 and 20 day control, or 20 day HBO and control groups. When considering all, healing outcome in HBO groups was significantly better than in control groups (Fisher's Exact Test: one-sided $P = 0.038$). In the 10 day HBO group healing was significantly better than in its control group (one-sided $P = 0.035$).

Conclusions:

When using "long" HBO protocol in rat experiments, because of the fast metabolism in rats, healing in control animals may catch up with that of the animals receiving HBO. Using a shorter protocol with "higher" pressure could save time and expenses in HBO experiments on rats. This work was supported by Kuwait University Research Grant No. [DR

02/02].

Key Words: *Healing; Hyperbaric oxygen; Bone;*

Funding Agency: *Kuwait University Research Grant No. [DR 02/02].*

Physiology

Category: Basic Sciences

243

Effect of garlic (*Allium sativum*) on the cortical circulation and urine clearance of the non-clipped (non-stenosed) kidney in the 2K-1C experimental model of Unilateral Reno-Vascular Hypertension

Al-Qattan K, Thomson M, Drobiova H, Al-Mutawa'a S, Al-Hajeri D, Ali M

Department of Biological Sciences, Faculty of Science, Kuwait University

Introduction:

Our group and others have reported that garlic can moderate several pathological abnormalities at the level and activity of hormonal, humoral and molecular regulators in the two-kidney, one-clip (2K-1C) experimental model of unilateral renovascular hypertension. Some of these regulators are of considerable importance in determining renal clearance function. It would be logical to assume that if the level and activity of these regulators could be tempered by garlic, then treatment with this herb might alleviate the detrimental deterioration in the excretory function of the non-stenosed kidney, which is a principle symptom of the condition. Objective: To establish if treatment with garlic can improve the cortical circulation and urine output of the non-clipped kidney in the 2K-1C rat. In addition, if management of blood pressure (BP) by garlic is mediated (partly or in total) by the nitric oxide (NO) pathway.

Methods:

Non-treated (n = 3) and garlic-treated (n = 6, 2 weeks) 2K-1C rats were anesthetized and surgically prepared for monitoring systemic BP and superficial & deep cortical blood circulation and urine clearance of the non-clipped kidney. The BP of conscious normotensive untreated (n = 5), L-NAME-treated (n = 5, 2 weeks) and L-NAME + garlic-treated (n = 5, 2 weeks) rats was determined and compared to the BP of 2K-1C rats that underwent the same treatment protocol using the tail-cuff technique.

Results:

Treatment with garlic led to a fall in BP (50 %), reduction in the absolute magnitude of superficial and deep cortical blood circulation (50 & 35 %, respectively) [reduction in superficial and deep cortical vascular resistance by 32 and 46 %, respectively] and increase in urine clearance (68 %). L-

NAME administration led to a rise in the BP of both normotensive and 2K-1C rats with the rise being more evident in the normotensive animals (39 & 9 %, respectively). Garlic treatment, even in the presence of L-NAME, still reduced the BP of 2K-1C rats (42 %). All L-NAME differences were statistically significant.

Conclusions:

Garlic, as expected, led to an improvement in the cortical circulation (when correcting for the fall in systemic BP) and clearance function of the non-clipped kidney in the 2K-1C model. The hypotensive effect of garlic may be partly mediated through the NO pathway.

Key Words: *Garlic; Kidney; Circulation;*

Funding Agency: *None*

Psychiatry

Category: Clinical

244

Study of the outcome of HIV/AIDS awareness in a case control study among Kuwaiti addicts

*Khokhar TS, Gundy GH, Ohaeri JU, John A

Addiction Unit, Psychological Medicine Hospital, Kuwait

Introduction:

The incidence of HIV/AIDS continuous to rise globally, having reached epidemic proportions in the last three decades. Intravenous drug/heroin abusers, because of their practice of sharing injecting equipment and their extremely active sexual behavior are at double exposure risk.

Methods:

A sample of 150 intravenous drug/heroin addicts was recruited in the study. Seventy five patients were taken as controls from Out-Patient department, and 75 patients were taken from the inpatient department of legal wards. The inclusion criteria for the controls was that they would not be subjected to an enhanced HIV/AIDS awareness program, whereas, the inclusion criteria for the experimental group was that they will be given an enhanced HIV/AIDS awareness program.

Results:

The results of the study showed that the level of HIV/AIDS awareness in the controls was 63.06% (mean of the correct answers) (std=23.07), was less than the defined minimum safety level of awareness >75%. Although, the experimental group had slightly better level of AIDS awareness than the controls in the pre-enhanced stage, due to an ongoing in-built awareness program delivered as in-patients during the community meetings and group sessions 64.98% (mean of the correct answer) (std=23.92), this was also less than the required minimum safety level of AIDS awareness (i.e.> 75%). After delivering the enhanced HIV/AIDS wareness program, the experimental group was able to achieve the defined minimum safety level of awareness 78.43 %(mean of correct answers) (std=21.91), which was 13.45% greater than the pre-enhanced stage in the experimental group, and 17.37% greater than the controls.

Conclusions:

Although, the educational background of most of the experimental group

was no greater than that of the high school level, they still benefited from the enhanced HIV/AIDS awareness program to a minimum safety level of HIV/AIDS awareness.

Key Words: *Modified AIDS awareness Questionnaire (MAAQ);*

Funding Agency: *None*

Psychiatry

Category: Clinical

245: Moderated

Coping with infertility among Kuwaiti women: cultural perspectives

*Fido AA, Zahid MA

Department of Psychiatry, Faculty of Medicine, Kuwait University.

Introduction:

Although previous studies conducted in the Western countries have reported that psychological factors are implicated in the experience of infertility; no study has assessed this relationship in Arab women. We postulate that with all-important causal “confounders” such as age, gender, education and general health status controlled, any significant difference in psychological profile can be attributed to infertility.

Methods:

An Arabic version of the Hospital Anxiety and Depression Scale (HADS) was used to examine the psychological status of 120 Kuwaiti infertile women and an age-matched sample of 125 healthy pregnant women as a control group.

Results:

Compared with age-matched pregnant control sample, the infertile women exhibited a significant higher psychopathology in all HADS parameters in the form of tension, hostility, anxiety, depression, self-blame and suicidal ideation. The illiterate group attributed the causes of their infertility to supernatural causes such as evil spirits, witchcraft and God’s retribution, while the educated group blamed nutritional, marital and psychosexual factors for their infertility. Faith and traditional healers were considered as the first treatment choice among illiterate women, while the educated women opted for infertility clinic for treatment. Childlessness results in social stigmatization for infertile women and placed them at risk of serious social and motional consequences.

Conclusions:

The prevalence and severity of psychological distress in this sample of infertile Kuwaiti women indicate the appropriateness of referring these patients for psychological evaluation. Successful programmes in dealing with infertility in Kuwait need to include establishment of a community based intervention strategy to educate people about infertility and to give

guidelines for treatment options.

Key Words: *Infertility; Kuwait; Cultural perspectives;*
Funding Agency: *None*

Psychiatry

Category: Clinical

246

Characteristics of medico legal cases admitted to a male forensic ward for psychiatric assessment over two year period

*Eid S

Department of Psychiatry, Kuwait Psychological Medicine Hospital.

Introduction:

Medicolegal cases suspected to have a mental disorder are referred from Police Stations, Prisons, Courts and from other high Security Agencies for psychiatric assessment. There have been no previous reports on cases admitted to the forensic ward at Kuwait Psychological Medicine Hospital. Aim: To give a descriptive account about the characteristics of medico-legal cases admitted to this forensic facility during two year period.

Methods:

Case notes of 231 male cases admitted on 260 occasions between 1 January 2000 and end of December 2001 were reviewed in detail and analyzed.

Results:

Eighty percent of the sample were Kuwaiti, almost more than a half were either single or divorced, and one third admitted for the first time. 67.5% of offences occurred significantly in the age group 21-35 year ($p=0.005$). The commonest diagnostic categories were schizophrenia and other psychotic disorders (22.9%), substance abuse (21.6%), bipolar disorders (12.6%), and personality disorders (10.8%). There were no significant relationship between diagnosis and type of offence. Two third of the sample had past psychiatric history, and more than half had a previous criminal history and a history of substance abuse. The most common offences were violence (42.3%), fraud and forgery (12.3%), abusing of illicit substances (11.9%), and robbery and theft (6.9%). Almost one quarter of violent offences was homicide. Half of homicidal offences were committed by patients with schizophrenia. Cases were disposed back to the referring authority (74.2%), to other acute wards (16.5%), or to the community (9.3%).

Conclusions:

Though the majority of cases referred to the forensic ward for psychiatric assessment had a psychiatric disorder we cannot generalize this result. Further studies are needed to assess the prevalence of mental disorders in offenders not referred for psychiatric assessment.

Key Words: *Forensic; Mentally disordered offender; Offences;*
Funding Agency: *None*

Psychiatry

Category: Clinical

247

Violence against nurses in hospitals: prevalence and effects

Atawneh FA¹, Zahid MA², Al-Sahlawi¹, Shahid AA¹, Al-Farrah MH¹

¹Department of Accident & Emergency, Mubarak Al-Kabeer Hospital, Kuwait; ²Department

of Psychiatry, Faculty of Medicine, Kuwait University?????

Introduction:

Violence in health care settings, especially in the Emergency Departments (ED) and Psychiatry, is escalating and the nurses carry the highest vulnerability. We investigated the prevalence and effects of violence against nurses in ED of a regional general hospital. A previous study on the subject, conducted at the same place 4 years earlier, found that 28% of the doctors were physically attacked while in 7%, the physical assaults were likely to have lead to serious or fatal injury. About one half to three fourths of doctors subjected to violence suffered from one or more after effects.

Methods:

A 12-item, frequency-weighted, questionnaire was used to measure rates, frequency, and severity of violence. The effects of violence were measured through administration of a 5-item, duration-weighted, questionnaire: the items being derived from the most frequently reported after effects, reported by doctors subjected to violence at workplace.

Results:

Seventy out of 81 nurses experienced verbal insults or threats of imminent violence and 13 were also physically attacked during the one-year period. Sixty-seven out of 70 suffered from one or more after-effects including flashbacks, sleeplessness, fearfulness, depression, or taking time off work.

Conclusions:

Contrary to the earlier reports of the nurses carrying the highest risk of violence at workplace, our findings suggest that doctors experience more violence but nurses suffer from more after-effects of violence at work.

Key Words: *Violence; Doctors; Nurses;*

Funding Agency: *None*

Psychiatry

Category: Clinical

248

Subjective quality of life of community living Sudanese psychiatric patients and their family caregivers: comparison with caregivers' impressions and control group.

*Awadalla AW¹, Ohaeri JU², Salih AA³, Tawfiq AM², Varghese R¹

¹Department of Psychiatry, Faculty of Medicine, Kuwait University, Kuwait,²

Psychological Medicine Hospital, Kuwait,³ Khartoum Teaching Hospital, Sudan.

Introduction:

Researchers paid scant attention to quality of life (QOL) issues among psychiatric patients and their relatives. Studies on patient/caregiver concordance ratings had small sample size, and reports are rare from Arabia. We assessed subjective QOL of stable Sudanese psychiatric patients and their family caregivers, using the WHO 26-item QOL Instrument; compared them with the general population; examined the patient/caregiver concordance ratings, and assessed the variables that impact on QOL.

Methods:

Responses of outpatients with schizophrenia (99), major affective disorders (120) and neuroses (81) were compared with those of their family caregivers and 211 control subjects.

Results:

Patients were predominantly dissatisfied with their life circumstances. Schizophrenics had significantly less QOL domain scores, and the controls had significantly higher QOL indices than patients. Caregivers had significantly higher QOL scores than the patients and the control group (11, SD 3.3; 12.7, SD 3.5; 12.2, SD 3.1; 15, SD 2.3; 16.1, SD 2.9; for independence domain, for schizophrenia, affective disorder, neuroses, controls and caregivers, respectively, $P = 0.001$). For patients, there was no significant impact on QOL domains, of socio-demographic factors, duration of illness and treatment side effects. Caregivers' QOL was not associated with patients' variables, but was predicted by their impression

of the patients and their health status. Using Kappa statistics, schizophrenics had the least concordance with caregivers, but eight items were judged to be satisfactorily concordant for all groups.

Conclusions:

Psychiatric patients in stable condition can make reliable judgments of QOL, with relatives using a set of items to provide additional information. Some categories of caregivers are disadvantaged and need assistance. The patients can benefit from rehabilitation to improve their subjective QOL. Differences in QOL and concordance of ratings reflect disease severity.

Key Words: *Quality; Life; Psychiatric;*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

249

Fast track anesthesia for ambulatory ENT surgery

*Al-Mulla A¹, Ward V², Mathews S², Al-Qattan AM², Madhav M²

¹ Department of Anesthesia & ICU, Mubarak Al Kabir Hospital, Kuwait

² Department of Anesthesia & ICU, Al- Sabah Hospital, Kuwait.

Introduction:

Fast Track Anesthesia uses newer anesthetic agents and techniques which allow rapid awakening, early recovery phase that may be completed in operating room enabling to bypass PACU (post anesthesia care unit) and going into ambulatory surgical unit directly. Sevoflurane has been suggested as alternative to succinylcholine for intubation in elective cases where rapid return to spontaneous breathing is required e.g. elective ENT case. Avoidance of N₂O increases the patient safety with respect to the possibility of hypoxic gas mixtures and hypoxemia.

Methods:

50 children 1-12 yrs age in ASA status 1 & 2 posted for minor ENT surgery were included. Premedicated with midazolam 0.5mg/kg in 5 ml syrup adol and randomly allocated to two groups. Control group used fentanyl and scholine for intubation and Study group used fentanyl alone. All children are induced with 100% O₂ and 8% sevoflurane. After insertion of i.v. cannula fentanyl 1mcg/kg was given and trachea was intubated. Anesthesia was maintained with O₂ in air (40:60) mixture and sevoflurane 2-4%. Children were extubated in OR when fully awake. Induction time, extubation time and total duration of anesthesia were analyzed in both groups .Induction time (mins)

Results:

All cases were intubated in first attempt in both groups. Muscle twitching was noted in 2 patients in control group. Control group: Time in minutes of induction: 0.519(0.211), Intubation: 1.433(0.592), extubation 4.247(2.057), total duration 35.282(10.382). Study group: Induction :(0.572(0.309), Intubation: 1.433(0.592), extubation: 4.639(1.596), total duration: 35.959(11.395). The value of p for induction= 0.10, intubation= 0.221, extubation= 0.442, total duration= 0.583. p=0.521 for comparison of Pain score and p=0.319 for Sedation score between

groups.

Conclusions:

Sevoflurane in O₂ air mixture with intraoperative use of fentanyl can be safely used in fast tracking anesthesia, by avoiding time honored N₂O and scholine.

Key Words: *Sevoflurane; Fentanyl; Early recovery;*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

250: Moderated

Prevention of laryngospasm after adenotonsillectomy in children with sub hypnotic dose of propofol

Maya I¹, *Ali SS¹, Shamsah M², Dinesh K¹, Batra YK³, Al-Qattan AM¹

¹Department of Anesthesia and Intensive Care, Al Sabah Hospital, Kuwait.

²Department of Anesthesia and Intensive Care, Al Adan Hospital, Kuwait.

³Department of Anesthesia and Intensive Care, PGI, Chandigarh, India.

Introduction:

Laryngospasm is a common complication immediately following tracheal extubation. Propofol is known to inhibit airway reflexes. In this study, we aimed to assess whether the prophylactic use of sub hypnotic dose of propofol decreases the occurrence of extubation laryngospasm in children.

Methods:

With the approval of Institutional Ethics Committee and parent's written consent, 120 children ASA physical status I and II, aged 3-14 years scheduled to undergo elective tonsillectomy with or without adenoidectomy were studied. All patients were induced with thiopentone 4-5 mg. kg⁻¹ or sevoflurane, and suxamethonium 1.5 mg.kg⁻¹ to facilitate tracheal intubation. Anesthesia was maintained with isoflurane in 33% oxygen and 6% nitrous oxide. Before extubation, the patients were randomly given propofol 0.5 mg.kg⁻¹ or saline (control) intravenously. The tracheal extubation was performed when the patient was judged to be sufficiently awake.

Results:

Twelve (20%) of 60 patients in control group suffered postoperative stridor or laryngospasm, whereas only four (6.6%) of 60 patients treated with propofol developed stridor or laryngospasm and this was statistically significant ($p < 0.05$).

Conclusions:

It is concluded that sub hypnotic dose of propofol (0.5 mg.kg⁻¹) prevents laryngospasm upon tracheal extubation in children undergoing tonsillectomy with or without adenoidectomy.

***Key Words: Propofol; Laryngospasm; Adenotonsillectomy;
Funding Agency: None***

Surgery and Transplantation

Category: Clinical

251

Propofol – remifentanil anesthesia for thyroid surgery

Agzamov AI, Al-Qattan AM, Dubikaitis AY, Al-Qattan HA

Department of Anesthesiology & ICU, Al-Sabah Hospital, Kuwait

Introduction:

Hypnotics and opioids interact synergistically to block responses to surgery and different dose combinations may be used to provide adequate anesthesia. In this study, we sought to determine the optimal concentrations of propofol and remifentanil, given by target-controlled infusions, to ensure hemodynamic stability, adequate hypnosis (assessed by electroencephalograms: AEP and BIS Monitoring), and fast recovery for thyroid surgery.

Methods:

(RTC) that was maintained throughout surgery (0.1, 0.2, or 0.3 ng/mL). The propofol target concentration was adjusted to keep mean arterial blood pressure within 30% of a reference value; bispectral index between 40 and 55 and AEP index between 10 - 25. Adequate anesthesia was obtained in all groups. Hypertension and clinically dangerous movements were more frequent with the small RTC, and hypotension requiring treatment was more frequent with the large RTC. Propofol target concentration during surgery decreased significantly with increasing RTC (5.0, 4.0, and 2.5 µg/mL, respectively) as well as the propofol consumption (740, 668, 474 mg/h). The 0.3 ng/mL RTC significantly delayed the return of spontaneous breathing.

Results:

Given as a target-controlled infusion for thyroid surgery, remifentanil 0.3 ng/mL for intubation and 0.2 ng/mL during surgery, combined with propofol 4 µg/mL (corresponding to a maintenance infusion rate of approximately 7–10 mg • kg⁻¹ • h⁻¹), is recommended to ensure both optimal intraoperative stability and fast recovery

Conclusions:

Propofol – Remifentanil anesthesia for thyroid surgery is the best choice of anesthetic techniques due to optimal intraoperative stability and fast recovery for patients.

Key Words: Remifentanil; Propofol; Thyroid;
Funding Agency: GSK Company

Surgery and Transplantation

Category: Clinical

252

Correlation of bispectral index and Guedel's stages of sevoflurane anesthesia

Nazirova LA, Agzamov AI, Tatyana Litvak

Department of Anesthesiology, The National Center of Surgery, Tashkent, Uzbekistan

Introduction:

Bispectral index (BIS) analysis is a method of electroencephalograph (EEG) analysis based on the interfrequency phase relationships of the EEG, designed to quantify anesthetic hypnosis. The BIS was created after concurrent collection of EEG and clinical data from a large number of patients anesthetized with various drugs over a prolonged period and then performing a Fourier analysis followed by a bispectral calculation. The clinical stages of anesthetic depth are very well demonstrated in patients with sevoflurane anesthesia.

Methods:

In this study, we studied the BIS changes during various stages of sevoflurane anesthesia and quantified the hypnotic depth during the surgical stage of ether anesthesia.

Results:

The values for BIS under various stages and planes of ether anesthesia were recorded in 21 patients listed for orthopedic surgical procedures. During sevoflurane anesthesia, BIS initially and subsequently decreased. During surgical anesthesia, a BIS value of 30 was observed. For the first time, bispectral index (BIS) has been studied in patients being anesthetized solely with sevoflurane. Sevoflurane both causes a decrease in BIS during induction and increase in emergence.

Conclusions:

The BIS index observed during the surgical stage of sevoflurane anesthesia is probably the correct value for the depth of hypnosis because no other volatile anesthetic can produce the true anesthetic state when used alone. This value could be taken as the value to be attained when balanced anesthesia is being practiced.

Key Words: BIS Monitoring; Anesthesia; Sevoflurane;
Funding Agency: Alaris Company

Surgery and Transplantation

Category: Clinical

253

Ketamine pre-treatment with venous occlusion attenuates on pain injection of propofol

Batra YK, Al-Qattan AM, Marzouk MN, Smilka M, Agzamov AI
Department of Anesthesiology & ICU, Al-Sabah Hospital, Kuwait City, Kuwait

Introduction:

Propofol is associated with a high incidence of local pain and discomfort when injected at peripheral vein. In this prospective, randomized, double blind, placebo-controlled study, we further investigated whether small dose of ketamine reduces propofol-induced pain on injection in the same magnitude, as does lidocaine in the presence of a venous tourniquet.

Methods:

We studied 150 adult ASA I or II patients aged 20-60 yr, who were scheduled for elective surgery. Patients were randomly assigned using a sealed envelope technique to one of the three groups: Gp A (n=50; placebo saline) received NS 2 ml with venous occlusion for 1 min; Gp B (n=50; lidocaine) received lignocaine 20 mg in 2 ml saline with venous occlusion for 1 min; GpC (n=50; ketamine) received ketamine 10 mg in 2 ml NS with venous occlusion for 1 minute.

Results:

In Gp A (placebo saline), 40 patients (80 %) experienced pain on propofol injection and in 14 of these; pain was graded as severe (28 %). In Gp B (lidocaine), only 5 /50 patients (10 %) experienced pain with the subsequent administration of propofol and this was significantly less than the control group ($p < 0.0001$). In Gp C (ketamine), only 6/50 patients (12%) experienced pain with the subsequent administration of propofol and this was also significantly less than the control group ($p < 0.0001$). Pain intensity was significantly less in patients who received ketamine and lidocaine as compared to saline group ($p < 0.0001$).

Conclusions:

Our study shows that ketamine modulates its effect at the peripheral site by a local mechanism as it has been reported to have local anesthetic

property when given intravenously for regional analgesia. In conclusion, it is reasonable to consider IV retention with ketamine for 1 min as an effective alternative to lignocaine for educing propofol induced pain.

Key Words: *Propofol; Ketamine; Lignocaine;*

Funding Agency: *Fresenius Kabi Company*

Surgery and Transplantation

Category: Clinical

254

Repair of inguinal hernia under local anesthesia

*Osama SM¹, Mohammad AI¹, Al-Fahad TB¹, Khoursheed M^{1,2}

¹ Department of Surgery, Mubarak Al-Kabeer Hospital; ² Department of Surgery, Faculty of

Medicine, Kuwait University

Introduction:

The use of local anesthesia in the repair of reducible inguinal hernia in adults is the preferred choice since its safe, simple, effective, & economic without post anesthesia side effects. We report our experience of using local anesthesia in treating reducible primary inguinal hernia in adults by Lichtenstein mesh repair.

Methods:

This was a prospective study on 37 patients. Local anesthesia was used on all patients according to the step-by-step technique of Lichtenstein hernia institute. Postoperatively, patients were followed for six months.

Results:

All patients were able to return to work within averages of 10 & 15 days for office & manual workers respectively. Recurrence rate was zero. Postoperative complications were limited to one case of wound infection & two cases of neurotic pain in the inguinal region.

Conclusions:

Hernia repair under local anesthesia is safe with satisfactory outcomes.

Key Words: Reducible inguinal hernia; Lichtenstein mesh repair; Local anesthesia;

Funding Agency: None

Surgery and Transplantation

Category: Clinical

255

Mesh abdominoplasty in patients with ventral hernias and severe musculoaponeurotic weakness

*Habib MA, Sakr MF, Shaheed AA

Department of Surgery, Ahmadi Hospital, KOC (Kuwait Oil Company), Kuwait

Introduction:

To evaluate the value of prolene mesh for repair of extensive ventral hernias and in patients with severe musculoaponeurotic weakness (grades IV & V according to Bozola's classification).

Methods:

This study included 37 patients who were admitted to Ahmadi Hospital between June 1999 and June 2004. . All patients underwent hernia repair followed by repair of recti and fixation of prolene mesh to the anterior abdominal wall sheath. Standard abdominoplasty was adopted in all patients, with umbilicoplasty when indicated. Patients were discharged at 5-7 days postoperatively.

Results:

Twenty nine patients (78.4%) were multiparous (four siblings or more). The mean age of patients was 41.79 years (range 32-55 years). All patients had ventral hernias; 19 (51.35%) had incisional hernia, 3 of them were recurrent. Sixteen patients (43.24%) had paraumbilical hernia, 5 of them were recurrent. Two patients (5.41%) had sizable epigastric hernia. 37 patients were studied. Most patients (35/37; 94.6%) were satisfied with their body contour postoperatively and 7 patients (18.9%) were stimulated to achieve a further significant weight loss. No hernia recurrence was observed in the follow-up period (range 6-60 months). No major complications were encountered including mesh extrusion. Seroma occurred in three patients (8.1%); one of them required repeated aspiration and the others resolved spontaneously. Wound infection followed by wound dehiscence occurred in only one patient (2.7%). "Dog ears" were encountered in four patients (10.8%); two of them had a later surgical revision.

Conclusions:

From the results of this study, it is conceivable to use the prolene mesh in abdominoplasty for patients with extensive ventral hernias and musculoaponeurotic laxity as it yielded satisfactory results in terms of sound hernia repair, improvement of body contour and relief of symptoms with minimal complications.

Key Words: *Prolene mesh; Abdominoplasty; Ventral hernia;*

Funding Agency: *None*

Surgery and Transplantation

Category: Graduate (Resident)

256: Moderated

Retrospective Comparison of Silastic Ring Vertical Gastroplasty Versus Laparoscopic Adjustable Gastric Banding for the Treatment of Morbid Obesity

* Al-Taweel TM¹, Al-Sharaf K¹, Miller J², Behbehani AM¹

¹ Department of Medicine, Kuwait University Faculty of Medicine;² Department of Surgery, Dr. Gray's Hospital, Elgin, UK.

Introduction:

To compare the efficacy of silastic ring vertical gastroplasty (SRVG) with laparoscopic adjustable gastric banding (LAGB) in achieving weight loss in morbidly obese patients.

Methods:

A retrospective, record-based study was carried out at 2 locations: Dr Gray's Hospital, Scotland and Mubarak Al-Kabeer Hospital, Kuwait. The Scottish sample consisted of 23 consecutive patients who underwent SRVG during the period from January 1994 to October 1996. The Kuwaiti sample included 37 consecutive patients who underwent LAGB during the period from September 1999 to April 2000. Patient data was retrieved from their files using a specially designed data collection form. The data was then analyzed using statistical package for social sciences (SPSS) version 10.0 at a level of significance of 0.05.

Results:

There was a higher prevalence of co-morbid disease evident in the Kuwaiti group compared with the Scottish group. These were mainly in the form of diabetes mellitus, hypertension and cholelithiasis. Mean hospital stay was shorter post LAGB compared with SRVG (difference in hospital stay 11.49 days, 95% confidence interval (CI) 9.92 to 13.06; $p < 0.001$). Mean % excess weight loss at 1 year follow-up was 67.9% post SRVG compared with 37.6% post LAGB (95% CI 18.6 to 41.9; $p < 0.001$). Mean BMI (body mass index) loss after 1 year was significantly higher post SRVG than LAGB ($14.4 \pm 6.9 \text{ kg/m}^2$ and $8.3 \pm 4.2 \text{ kg/m}^2$ respectively, 95% CI 2.7 to 9.4; $p = 0.001$). The incidence of complications was higher following SRVG when compared with LAGB. Prolonged

vomiting was the commonest complication post SRVG (47.8%), while band slippage was the commonest post LAGB (10.8%).

Conclusions:

SRVG achieves better excess weight loss than LAGB. However, owing to its open technique it is associated with a larger spectrum of complications than LAGB. Carefully designed studies with larger sample sizes and longer follow-up are needed to further evaluate the efficacy laparoscopic obesity surgery.

Key Words: *Silastic ring vertical gastroplasty; Laparoscopic adjustable gastric banding; Excess*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

257: Moderated

Slippage after Adjustable Gastric Banding: How can it be reduced?

*Khoursheed M^{1,2}, Al-Bader I¹, Mohammad AI¹, Osama SM¹, Al-Fahad TB¹

¹ Department of Surgery, Mubarak Al-Kabeer Hospital; ² Department of Surgery, Faculty of

Medicine, Kuwait University

Introduction:

Introduction: Laparoscopic gastric banding is a valuable surgical option for treating morbidly obese patients. The operative technique is continually being refined. Since its inception, many changes in the technique have helped to reduce the complication rate. Currently, the major complications are: obstruction, erosion, and band slippage.

Methods:

Methods: This is a prospective study conducted on 64 subjects who underwent Laparoscopic Adjustable Gastric Banding (LAGB) from May 1999 to July 2002. In the first 31 patients, the perigastric technique was used. From September 2000, the band was positioned by the pars flaccida technique (33 patients). The patients were divided into three groups. Group 1: perigastric technique using the lap-band (31 patients). Group 2: pars flaccida technique using lap-band (12 patients). Group 3: pars flaccida technique using the Swedish band (21 patients). There were 58 females and 6 males with mean age 36.6 years (17-56 years). Preoperative mean BMI was 46.2 Kg/m².

Results:

Results: Band slippage occurred in 10/31 patients (35%) in group 1, 3/12 patients (23%) in group 2, and none in group 3 patients.

Conclusions:

Conclusions: The Pars Flaccida technique significantly ($p < 0.01$) reduces the incidence of postoperative slippage rate after gastric banding.

Key Words: *Laparoscopic Adjustable Gastric Banding; Obesity; Slippage;*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

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Three Trocars Laparoscopic Cholecystectomy is Feasible, Safe, less Scar and Cost!

*Sayed AA, Khajah F, Al-Bader I, Al-Sharaf K

Department of General Surgery, Mubarak Al Kabeer Hospital, Kuwait.

Introduction:

The standard 4 trocars laparoscopic cholecystectomy is a well established procedure. It is in the interest of surgeons and patients to bring fewer scars to the patients and to reduce the cost of surgery. In this study we wanted to convey our experience in three trocars lap.chole and compare it to the standard 4 trocars rocedure.Our main aim was to examine the feasibility and safety of 3T lap.chole. Vs. 4T lap.chole.in a retrospective manner.

Methods:

In our pilot study we compared 29 consecutive cases of 3 trocars lap. Cholecystectomy to 51 4 trocars lap. holecystectomy. 2 Patients among the 3 trocars group needed a 45mm port (6.89%). None of this group needed conversion to open cholecystectomy. One patient of the 3trocars group required post Op. ERCP due to retained stone in comparison to 2 patients of the 4 trocars group. The main comparative variables between the 2 procedures were: 1- Operative Time.2- Amount of analgesia.3- Post op. hospital stay.4- application of the 4th trocar. 5- complications rate.

Results:

There was no significant difference in the post op. time, amount of analgesia and the hospital stay between the 2 groups. There was no hesitation to add a 4th or even a 5th trocar if this is necessary.

Conclusions:

The 3T lap.chole. is comparable to the classical 4T lap.chole. As an initial experience, there was no significant difference in the compared variables between both techniques. The 3T technique has the advantages of : less no. of surgeons, less operative costs , and less no. of scars. We recommend the 3T technique for elective cases. Additional statistical studies are needed to confirm this trend

Key Words: *Laparoscopy; Cholecystectomy; Trocars;*

Funding Agency: None

Surgery and Transplantation

Category: Clinical

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Accuracy of Tc-99m MAG3 Renogram in Assessing differential renal function in patients with partial/complete unilateral renal obstruction

Al-Hunayan A¹, Al-Ateeqi A¹, Kehinde EO¹, AbdulHalim H¹, Al-Awadi K¹,

Loutfi I², Mojiminiyi OA³

Department of Surgery¹, Department of Nuclear Medicine² and
Department of
Pathology³, Mubarak Al-Kabeer Hospital, Kuwait.

Introduction:

To evaluate the ability of Tc-99m MAG3 renogram to accurately reflect differential renal function (DRF) compared with creatinine clearance in the presence of partial/complete unilateral ureteral obstruction.

Methods:

This was a prospective descriptive study from August, 2000 till December, 2004 that included 58 patients with partial or complete unilateral renal obstruction in whom percutaneous nephrostomy (PCN) tube was inserted to relieve the obstruction. One week after nephrostomy tube insertion, all patients had Tc-99m MAG3 renogram to determine differential renal function (nuclear DRE). Simultaneously, 24-hours urethral and nephrostomy tube urine were collected separately and were used to calculate individual-kidney creatinine clearance which in turn was used to calculate differential renal function (biochemical DRF). Variables such as medical renal disease, duration of obstruction or presence of renal infection were recorded to see what effect they had in the calculation of DRF. Data were analyzed statistically by linear regression, Bland-Altman plot, and ROC curve. Ethical committee approval was obtained and consent was waived.

Results:

There were 41 eligible patients. Nuclear and biochemical DRF showed a good correlation: $r = 0.826$ ($p < 0.01$). Subgroup analysis revealed the highest correlation between Nuclear and biochemical DRF was within the normal DRF category. However, using the Bland-Altman analysis, nuclear

and biochemical DRF compared unfavorably. The limits of agreement were from -28.01% (95% CI -35.8 to -20.3) to 28.0% (95% CI 20.2 to 35.7).

Conclusions:

Although good correlation existed between Tc-99m MAG3 renogram and biochemical DRF, Bland-Altman analysis revealed that they are in poor agreement.

Key Words: Renogram; Kidney; Creatinine clearance;

Funding Agency: none

Surgery and Transplantation

Category: Clinical

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Technique, indications and outcomes of laparoscopic nephrectomy: Kuwait experience

Al-Hunayan A, AbdulHalim H, El-Barky E, Kehinde EO
Department Of Surgery (Division of Urology), Mubarak Teaching
Hospital and Faculty Of
Medicine, Kuwait University, Kuwait.

Introduction:

In our institution, the laparoscopic transperitoneal approach with intact specimen removal is becoming the standard technique for nephrectomies. We report the indications, techniques and outcome in a single center experience.

Methods:

Between June 2002 and December 2004, we attempted laparoscopic nephrectomies in 16 patients. Their initial diagnosis, complications, and postoperative course were evaluated. To date, all patients were available for follow up and have been analyzed for their outcome.

Results:

Of the attempted nephrectomies, 7 were for benign and 9 for malignant diseases. 10 nephrectomies out of 16 were successful: 6 in malignant disease and 4 in benign disease. Our standard approach is transperitoneal utilizing 4 diamond ports arrangement for the right side and 3 triangular port arrangement for the left side. In 4 cases, conversion to open surgery was necessary due to bleeding (2 cases) or irreversible loss of pneumoperitoneum (2 cases). In those operated for renal tumors, the mean tumor size was 5.1 cm. Median blood loss was 210 ml . The mean surgical time was 200 min. The average hospital stay was 4.5 days. Proportion using postoperative analgesics more than 2 days was 20%. Histological findings in those with renal tumors were RCC(pT1 in 2 , pT2 in 3) and TCC of the renal pelvis in 1 patient. No case was detected to have positive lymph nodes or surgical margin. No disease progression was observed. No cases of local recurrence or port metastasis have been seen during the follow up period.

Conclusions:

Laparoscopic nephrectomy is becoming a routine, effective treatment for patients with low stage renal tumors and non-functioning kidneys. Although no long-term follow-up is available, our data confirms the effectiveness of laparoscopic nephrectomy in terms of surgical principles and outcome. In Kuwait, when nephrectomy is indicated, the laparoscopic technique should be considered first.

Key Words: *Nephrectomy; Laparoscopy; Kuwait;*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

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An assesment of the efficacy of lithotripsy in the treatment of urolithiasis in patients with congenital renal anomalies.

Al-Tawheed AR¹, AbdulHalim H¹, Al-Awadi K¹, Kehinde EO², Al-Hunayan A²,

Akram M¹, Hanafi¹, Ali Y¹

¹Department of Surgery (Division of Urology), Mubarak Hospital and ²Faculty of Medicine,

Kuwait University, Kuwait.

Introduction:

To analyze the effectiveness of lithotripsy in the treatment of stones in kidneys with congenital anomalies and determine factors that may affect the results.

Methods:

Patients found to have renal calculi in kidneys with different types of congenital anomalies were treated using lithotripsy. All patients were investigated by IVU to confirm the diagnosis. J stent prior to therapy was inserted in 8 renal units. Complications encountered and factors affecting success with this treatment modality were analyzed.

Results:

Twenty five patients (18 males, 7 females) were studied between 1988 and 2004. The IVU showed 31 isolated calyceal or renal pelvic stones with mean stone burden of 1.44cc. 25 patients consisting of 9 with horseshoe kidneys, 8 with ectopic kidneys, 3 with malrotated kidneys, 2 with duplex renal system, 1 patient each with polycystic kidneys, calculus in a transplanted kidney and hypoplastic kidney were studied. Out of 31 renal units containing stones (in 25 patients) treated by lithotripsy, 24 (77.4%) renal units (in 19 Patients) were completely stone-free, 2 (6.5%) renal units (2 Patients) were partially cleared of calculi and the procedures failed in 5 (16.1%) renal units (4 Patients). Out of 5 renal units in which the procedures failed, open surgery was performed in three renal units and PCNL was performed in 2. None of the 25 patients developed any major complications. No significant adverse changes in renal function tests were observed at three months follow up. The stone free rate was influenced

and reduced significantly by stone size and location in the pelvi-calyceal system.

Conclusions:

Calculi in kidneys with congenital anomalies may be treated successfully by ESWL as a first line therapy in the majority of patients .With position modifications, localization of stones may be facilitated and isintegrated. The outcome in patients so treated does not differ significantly from those with normal kidneys.

Key Words: *Congenital renal anomalies; Calculus; Lithotripsy;*
Funding Agency: *Departmental resources.*

Surgery and Transplantation

Category: Clinical

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Do antioxidants protect against renal injury in patients receiving lithotripsy for renal calculi?

*Kehinde EO¹, Al-Awadi K¹, AbdulHalim H¹, Mojiminiyi OA², Al-Hunayan A¹,

Abraham M¹, Fatinikun T³

¹Departments of¹Surgery (Division of Urology),²Pathology and³ O & G, Faculty of Medicine, Kuwait University, Kuwait.

Introduction:

Extra corporeal shock wave lithotripsy (ESWL) is the preferred method of treating kidney stones <3cm in ize, because it is non-invasive. The safety of the method has been of major concern since it was introduced in 1982 as the shock waves have been shown to induce acute and chronic lesions in the kidneys and adjacent organs. The present study was designed to find out: if ESWL produces free radicals due to ischemia and reperfusion (I/R) injury, and if the administration of antioxidants pre-ESWL can reduce the amount of amage to the kidney.

Methods:

Before ESWL, 90 patients with 1-3cm size renal calculi had 'J' stents inserted. Patients were randomised into 3 treatment groups: a) Group A (Control Group) (n=29) No antioxidants given, b) Group B (n=34) Given 2 capsules of "Nature Made R" (antioxidants) 2 hours before ESWL, and 2 and 8 hours after ESWL, c) Group C (n=27) Given 2 capsules of "Nature Made R" 2 and 8 hours after ESWL. Blood and urine samples were obtained from all patients, just before start of ESWL, and at 2 hours, 24 hours, 7 days and 28 days after ESWL. Serum levels (mean + SD) of malondialdehyde (MDA) – a measure of lipid peroxidation and free radical damage, alpha tocopherol, ascorbic acid (both antioxidants), C-reactive protein (CRP) and lactate dehydrogenase (CRP and LDH measure of kidney injury) were measured.

Results:

Patients in Group B compared to patients in group A: at 24 hours had significantly reduced serum MDA (1.85 + 0.76 versus 2.53 + 0.99 nmol/mL) (p<0.001), higher ascorbic acid (5.32 + 1.42 versus 4.45 + 2.86

mg/dL) ($p < 0.001$); and at 7 days higher alpha tocopherol ($36.23 + 16.48$ versus $22.98 + 6.47$ mg/dL) ($p < 0.01$) and lower LDH ($255.05 + 98.44$ versus $297.20 + 69.88$ u/L) ($p < 0.01$).

Conclusions:

These findings indicate that ESWL generates free radicals through I/R injury mechanism and the use of effective antioxidants pre - ESWL may be associated with significant reduction in the severity of renal injury.

Key Words: *Renal Calculi; Lithotripsy; Antioxidants;*

Funding Agency: *Kuwait Foundation for Advancement of Sciences.*

Surgery and Transplantation

Category: Clinical

263: Moderated

Single daily dose administration of cyclosporine in renal transplant recipients, a preliminary report

*Halim MA, Nampoory MRN, Said T, Hamid MH, Nair MP, Al-Mozairai IA, Johny KV

Hamed Al Essa Organ Transplantation Center, Kuwait.

Introduction:

Cyclosporine microemulsion (CsA) has been the mainstay immunosuppressive agent in renal transplant recipients (RTR) for years. Since single daily dosing of CsA (SD) is rarely used, our objective was to evaluate the efficacy of SD versus twice daily dosing of CsA in RTR.

Methods:

Retrospective evaluation of single-dose CsA use was conducted for 15 RTR for 12 months (study group). Equal numbers of matched RTR were selected for age, sex, HLA mismatch, donor type, and immunosuppressive regimen (control group). CsA trough level and peak CsA blood levels, 12-hour CsA profile, and the area under the concentration-time curve (AUC) were measured. Patients were evaluated for episodes of acute rejection, CsA nephrotoxicity, graft function, hepatitis status, hepatotoxicity, adverse effects, and graft and patient outcomes.

Results:

There was a significant difference in CsA peak blood level and AUC after shifting to SD ($p = 0.001$). In the study group, the mean AUC was significantly below the average therapeutic range before (3154 ng/mL/hour) versus 5532 ng/mL/hour after shifting to the single-dose regimen (which was therapeutic). This value was 5749 ng/mL/hour in the control group. In the control group, the initial total daily CsA dose was 9mg/kg/day and adjusted according to blood levels. The total daily dose became lower in the study group when compared with the control group at 6 and 12 months ($p = 0.01$). There were significantly fewer adverse effects such as sA nephrotoxicity, tremors, hypercholesterolemia, and hypertriglyceridemia in the study group versus the control group. 40% of patients in the study group had viral hepatitis with high liver function tests which improved significantly after shifting to SD.

Conclusions:

CsA dose should be individualized in renal transplant recipients. SD has the added advantage of decreasing daily dosages and CsA-related adverse effects while maintaining optimal graft function.

Key Words: *Renal transplant; Immunosuppression; Cyclosporin A;*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

264

Hypospadias repair: outcome in a tertiary center in Kuwait

*Al-Dahham A, Al-Ramadan S, Al-Bader M

Department of Pediatric Surgery, Ibn Sina Hospital, Kuwait

Introduction:

The Pediatric Surgery Department at IBN Sina Hospital is the only referral center for pediatric urological consultation in Kuwait where more than 1000 cases of hypospadias were repaired in the last 10 years. The outcome of 150 cases of hypospadias treated between June 2002 to July 2003 was reviewed.

Methods:

Retrospective review of the charts of patients with hypospadias repaired between June 2002 and July 2003 (14 months). Redo-hypospadias and epispadias repairs were excluded.

Results:

150 patients were identified suitable for the study. Mean age was 2.4 years (range 0.6-11) with Mean follow-up of 4 months (range 0.5-20). Type of hypospadias was anterior in 124 cases (82.7%), middle in 15 cases (10%), and posterior in 11 cases (7.3%). Types of repair in the anterior hypospadias included meatal advancement (58.9%), MAGPI(16.9%), TIP urethroplasty (14.5%), GAP repair(6.5%), Thiersch-Duplay (2.4%), or urethral mobilization (0.8%). Type of repair in the middle hypospadias was TD(40%), TIP(26.7%), or staged (33.3%). All patients with posterior hypospadias had staged repair. Mean hospital stay for each type was: meatal advancement, 2.5 d; MAGPI, 4.7 d; TD.repair, 8.5 d; TIP.repair, 7.4 d; release of chordee, 4.8 d; and UC fistula repair, 14.6 d. All patients received antibiotics. Complications included: 13 urethro-cutaneous fistula (8.6%), 3 meatal stenosis (2%), 1 stricture (0.7%), 2 bleeding (1.3%).

Conclusions:

Factors that were associated with Less complication rate and better outcome in our center were: suture type (vicryl, PDS), magnifying glasses, IV/PO antibiotics, post operative immobilization, and the type of surgical dressing (sponge compression).

Key Words: Hypospadias; Kuwait; Complication;
Funding Agency: None

Surgery and Transplantation

Category: Clinical

265

Laparoscopic varix ligation (LVL): Pros & Cons

*Dashti M, Al-Nusif S, Badawi H

Department of Surgery ,Farwania Hospital ,kuwait

Introduction:

Varicocele present in 11.7 % of normal male population, 80% of these are fertile, varicocele considered the main correctable cause of infertility, nevertheless good number of the varicoceles attending infertility clinic.

Methods:

Retrospective study from May 2000 to Feb. 2003, 55 patients, 79 LVL procedures, mean age was 32.6, follow-up (8 -24 months), LVL performed mainly for subfertility and pain.

Results:

Unilateral LVL was done in 56% of the cases. Complete resolution of pain was achieved in 87.5%. Overall pregnancy rate was achieved in 47% of the study participants, and post-operative complications were very minimal (pain, hydrocele, recurrent varicocele were reported to be 2.6%, and resumption of normal activity was 24 hours after surgery

Conclusions:

LVL is safe, cost-effective and highly effective in achieving pregnancy rate. It has minimal morbidity, gives good access for bilateral varicoceles, can detect collaterals, and is feasible in children. Testicular artery preservation has better impact on fertility.

Key Words: *Laparoscopy; Varicocele; Infertility;*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

266: Moderated

Karydakis technique versus midline closure for the management of chronic pilonidal sinus.

*Sakr MF, Habib MA, Shaheed AA

Department of Surgery, Ahmadi Hospital, KOC (Kuwait Oil Company), Kuwait.

Introduction:

Different procedures have been advocated for the management of chronic pilonidal sinus (PNS), none of which is perfect, judged by the yardsticks of primary healing and recurrence of disease. This study was conducted to compare between Karydakis technique and conventional midline closure in patients with chronic PNS.

Methods:

This study included 161 patients with chronic PNS admitted to the Department of surgery between June 2001 and June 2004. Data collected included demographics, symptoms and their duration, number of sinuses and their location, previous management, operative technique and time, hospital stay, return to normal activity, morbidity, and recurrence of disease. Patients were categorized into 2 groups. Patients in Group 1 (n=79) were treated with the asymmetric eccentric flap as described by Karydakis, while those in group 2 (n=82) were treated with the standard midline closure technique. Suction drainage was used in all patients. Mean follow-up was 28.4 months (range 6-42 months).

Results:

Both groups had similar demographics, clinical presentation, hospital stay, and time of return to usual activity. Operative time was insignificantly longer with the Karydakis technique (mean 45.2 versus 40.4 minutes). Overall complication rate was significantly more in patients with midline closure (18.3%, 15/82) as compared to those with Karydakis procedure (10.1%, 8/79) ($P<0.05$). Wound infection or dehiscence was seen in five patients (6.1%) in group 1 as opposed to 11 (13.4%) in group 2 ($P<0.05$). Recurrence was observed in six patients (7.3%) with midline closure as compared to only two (2.5%) in patients with Karydakis technique ($P<0.05$).

Conclusions:

Karydakis technique for management of chronic PNS is a simple, non-lengthy procedure that has less overall complications and lower recurrence rate than the conventional midline closure method. Identification of risk factors of morbidity and recurrence in both groups merits further investigation.

Key Words: *Karydakis; Pilonidal; Sinus;*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

267: Moderated

Still there is place for the 0.2% GTN ointment in the treatment of anal fissures

* Mohammad Al¹, Bin-Nakhi A², Al-Fahad TB¹, Khoursheed M^{1,3}

¹ Department of Surgery, Mubarak Al-Kabeer Hospital; ² Department of Radiology,

Mubarak Al-Kabeer Hospital; ³ Department of Surgery, Faculty of Medicine

Introduction:

Anal fissure is ischaemic in origin because of spasm of internal anal sphincter leading to poor blood supply to anal canal mainly in the posterior segment. Nitros oxide donor such as glyceryl trinitrate (GTN) causes a chemical sphincterotomy leading to improvement in blood flow and thus healing of the anal fissure. This study addresses the hypothesis that topical GTN ointment may be an effective nonsurgical treatment for anal fissures.

Methods:

This was a prospective study conducted from May 2003 to April 2004. There were 86 patients, all of whom were treated with the topical 0.2% GTN ointment twice daily with additional application after defecations.

Results:

None of our patients developed the potential side effect of GTN therapy. There was a significant reduction in pain score from a mean of 5.3 in pre-treatment group to 0.92 after one week of GTN treatment to nearly zero at 4-6weeks treatment. Complete healing was noted at four weeks in all (100%) cases of acute anal fissures, and in 37 (75.5%) of chronic anal fissures. In the chronic anal fissure group 12 (24.4%) patient failed pharmacological therapy and all of these underwent surgical lateral sphincterotomy. At two months follow-up there was 3 (8.1%) patients in the acute anal fissure group and 1 (2.04%) patient in the chronic anal fissure group had recurrent after full healing of the anal fissures. Fortunately, all patients in the acute anal fissure who had recurrence were treated successfully with another 4 weeks course of topical 0.2% GTN ointment, however the patient in the chronic anal fissure group who had

recurrence he preferred for surgical internal sphincterotomy.

Conclusions:

This study shows that most anal fissure can be treated non-surgically with topically applied 0.2% GTN ointment, which can be considered a first line treatment with greater success rate of cure, minor side effect, and less economic costs.

Key Words: *Anal fissure; Glyceryl Trinitrate (GTN) ointment; First line treatment;*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

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Secondary alveoplasty in cleft lip & palate treatment protocol

Bang RL^{1,2}, Ghoneim I¹, Mukhatar A³, Al-Najjadah I¹, Burezq HA¹

¹ Al Babtain centre for Plastic Surgery and Burns, Kuwait

² Department of Surgery, Faculty of Medicine, Kuwait.

³ Dental centre, Amiri Hospital, Kuwait

Introduction:

Alveolar bone grafting is required for the stabilization of the maxillary alveolar segment, canine tooth eruption through and within the graft, support for adjacent dentition, to maintain oral hygiene, to prevent nasal mucosa irritation and halitosis. This study was undertaken to analyze the 118 patients who had lveoloplasty at different ages at our centre over an eight years period.

Methods:

One hundred & eighteen patients (50 males and 68 females) with 146 alveolar clefts treated at Al Babtain Centre, Kuwait from November 1996 to November 2004 were studied. Their age ranged from 6 to 31 years (mean 14 years) and 73 patients were Kuwaiti. Amongst 118 patients 90 had unilateral cleft (right-37, left-53) and 28 bilateral clefts. The cleft was repaired by cancellous ilium bone graft covered by ipsilateral gingival-mucoperiosteal flap. The radiological assessment of interalveolar septal height for canine tooth (Bergland Type 1 to 4) was recorded for out come.

Results:

The complete canine eruption occurred in 104 (87.3%) at the time of study. The canine had erupted through the graft in about 90 per cent of cases. The septal height of Type-1 in 74% clefts, Type-2 in 16.4% clefts, Type-3 in 7.6% clefts and Type-4 (failure) in 2% clefts was observed. The partial wound dehiscence and partial graft exposure in 5 clefts (3.4%), haematoma in 4 (3.4%), and transient lateral femoral cutaneous paresthesia in 3 patients were the complications.

Conclusions:

The study assessed the results of 146 bone grafts. The canine eruption

through bone graft occurred in 90% clefts. The septal height from Type 1 to 3 indicated the success of the surgery. The secondary alveoloplasty is recommended between 6 to 14 years of age for best functional as well as appearance out come.

Key Words: *Cleft Lip and Palate; Alveolar Bone Grafting; Canine Tooth;*
Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

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Kuwait experience with carotid artery stenosis

Safar H¹, Farid E¹, Kansou J¹, Genaidi G¹, Al-Bader M¹, Sinan T^{2,4},
Kodaj J

², Asfar S^{1,3}

Vascular Surgery Service, Mubarak Al-Kabeer Hospital.1

Radiology Department Mubarak Al-Kabeer Hospital.2

Departments of Surgery, Faculty of Medicine, Kuwait University.3

Radiology, Faculty of Medicine, Kuwait University.4

Introduction:

Several major randomized trails showed that carotid endarterectomy (CEA) for symptomatic (ECST and NASCET) and asymptomatic (VA, ACAS, and ACST) carotid artery stenosis prevents stroke and death related stroke. Recently several randomized trails showed that carotid stenting (CS) has the same beneficial effect (CAVATAS, SAPPHERE, EVA –3S, CARESS).

The accepted rate of stroke and death associated with both surgery and carotid stenting with protective device is about 0-6%. Therefore, carotid stenting is ow considered as alternative for carotid endarterectomy for high-risk patients and may be for all risk patients. Objective: The purpose of this study was to review 9-year experience with carotid endarterectomy and carotid stenting with distal cerebral protection device for carotid artery stenosis.

Methods:

This is a chart review of patients admitted for carotid artery stenosis from 1995 to 2004. There were 52 patients (53 carotid lesions). 47 carotid surgeries (group A), and 6 carotid stents with distal cerebral protection device (group B). Demographics (N=53): Kuwaiti 72%, diabetes 64%, hypertension 73%, ischemic heart disease 43%, hyperlipidaemia 39%, smoker 49%, and stroke 43%. The median age for group A was 72 years (range, 57 - 80), and in group B was 62 years (range, 42 - 77). Male gender distribution was 81% vs. 50% for group A and B respectively. Symptomatology (CEA=47 and CS=6): asymptomatic 34% vs. 67%, transient ischemic attack 36% vs. 17%, and stroke 28% vs. 17%. In CS 83% (5 patients) were with igh co-morbid condition and one case was due

to patient preference.

Results:

Complications: the rate of all neurological event (CEA vs. CS) was 8% vs. 0% (p=NS), minor stroke 8% vs. 0%, wound, haematoma 15% vs. 0% (p=NS), cranial nerve injury 4% vs. 0% (p=NS), bradycardia 0% vs. 100% (p=0.0001), and asymptomatic restenosis (50%) was 6% vs. 0% (p=NS). There was no major stroke or death in both groups. The mean follow up period was 42±3 vs. 4±3 months respectively.

Conclusions:

The result show: 1) our rate of complication following CEA is equivalent to international reported figure. 2) CS is a successful and viable alternative to surgery.

Key Words: *Carotid Stenosis; Carotid Surgery; Carotid Stenting;*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

270: Moderated

Buggy (ATV) accidents- -an emerging public health problem in Kuwait

*Aftab A¹, Khan MS², Al-Asfar F³, Al-Awadi N⁴

¹ Department of Accident & Emergency² General Surgery

Al-Adan Hospital MOH

Kuwait

Introduction:

The object of study is to assess the severity of All-Terrain Vehicle (ATV) Injuries affecting to public health in Kuwait.

Methods:

This study is a retrospective analysis of 462 cases of ATV injuries presented in the department of Accident & Emergency of Adan Hospital , during January 2002 to August 2003.

Results:

462 cases were analyzed retrospectively. There were 364 males and 98 females, age ranging from 3.5 years to 63 years (mean age 17.8 years). 107 patients (23%) required admission to hospital, 18.6 % of these admissions(20/107) required ICU care. Fracture of extremity was common among admitted cases 4/107(41%), commonly involved bone were tibia, fibula and femur .The face was the commonest site of injury in all patients.

Conclusions:

The ATV accidents resulted in significant head injuries, fractures of extremity and skin injuries. Age limit, state licensing, safety programs and safety gears are required to reduce mortality and morbidity from recreational riding.

Key Words: All-Terrain Vehicle; Injuries; Kuwait;

Funding Agency: None

Surgery and Transplantation

Category: Clinical

271: Moderated

Beach buggy injuries in Children

Shaheed AA, Ikram MA

Department of Surgery

Ahmadi Hospital, Kuwait Oil Company

Ahmadi

KUWAIT.

Introduction:

Road traffic accidents are a major health hazard in Kuwait. Beach buggy related injuries have increased dramatically in recent years. Children on beach buggy, by virtue of their age and inexperience are endangering themselves and other road users; accidents are bound to happen, with consequences that can be devastating. The object of this paper is to study the pattern of skeletal injuries in children caused by Beach uggly accidents and to suggest possible preventive strategies.

Methods:

The records of children less than 16 years old who attended accident emergency department of Ahmadi Hospital during period of 3 years (2001 – 2003) with beach buggy related injuries were studied. The following parameters were recorded: age, sex, cause of injury, site and type of fracture or dislocation and associated injuries.

Results:

A total of 350 children were seen in the accident emergency department with wide range of injuries ranging from minor soft tissue bruises to fractures, dislocations and severe head injuries. Male to female ratio was 4:1. Children between 5 to 10 years were found to be most at risk. High speed was found to be main cause for all the accidents. There were 138 of fractures (49%) of which 45 (32%) required hospitalization. Extremity injuries (41%) were the most frequent than the axial skeletal injuries (1.7%). Upper limb fractures were more common (76%) than lower limb fractures (24%). Dislocations were relatively uncommon (2.8%). There were 9 cases of head injuries.

Conclusions:

There is no simple way to stop such accidents; however the following

measures may help to prevent such unnecessary and sometimes devastating injuries. This includes traffic rules and safety measures enforcement. Increase awareness among the parents to the need for safety measures when using buggy.

Key Words: *Pediatric injuries; Beach buggy; Traffic injuries;*
Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

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Symptomatic pleural effusions after coronary artery bypass grafting requiring intervention

Ayed AK^{1,2}, *Sakran C², Bazerbatchi S²

¹ Department of Surgery, Kuwait University, Faculty of Medicine;² Department of Thoracic

Surgery, Chest Diseases Hospital, Kuwait

Introduction:

The explanation for pleural effusion after cardiac surgery is unclear. The aims of the study were to identify the risk factors for pleural effusion after coronary artery bypass graft (CABG) and to describe pleural fluid analysis.

Methods:

Four Hundred and twelve patients underwent CABG at our hospital from June 2003 to June 2004. Data were prospectively collected and univariate/multivariate analysis conducted.

Results:

Fifty-one patients (12.4%) suffered significant pleural effusion. Univariate analysis showed a higher risk profile in the pleural effusion group including longer cardiopulmonary bypass time, longer aortic cross clamp time, diabetes mellitus, female gender, and higher 24 hours blood loss ($p < 0.05$). Furthermore, the pleural effusion group had longer intubation time (33.8 ± 60.8 hours vs. control 8.4 ± 17 hours, $p = 0.005$), and longer ICU days (6.3 ± 9.4 days vs. control 2.1 ± 1.7 days, $p = .003$). Multivariate analysis identified 3 risk factors ICU days (OR=1.3), 24 hours blood loss (OR=1.2), and female gender (OR=4). Early effusions (< 3 weeks after CABG) occurred in 34 patients (67%) and late effusions (>3 weeks) developed in 17(33%). Early effusions were bloody with a high WBC, polymorphs, LDH, and C-reactive protein, whereas late effusions were serous with predominant lymphocytes. Recurrence after drainage in early group was 15% (5 of 34) while in the late group was 65% (11 of 17), $p = 0.002$. Pleurodesis was necessary in 7 patients in late group and 3 patients with early group.

Conclusions:

Although occurrence of pleural effusion post CABG seems mainly related to perioperative surgical variables, do not seem to independently influence pleural effusion rate. Characteristics of early and late effusions differ significantly, suggesting a different pathogenesis. Resolution of late effusion may require pleurodesis.

Key Words: *Pleural effusion; Coronary artery bypass grafting; Pleurodesis;*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

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Orbital infections secondary to sinusitis: diagnosis and management in Kuwait

* Brook A¹, Kabakchiev P¹, Varkki Z¹, Al Adwani M², Salem A³
Departments of Otorhinolaryngology(1), Radiology², Ophthalmology³, Al Jahra Hospital,
Kuwait.

Introduction:

The orbit shares thin and often dehiscent bony walls with all the paranasal sinuses. Orbital infection (OI) has been the most common complication of sinusitis. Antibiotherapy with or without surgery has been the mainstay of treatment. Subperiosteal orbital abscess (SPOA) is drained via the transnasal endoscopic (TNE) or an external approach. The choice usually depends on the training and experience of the treating surgeon. If untreated, OI can result in fatal intracranial complications or blindness. The present retrospective study is undertaken to evaluate the clinical picture and management of orbital infections secondary to sinusitis (OISS).

Methods:

Records of patients with OISS treated at Jahra Hospital between 1996 and 2004 were reviewed. The standard demographic data, clinical, radiologic and endoscopic evidences as well as the surgical procedures were noted.

Results:

Total patients=9 (M=5, F=4). The age distribution was between 4 and 32 years. Four patients had medially based SPOA secondary to ethmoid sinusitis. The other five included two preseptal abscesses (PA) and three periorbital inflammations. All patients received intravenous antibiotics. The abscesses were all surgically drained. Two of the SPOA were treated by TNE drainage while the other two required an external hmoidectomy. One required a second drainage, as there was a concurrent PA. Microbiology detected four cases of polymicrobial and two single-species infections. There were no intracranial complications.

Conclusions:

Clinical awareness remains the key for proper diagnosis and timely

surgery. Surgical intervention is required for patients with worsening visual acuity, restricted gaze, progressive proptosis or infection unresponsive to medical treatment. The importance of multidisciplinary approach is underscored. Such principles are no less important to ensure excellent results.

Key Words: *Sinusitis; Orbital infection; CT Scan;*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

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Profile of Patients treated with Photodynamic Therapy For Age Related Macular Degeneration At King Khaled Eye Specialist Hospital

* Bouhaimed MM^{1,2}, Nowilaty SR², Abboud EB², Harthi E², Dhibi H², Kahtani E

², Johnston M² Robaie M², Bantan I²

¹ Department of Surgery and Community medicine, Kuwait University Faculty of Medicine;

² King Khaled eye Specialist Hospital, Riyadh -Saudi Arabia

Introduction:

Subfoveal choroidal neovascularization (SFCNV) secondary to age related macular degeneration (AMD) is a devastating complication. The benefit of photodynamic therapy (PDT) with verteporfin for selected cases was demonstrated in randomized clinical trials for eyes with initial visual acuity (VA) levels of 20/200 or better, and absence of associated retinal pathology in a study by "The Treatment of Age-Related Macular Degeneration with Photodynamic Therapy study group (TAP)". The purpose of this presentation is to describe the profile of patients who present to the King Khaled Eye Specialist Hospital in Saudi Arabia with FCNV secondary to AMD and to evaluate the benefit of PDT in this population.

Methods:

Records of all patients with AMD who underwent PDT for SFCNV from December 2000 to November 2003 were reviewed retrospectively for age, duration of symptoms, baseline visual acuity (VA) and associated ocular and systemic pathology

Results:

Seventy-three eyes of 68 patients with AMD and SFCNV were identified. Mean age at presentation was 73 yrs; 52% of patients presented with symptoms of more than 3 months' duration. On presentation, 58% of the study eyes had VA < 20/200; in this subgroup, 30% of the fellow eyes had VA below 20/200. Thirteen of the 73 (17.8%) eyes had diabetic retinopathy. After PDT, 72% of eyes with VA <20/200 retained their visual acuity levels; 23% of eyes improved by 1 line and 5% had further

VA loss.

Conclusions:

Patients with SFCNV secondary to AMD in KKESH often present late, with low levels of VA, associated retinal disease and/or poor vision in the fellow eye. Preliminary results suggest that PDT may stabilize VA, but whether PDT alters the quality of vision and life, and proves to be cost effective in this clinical scenario needs further studies

***Key Words:** Photodynamic Therapy (PDT); Choroidal Neovascular Membrane; Ophthalmology;*

***Funding Agency:** King Khaled Eye Specialist Hospital*

Surgery and Transplantation

Category: Clinical

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Successful treatment of leaky corneal lacerations using aqueous suppressants alone

Behbehani J, Kazem M, Uboweja A, Balamurugan R
Department of Ophthalmology, Al-Adan Hospital - Kuwait

Introduction:

Corneal laceration is a common ophthalmic emergency. The conventional treatment involves surgical repair of the wound which is often done under general anesthesia. We report 25 consecutive eyes with full thickness corneal lacerations which all were successfully treated with aqueous suppressants.

Methods:

Twenty five consecutive eyes with traumatic full thickness corneal laceration that were non-branching, linear and confined to the cornea with no foreign body or iris incarceration were prospectively followed for a period of 5 to 32 months. Full thickness lacerations ranged from 2 to 4 mm. All the cases were treated using a combination of oral acetazolamide, topical timolol maleate, and topical brimonidine as aqueous suppressants. In all the cases the anterior chamber reformed within 24 hours and the Seidel test became negative within 36 hours.

Results:

All the cases were successfully treated using aqueous suppressants alone without the need for surgical intervention. No untoward complications were reported.

Conclusions:

Selective cases of full thickness corneal lacerations up to 4 mm long could be safely and effectively treated using aqueous suppressants alone. This method would avoid the complications of surgical intervention including irregular astigmatism and suture-related infectious keratitis as well as the need for general anesthesia.

Key Words: *Corneal laceration; Aqueous Suppressants; Irregular Astigmatism;*

Funding Agency: *None*

Surgery and Transplantation

Category: Clinical

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Beneficial effects of ketogenic diet in obese diabetic subjects

Dashti H^{1,2}, Al-Mousawi M³, Mathew TC^{2,4}, Talib H³, Asfar SK¹, Behbahani AI¹

and Al-Zaid NS⁵

Departments of Surgery¹, Anatomy² and Physiology⁵, Faculty of Medicine and Faculty of

Allied Health Sciences⁴ Kuwait University, Kuwait. Primary Health Care Salmeiah and Shaab

Clinic³

Introduction:

Obesity is closely linked to the incidence of type II diabetes. High blood glucose level leads to complications of vasculopathy, retinopathy, nephropathy, neuropathy and cardiomyopathy. The management of the obese diabetic patient involves changes to nutritional habits especially with regard to the carbohydrate content and glycaemic index of the diet. In this study the effect of ketogenic diet in obese subjects with high blood glucose level is compared to those with normal blood glucose level for a period of 56 weeks.

Methods:

In this study, 64 healthy obese subjects with body mass index (BMI) greater than 38, having blood glucose level greater than 6.1 mmol/l (Group I) and those subjects with normal blood glucose level (Group II) were selected. The body weight, body mass index, blood glucose level, total cholesterol, LDL-cholesterol, HDL-cholesterol, triglycerides, urea and creatinine were determined before and at 8, 16, 24, 48 and 56 weeks after the administration of the ketogenic diet. In this study a control population on a low fat diet was not included.

Results:

The body weight, body mass index, the level of blood glucose (7.7 mmol/L ± 0.4 SEM; 4.8 ± 0.1), total cholesterol (6.1 mmol/L ± 0.2; 4.8 ± 0.1), LDL cholesterol (4.6 mmol/L ± 0.2; 3.1 ± 0.1), triglycerides (3.2 mmol/L ± 0.3 SEM; 0.9 ± 0.02) and urea (5.7 μmol/L ± 0.1; 4.7 ± 0.1) showed a significant decrease from week 1 to week 56 (p < 0.0001)

whereas the level of HDL cholesterol ($1.1\text{mmol/L}\pm 0.04\text{SEM}$; 1.6 ± 0.03) increased significantly ($p<0.0001$). Interestingly these changes were more significant in Group II subjects as compared to Group I. The changes in creatinine level were not significant.

Conclusions:

This study shows the beneficial effects of ketogenic diet in obese diabetic subjects following its long term administration. Furthermore, it demonstrates that in addition to its therapeutic value, low carbohydrate diet is safe to use for a longer period of time in obese diabetic subjects.

Key Words: *Obesity; Diabetes; Ketogenic diet;*

Funding Agency: *None*

Surgery and Transplantation

Category: Basic Sciences

277: Moderated

Drinking green tea reduces the effect of ischaemia/reperfusion injury on the intestinal mucosa

Abdeen S¹, Mathew TC³, Dashti H^{2,3}, Mathew K², Akhtar N¹, Jacob S³,
Asfar

S²

Departments of Pathology¹, Surgery² and Anatomy³. Faculty of Medicine,
Health

Science Center, Kuwait University

Introduction:

The intestinal mucosal barrier is known to be adversely affected by fasting, surgical stress, hypotension and hypoxia. Previously we have shown that green tea protects the intestinal mucosa from fasting induced amage.

Aim: To study the effect of green tea ingestion in modulating the effects of ischaemia/reperfusion (I/R) injury on the intestinal mucosal barrier.

Methods:

Male Wister rats (250-300 gm) were used (9/group). Group I (control, IR): Animals were anaesthetised and the abdomen opened. Ischaemia to the abdominal organs was induced by clamping the aorta above the celiac artery. After 30 minutes, the clamp was removed and reperfusion of the organs was allowed for an hour, following which the jejunum was removed and processed for istopathological examination. Group II (green tea + IR): Two weeks before the experiments, the drinking water of these rats was replaced with green tea solution. On day 15, I/R injury was induced. Group III (sham control). To understand the mucosal damage, histopathologic grading was carried out as per the following criteria. The IR and pathological observations were carried out without knowing the experimental treatment of individual animals. G0: Normal intestinal mucosal villi; G1: Villous oedema + vascular congestion; G2: Fragmentation of tips of villi + haemorrhage; G3: Fragmentation and loss of upper third of villi; G4: Villi lost but crypts are present; G5: Complete mucosal necrosis. The number of microscopic fields in each grade was counted.

Results:

The intestinal mucosa was normal (G0) in the animals of group II where as the number of fields in G0 were ery few in I/R control ($p < 0.0001$). The number of fields in G1 ($p < 0.0001$) and G2 ($p = 0.004$) were ignificantly decreased in Group II as compared to Group I. G3 was very few in Group I and II and G4 was resent only in Group I. G5 was not seen in any groups.

Conclusions:

Administration of green tea protects the intestinal mucosal barrier from I/R injury.

Key Words: *Green Tea; Ischaemia/Reperfusional injury; Intestinal ischaemia;*

Funding Agency: *None*

Genetics and Molecular Biology

Category: Clinical

278

A case report -Live Birth after PGD for balanced translocation in a couple with 9 previous miscarriages

*Buzber M, Al-Sharhan M, Sarmiti R, James C, Egbase P

Department of IVF and Genetics, London Hospital , Al Fintas, Kuwait

CASE REPORT

Background:

Balanced chromosomal translocation in either partners carries an increased risk of unbalanced ametes leading to genetic anomaly in the embryos with the consequences of subfertility and ecurrent miscarriages.

Case Summary:

This is a case report of a non- consanguineous married couple with 9 previous 1st trimester miscarriages. The female partner has balanced translocation 46,XX, t (2;11) (q32;23) and the husband is normal 46, XY. The couple was recruited for IVF / ICSI with preimplantation genetic diagnosis (PGD) as all other screening investigations for recurrent miscarriage were normal. The couple under went long protocol COS, oocyte collection and ICSI. Five of the 7 oocytes fertilized with cleavage to 8 cells embryo on day 3. The embryos were biopsied. One blastomere was retrieved from each embryo and immediately subjected to FISH to detect balanced and unbalanced embryos. The lastomeres were fixed on salinated slides. FISH probes (Tel2q, Tel11q and CEP11) were applied and post hybridization washes were done according to Vysis protocol. Slides were analyzed using Olympus Bx61 fluorescent microscope. Two of the 5 embryos biopsied had anucleated blastomeres, one embryo was abnormal (trisomy for 11q) and 2 embryos were normal for Tel2q, Tel11q, CEP11. The 2 normal embryos were transferred. And beta HCG pregnancy was positive 2 weeks later. Scan performed at 7 weeks gestation revealed 2 intrauterine gestation sacs with embryonic fetal heart activity in one sac. The pregnancy progressed uneventfully with single viable fetus leading to a live birth of normal female baby at 39 weeks gestation.

Conclusion:

IVF/ICSI with PGD is the appropriate management where either of the partners of a married couple has balanced chromosomal translocation and suffers sub-fertility or recurrent miscarriages.

Key Words: ICSI; IVF; Preimplantation genetic diagnosis (PGD);

Imaging/Nuclear Medicine and Radiological Science

Category: Clinical

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External iliac artery stenosis proximal to renal graft anastomotic site causing renovascular hypertension.

Nath SDS, Al-Muhanadi S, Al-Mousawi M

Nuclear Medicine Department, Organ Transplant center, Ibn Sina hospital, Kuwait

CASE REPORT

Background:

Hypertension is very common in recent transplant recipients & is a significant risk factor for mortality from cardiovascular disease & development of graft dysfunction. Stenosis of iliac segment proximal to the transplant renal artery is an uncommon cause of graft dysfunction & hypertension.

Case Summary:

65yr old male patient who had a renal transplant four month back from live related donor presented with uncontrolled hypertension & deterioration of renal function. Incidentally his creatinine levels shot up after he was put on ACE inhibitors. Captopril scan done showed marked deterioration in the function and curve pattern which was normal in the baseline study. Angiogram done showed right external iliac artery narrowing above the anastomotic site. There was also 70% stenosis of right common iliac artery. The patient was treated with angioplasty and stenting . He responded well with therapy and his dose of anti-hypertensive drugs were reduced gradually. Follow up renogram performed with captopril was normal.

Conclusion:

Captopril renography is a valuable tool for diagnosis& follow-up for this type of vascular lesion. Selective treatment with percutaneous transluminal angioplasty or surgery improves kidney function & hypertension.

Key Words: Reno vascular hypertension; Captopril renogram; Angioplasty;

Imaging/Nuclear Medicine and Radiological Science

Category: Clinical

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Rarest - Neonatal retropharyngeal candidal abscess (RPA)

*Sontenam VSM, Al-Adwani M, Bharati C

Dept of Radiology

Al Jahra Hospital

Kuwait

CASE REPORT

Background:

Candidal Retropharyngeal abscess is very rare to occur in early neonates, more so as a cause of cyanosis or airway obstruction. The abscess occurs due to oral or upper respiratory tract infections, acquired from birth canal or from unsterile neonatal care.

Case Summary:

A female healthy baby of 3.5kg weight, delivered normally at full-term, was presented with two attacks of cyanosis and stridor at 1 hour of age. Subsequently at the end of 1st week she had extensive oral candidiasis and was found to develop similar attacks of cyanosis & stridor on supine position and comfortable on prone. Radiological investigations like Neck X ray, Ultrasound and CT scan neck revealed thickwalled abscess with air fluid levels appx. 37x28x20mm size in the retro and left parapharyngeal region causing displacement and compression of air way. US guided aspiration yielded greenish yellow pus which on culture grown *Candida albicans*. Blood test revealed candidal antigen 1:2 by latex agglutination test and leucocytosis. The baby improved with anticandidal and antibiotic therapy in 2wks with no further attacks of cyanosis / stridor. Follow up CT scan showed resolving, collapsed abscess with opening of airway. RPA of bacterial origin were reported in late neonates with staphylococci as main causative organism. No case of retropharyngeal abscess of Candidal origin in early Neonates was reported. A 35 year review in USA and 10 yr review in Australia showed 55% affected children were less than 3 yrs old and the mortality from complications like mediastinitis was 50%.

Conclusion:

It is wise to think of rarest etiologies of airway obstruction and cyanosis in newborns in addition to routine cardiac & noncardiac factors, as early diagnosis and aggressive therapy is mandatory in RPA to save the precious babies from life threatening complications.

Key Words: Neonate; RPA; Candida;

Imaging/Nuclear Medicine and Radiological Science

Category: Clinical

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Percutaneous Aspiration of Hepatic Hydatid Cyst.

Uznov G, Chandramouli B, Al-Adwani M
Department of Radiology, Al Jahra Hospital.
Jahra, Kuwait.

CASE REPORT

Background:

Percutaneous aspiration of hepatic hydatid cysts is a relatively new procedure. We presents a case of percutaneous aspiration with scolicedal therapy of hydatid cyst.

Case Summary:

A 23-year old pregnant lady, gravida-1 in 24 weeks of gestation presented with acute onset of right hypochondrial pain, pyrexia and leucocytosis. On examination there was tenderness in the right hypochondrium and a sonar revealed a unilocular cystic lesion in the right lobe of the liver, a segment of the cyst showing partial separation of membranes. No obvious daughter cysts were noted. The cyst was aspirated following which the patient improved symptomatically and then a 8F catheter was inserted into the cyst, followed by injection of 20% hypertonic saline for scolicedal therapy in several sittings. Followup sonar revealed collapse of the cyst. The treatment of asymptomatic, uncomplicated hydatid cysts is mebendazole/albendazole therapy, which is effective in less than 50% of patients. Surgical treatment is advocated in cases where the cysts are symptomatic/infected/ruptured. In the present case where the patient was pregnant the above modalities could not be resorted to and percutaneous aspiration was attempted. The risk of anaphylaxis is about 0.5-1% and can be avoided by premedication with steroids and spillage of the cyst contents into the peritoneum is avoided by choosing a pathway through intact liver tissue. The fluid aspirated using a 22G needle can be sent for analysis of the laminated membranes and scolices. Scolicedal therapy can be carried out by injection of scolicedal agents like 20% hypertonic saline solution or 90% alcohol solution.

Conclusion:

Percutaneous aspiration is a safe alternative to surgery in selected cases of hydatid disease.

Key Words: Percutaneous Aspiration; Hydatid Cyst; Scolicedal Therapy;

Imaging/Nuclear Medicine and Radiological Science

Category: Clinical

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CT evaluation of congenital choanal Atresia

*Petkovska L, Ramadan S, Ovais AM, Ashebu SD

Department of Radiology, Al-Adan Hospital

CASE REPORT

Background:

Congenital choanal atresia is the developmental failure of the nasal cavity to communicate with the nasopharynx. The aim of this study is to report the CT findings in congenital choanal atresia.

Case Summaries:

Six (6) cases of the patient with choanal atresia are included in the study. Computed Tomography (CT) scan of the nasal cavity and nasopharynx was performed (with slice thickness of 2 mm) for diagnosis, extent and type of atresia. During the last 3 years (2001 – 2004), congenital choanal atresia was diagnosed and retrospectively analyzed in 6 patients. The clinical symptoms were airway distress on failure to feed in the newborns and nasal obstruction and rinorhea since birth in the infants. A total of 6 patients with choanal atresia 5 females, 1 male, age range from 2 days to 3 years. The choanal atresia was unilateral in 2 cases (33%) and bilateral in 4 (67%). As a membranous for 2 patients (33%), osseous patient (17%) and mixed for 3 (50%). Bilateral congenital atresia in the neonate is a medical emergency that should be treated as early as possible.

Conclusion:

CT is used as a diagnostic tool for choanal atresia as it is able to defines anatomical abnormality, extend and type of atresia

Key Words: Congenital; Choanal atresia; CT Scan;

Imaging/Nuclear Medicine and Radiological Science

Category: Clinical

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Moyamoya disease in Kuwait, Magnetic Resonance Imaging findings

*Fawzia H¹, Khalida B², Al-Hajri F³

¹ALAdan Hospital, Radiology department, ²ALSabah Hospital, Radiology department, ³Mubarak ALKabeer Hospital, Radiology department

CASE REPORT

Background:

Moyamoya disease is a unique occlusive disease of the bilateral internal carotid arteries (ICAs), with rich arterial collaterals at the base of the brain. It is seen mainly in Japan and has been reported in Caucasians. Arteriography has been Traditionally regarded as essential for a definite diagnosis of moyamoya disease. However, it carries an appreciable morbidity and mortality articularly when performed on acutely ill patients. Magnetic resonance imaging (MRI) has been roposed as the first line investigation in cases of suspected moyamoya diseas.

Case Summaries:

In this study, three Kuwaiti patients with moyamoya disease are presented to demonstrate MRI radiological findings and illustrate the value of MRI in the diagnosis of moyamoya disease. Methodologies: Three patients aged 4-13 years suffering from seizures (n=1) and stroke (n=2) were referred to MRI section. All MRI studies were performed using 1.5Tesla GE machine. T1 and T2WI were obtained in all cases. Mrangiography (MRA) images using 3 dimension time of flight (3DTOF) technique of cerebral circulation were obtained Results: T1 and T2WI showed multiple cerebral infarcts involving both cerebral hemispheres there was no cerebral haemorrhage. MRA images clearly stenosis or occlusion in the supraclinoid portion of the ICA and in the proximal portion of the anterior and posterior cerebral arteries bilaterally. stenosis of the posterior cerebral vessels was depicted in two patients. Basal collateral vessels were depicted successfully in all cases.

Conclusion:

This study presented the largest population of Kuwaiti patients with moyamoya disease. MRI is an ideal study as screening test for patients with moyamoya disease.

Key Words: Angiography; Magnetic resonance imaging (MRI); Moyamoya Disease;

Imaging/Nuclear Medicine and Radiological Science

Category: Clinical

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Neurological compromise in extramedullary hematopoiesis

Haidar S¹, Ortiz-Neira¹, Shelef CL¹, Hitzler JI¹, Oliveri N¹, Shroff M^{1,2},
Blaser S^{1,2}

¹Diagnostic Imaging department, Hospital of Sick Children in Toronto

²University of Toronto

CASE REPORT

Background:

Pictorial demonstration of the intracranial and intraspinal neuroimaging of involvement by extramedullary hematopoiesis.

Case Summaries:

Three patients were identified from the hospital radiology data base system with CNS extramedullary hematopoiesis. One patient had intracranial and paraspinal involvement and 2 had para- and intraspinal involvement without intracranial involvement. Other associated findings such as pulmonary hemosiderosis, calcified spleen, and bony changes were present. Multiple diagnosis modalities such as plain film, 3d CT scan, ultrasound, MRI And Technetium 99 sulfur colloid scan will be shown. Patient 1 is an eight and a half year old female with myelofibrosis who initially presented with anemia and has since then progressed to pancytopenia. She presented for cranial imaging due to headaches. She is on a regular red cell transfusion program. CT & MRI as well as sulfur colloid scan were positive for intracranial involvement of extramedullary hematopoiesis. The other two patients had imaging documentation of intraspinal deposits of extramedullary hematopoiesis.

Concluision:

Intracranial extramedullary hematopoesis is rare but has been reported in multiple etiologies. We show one case and demonstrate para- spinal involvement in that case and intraspinal involvement in 2 other patients. We demonstrate CNS features and in addition, extra CNS features which may suggest the diagnosis or confirm it.

Key Words: Extramedullary Hematopoiesis; Meningeal involvement; CTI;

Imaging/Nuclear Medicine and Radiological Science

Category: Clinical

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Four corners: incidental discovery of a malignant peripheral nerve sheath tumour (MPNST)

*Austin ML, Al-Adwani M, Reddy MS
Department of Radiology, Jahra Hospital, Kuwait.

CASE REPORT

Background:

We are taught from student days never to ignore the four corners of a radiograph. Here, we report the “corner discovery” of a pelvic MPNST on an MRI of the lumbar spine. MPNST is a rare and highly aggressive retroperitoneal tumor. It has a high incidence of recurrence and metastases.

Case Summary:

A 65 year old man presented with few months history of increasing back pain and lower limb tingling with numbness associated with weight loss. Two previous MRI of lumbar spine were reported normal. He had been undergoing physiotherapy without symptomatic relief. Plain radiograph of the lumbar spine showed wedged sclerotic L1 vertebra. MRI of the lumbar spine showed altered signal of L1 vertebra with contrast enhancement suggesting vertebral metastasis. On the lower corner of the images, the edge of an enhancing mass was noted. Extended scanning of the pelvis showed a large, 7x6 cm, well-marginated, presacral enhancing mass with necrotic centre. This mass appeared to be hanging on a pedicle like an apple on a tree. The possibility of a neurogenic tumor or soft tissue sarcoma was raised. CT guided biopsy confirmed diagnosis of MPNST. MPNST, popularly called malignant schwannoma, is a rare, highly malignant lesion. It accounts for 5% of retroperitoneal malignancies, 5–10% of sarcomas and 2-12% of nerve sheath tumors. Malignant change in a schwannoma is rare, being less than 5 %, and is usually seen in Von Recklinghausens Disease (NF-1), or after radiotherapy. Excision of the tumor is the treatment of choice. Because of poor response to chemotherapy and radiotherapy, recurrence and metastases occur as late as 5–10 years after treatment in 50–80% of cases.

Conclusion:

Current imaging modalities have opened up the human body to the astute and alert radiologist who may primarily solve a clinically undetectable pathology.

Key Words: Corners; MPNST; MRI;

Imaging/Nuclear Medicine and Radiological Science

Category: Clinical

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Partial intrathoracic herniation of stomach into the posterior mediastinum in an infant.

Negi VC, Austin L
Dept. of Radiology
Al Jahra Hospital

CASE REPORT

Background:

Hiatus hernias posing as a posterior mediastinal mass are rather uncommon in the pediatric population. We therefore present such a case where a hernia presented as a mass on the routine radiograph.

Case Summary:

A 4 month old boy presented with chest pain cough, cyanosis and respiratory distress. Plain radiograph revealed retrocardiac lobulated opacity extending below the dome of diaphragm, on the right side suggested posterior mediastinal mass. CT showed a large cystic mass with enhancing smooth wall in the posterior mediastinum mainly in the right paraspinal region, extending cranially up to the subcarinal region and caudally contiguous with stomach. Partial Intrathoracic herniation of stomach was confirmed by upper GI barium study. Oesophageal hernia in the paediatric population are usually small and may be seen with or without gastro esophageal reflux and may be of no clinical significance in the absence of GER. Larger hernias are usually associated with symptoms but are uncommon (0.2%). Partial or complete intrathoracic herniation of stomach is extremely rare. On CT, oesophageal hiatal hernia appears as fluid containing mass contiguous with the oesophagus and gastric fundus. If diagnosis is not clear on CT examination performed for the evaluation of thorax administration of contrast material permits the correct interpretation. Obviously barium esophagogram not CT, is the radiologic procedure of choice for the corroboration of diagnosis if question arises on a chest radiograph.

Conclusion

The findings of a large cystic mass in the posterior mediastinum in the paediatric age group should include Hiatus Hernia in the differential diagnosis.

Key Words: CTScan; Hiatus hernia; Stomach;

Imaging/Nuclear Medicine and Radiological Science

Category: Clinical

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Appendicular mucocele: a case report

*Aghahowa E, Al-Adwani M, Bharati M

Dept of Radiology

Al Jahra hospital

CASE REPORT

Background:

Appendicular mucocele is a rare lesion. Its' prevalence at appendectomy specimens is 0.2- 0.3%.

Case Summary:

26yr old male presented with a mass in the right lower abdomen. The patient had felt the mass 2 onths prior to presentation, and this mass had been increasing in size. He had fever at the onset, hich had now abated. There was no change in bowel habit. On palpation, there was a firm, mildly ender mobile mass in the right iliac fossa. His blood counts were normal. Sonogram showed a ystic mass with internal echoes within and a mural nodule in the right iliac fossa. On CT, it was a ell encapsulated ovoid mass, medial to the caecum with curvilinear mural calcification and nodule nd showing enhancement of its' wall. A radiological diagnosis of appendicular mucocele was ade. Surgery confirmed this diagnosis. The caecum, terminal ileum and mesentery were normal and here was no evidence of infection. Appendicular mucocele is a grossly dilated appendix filled withucus. The cause usually is obstruction of the lumen by appendicolith, carcinoid, endometriosis or dhensions. Occasionally it is associated with mucinous cystadenoma due to hyperplasia with ithelial atypia. The common presentation is a mass in the right iliac fossa. Less commonly, it is ymptomatic. It is seen as a cystic mass, usually with internal echoes, with or without mural alcification. CT shows a paracaecal mass with homogenous soft tissue/near water attenuation, with or without rim calcification and contrast enhancing wall. Complications are that there is a 6fold risk of colonic adenocarcinoma, rupture leading to pseudomyxoma peritonei, intussusception and torsion. Treatment is surgical resection.

Conclusion: Mucocele is to be considered in the differential of RIF mass and CT is imperative in the correct pre-operative diagnosis.

Key Words: Appendix; Mucocele; CT;

Medicine

Category: Basic Sciences

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Loss of seizure control due to anticonvulsant-induced hypocalcemia

Ali FE, * Al-Bustan MA, Al-Busairi WA, Al-Mulla FA

Kuwait University, Faculty of Medicine

CASE REPORT

Background:

Hypocalcemia, regardless of the etiology, can induce reactive symptomatic seizures. To report a case of loss of seizure control due to hypocalcemia resulting from long-term treatment with enytoin and Phenobarbital.

Case Summary:

A 32-year-old mentally retarded man presented with a 12-month history of loss of seizure control, after being seizure-free for 5 years on a fixed regimen of Phenobarbital and phenytoin. He had been institutionalized at the age of 10 years and had received anticonvulsant drugs since he was diagnosed with tonic-clonic epilepsy 20 years ago. On investigation, serum concentrations of the anticonvulsant drug were within the therapeutic range, indicating adequate medication dosages. Serum biochemistry was consistent with vitamin D deficiency: hypocalcemia, reduced 25-hydroxyvitamin D, increased alkaline phosphatase, and increased parathormone. Seizure control was regained after serum calcium had been normalized with administration of vitamin D and calcium.

Conclusion:

Antiepileptic drugs (AEDs) cause vitamin D deficiency through induction of hepatic microsomal enzymes that metabolise vitamin D. Institutionalized subjects are more vulnerable because of the added factors of multidrug therapy, poor diet, and reduced exposure to sunlight, and physical inactivity. The resulting hypocalcemia can cause reactive seizures, thus offsetting the anticonvulsant action of the drugs. An objective causality assessment revealed that the adverse reactions of both Phenobarbital and phenytoin were probable.

Key Words: Anticonvulsants; Hypocalcemia; Vitamin D;

Medicine

Category: Clinical

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A common presentation (Abdominal pain) of a rare pathology (Atrial Myxoma).

*Khan HA, Sulaiman AH, Hamdan R, Al-Asoousi A.

Cardiology unit, Dept of Medicine, Al-Jahra hospital, kuwait

CASE REPORT

Background:

Abdominal pain is a very common presentation in any emergency room of a hospital, but its etiology being an underlying atrial myxoma is rare. The awareness of such an occurrence, when kept at the back of the mind, in certain clinical combinations can make the diagnosis come through easily.

Case Summary:

A 65 years old lady presented with abdominal pain, associated with vomiting, coming intermittently 10 days prior to admission. There were spontaneous improvements but the last one was more severe and prolonged. She was admitted as acute abdomen to the surgical ward. While being investigated she developed an ischaemic type chest pain, with the ECG showing an acute Inferior MI. At around the same time she also had evidence through U/S abdomen and CT of an Ischaemic bowel (mesenteric artery thrombosis). She developed hypotension. The next dilemma was to thrombolyse or not. At this point an echocardiography done made matters easy when we detected a large oscillating left atrial myxoma, moving freely through the mitral valve and showing a shaggy border. This explained the complete picture where the patient's earlier to admission recurrent abdominal pains (smaller emboli dislodgment) and then the coronary artery emboli are causing the STEMI and finally the larger emboli causing the mesenteric artery problem. We will be presenting the course of events chronologically and the Echo pictures of the myxoma will be demonstrated. She was operated under high risk with bowel resection done; she had a stormy post operative course but ultimately recovered and was transferred to the chest diseases hospital for the myxoma resection.

Conclusion:

The lesson learnt from this patient was in clinical situations where an echocardiography is arranged it should not be delayed as it may yield at times very unexpected but useful information.

Key Words: Abdominal pain; Atrial myxoma; Echocardiography;

Medicine

Category: Clinical

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Myocarditis – unusual features

Hayat N

Faculty of Medicine, Kuwait University and Cardiology Division, Chest Diseases Hospital, Ministry of Health, Kuwait

CASE REPORT

Background:

Myocarditis is the end result of a heterogeneous group of conditions which cause inflammation of myocardium leading to myocardial dysfunction and may be responsible for morbidity and reduce life expectancy.

Case Summary:

We report an unusual case of Myocarditis in a 53 years old Kuwaiti female, presented with prolonged chest pain. No abnormality was detected on clinical examination. 12 leads electrocardiogram revealed normal sinus rhythm with T wave abnormalities and premature ventricular ectopics. Chest X ray examination was found normal and Echocardiography on admission showed regional wall motion abnormality. Initial Cardiac enzyme results were not impressive of myocardial ischemia or infarction. An immediate cardiac catheterization revealed normal coronary arteries. Ventriculargraphy showed a definite regional wall motion abnormality with an akinetic apex and mildly depressed LV function. She was treated with captopril, metoprolol and anti coagulants. During follow up all symptoms subsided, electro cardiographic tracings normalized and no abnormality was found on clinical examination. The serial echo cardiograms taken during the follow up period showed complete disappearance of regional wall motion abnormality and normal Left Ventricular function and no pericardial effusion.

Conclusion:

Features of prolonged chest pain with non specific ECG changes and non impressive borderline elevation of cardiac enzymes could occur as a part of diagnosis and fortunately our patient recovered completely.

Key Words: Myocarditis; Chest pain; Wall motion abnormality.

Medicine

Category: Clinical

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Jervell and Lange-Nielsen syndrome treated with implantable defibrillator: a case report

Shukkur AM, Al-Sayegh A, Al-Kandari F, Mousa A, Hayat N, Khan N
Chest Diseases Hospital, Cardiology Division, Ministry of Health and Faculty of
Medicine, Kuwait University

CASE REPORT

Background:

Jervell and Lange-Nielsen syndrome is extremely an uncommon condition; characterized by bilateral congenital sensory neural deafness prolonged QTc interval on the electrocardiogram, recurrent syncopal episodes and sudden death from ventricular arrhythmias.

Case Summary:

We present a case report of long QT syndrome in a 13 year old boy with bilateral deafness and recurrent syncope. No signs of heart disease could be detected by physical examination, x-ray examination or echo doppler study. Dual chamber automated internal cardioverter-defibrillator was implanted for protection from sudden death and support heart rate with large dose of beta blocker. Patient did not have any sustained ventricular tachycardia yet from the review of implantable cardioverter-defibrillator memory.

Conclusion:

Automatic implantable cardioverter defibrillator is one of the prophylactic measures for reduction of sudden cardiac death.

Key Words: Long QT syndrome; Recurrent syncope; Bilateral deafness.

Medicine

Category: Clinical

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Myocardial infarction and ventricular fibrillation induced by severe coronary spasm, treated with coronary stent and implantable defibrillator

Al-Sayegh A*, Shukkur AM, Hayat N, Al-Akbar M, Khan N, Zubaid M
Cardiology Division, Chest Diseases Hospital, Ministry of Health
and Faculty of Medicine, Kuwait University

CASE REPORT

Background:

Coronary artery spasm has been shown to play an important role in the pathogenesis of acute coronary syndrome. Serious complications can develop such as myocardial infarction, ventricular arrhythmias, atrioventricular block and sudden death.

Case Summary:

A 65 year old Kuwaiti gentleman suffered an inferior wall MI. Ten days later he presented with an episode of acute coronary syndrome complicated by ventricular fibrillation. Coronary angiography reportedly normal and the spasm was considered a possibility. Repeat coronary angiography during an episode of inferior wall MI showed severe coronary spasm of proximal RCA that was resolved completely with IV nitroglycerine. Right coronary artery was stented successfully. Two days later an automatic implantable defibrillator cardioverter (AICD) was implanted since the spasm occurred relatively in healthy segment. RCA remained angiographically and clinically patent. Clinical follow-up was unremarkable.

Conclusion:

Although patients with coronary spasm generally respond to medical treatment, occasionally some cases may be refractory to medical treatment. In such circumstances coronary stent and AICD may represent adjunct in the management of carefully selected patients with coronary spasm.

Key Words: Ventricular fibrillation; Coronary spasm; Stenting and implantable Defibrillator.

Medicine

Category: Clinical

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Interferon induced cardiomyopathy

Al-Fayed H, Zubair S, Al-Azzah D

Ahmadi Hospital

CASE REPORT

Background:

Cardiomyopathy is a disease of the heart muscle. Cardiomyopathies are three types dilated, obstructive and restrictive. Dilated cardiomyopathy has different etiologies. It is characterized by cardiac enlargement and impaired systolic function of one or both ventricles.

Case Summary:

We present a case of a 48 year old lady who was admitted to the hospital with complaints of pruritus, skin rash with swelling of the lips and face of 2-3 days duration. She did not have any cardiac symptoms or signs and her ECG was normal. She is known case of chronic hepatitis C infection and she does not suffer from any other illnesses. She was on treatment with interferon alpha 2a 3 times/wk and ribavirin since 3 years. Due to lack of response, interferon was changed to Peg-interferon. She took only two injections and her last injection was 1day prior to her admission. Six hours after admission she suddenly developed left ventricular failure. Echocardiogram showed dilated left ventricle with a left ventricular ejection fraction of 25% and evidence of cardiomyopathy. She was given the appropriate treatment and corticosteroids were added on the assumption that this cardiomyopathy is drug-induced (Peg-interferon). She recovered dramatically and few weeks later a repeat echocardiogram showed a normal ejection fraction and normal left ventricular size.

Conclusion:

The differential diagnosis of this case is cardiomyopathy induced by either Peg-interferon or by the hepatitis C virus. Due to the recent change in the type of interferon and the rapid response to the treatment including steroids, we are in favor of interferon-induced cardiomyopathy. Drug induced cardiomyopathy is a rare condition but this report would contribute to increase the awareness of internists in Kuwait regarding this reversible cause of heart failure.

Key Words: Drug; Cardiomyopathy; Interferon.

Medicine

Category: Clinical

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Haemophagocytic syndrome in a patient with uncontrolled SLE

Bahl S, Vurgese T, Al-Shammari A

Hematology, Medicine and Nephrology Departments, Al Jahra Hospital

CASE REPORT

Background:

Reactive hemophagocytic syndrome (HPS) has been found in patients with autoimmune diseases (autoimmune associated hemophagocytic syndrome, AIHS), including SLE (acute lupus hemophagocytic syndrome ALHS). Infection associated reactive hemophagocytic syndrome may also occur in patients with SLE.

Case Summary:

A 35 years old female patient who was a known case of active SLE, Hypertension and ESRD on hemodialysis for the last eight years was admitted with acute severe pancytopenia. Her CBC parameters showed WBC count of $0.4 \times 10^9/L$, Hb of 8.8 g/dl and platelet count of $13 \times 10^9/L$. All her previous blood counts were within normal ranges. Her past records also showed positive ANA, anti-dsDNA (1:259) decreased C3 & C4, ESR 70 mmHg, positive for Hepatitis C, renal failure and normal LFTs. On investigation blood culture showed *Candida tropicalis* and EBV IgG-positive (IgM-negative). CMV was negative. Her bone-marrow examination showed mildly hypercellular bone-marrow with erythroid hyperplasia and marked hemophagocytosis. She was put on antifungal (fluconazole) therapy along with steroids and within a month all her blood parameters had recovered completely, i.e., WBC count $23 \times 10^9/L$, Hb 12.2 g/dl and platelet count of $181 \times 10^9/L$.

Conclusion:

It is important to differentiate between acute hemophagocytic syndrome associated with SLE and infection associated reactive HPS as the former responds well to steroid therapy alone.

Key Words: Systemic Lupus Erythematosus (SLE).

Medicine

Category: Clinical

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Paraparesis and pancytopenia as a first presentation of SLE

Hilal J, Behbehani AM, Al-Shammari A
Department of Medicine, Al Jahra Hospital

CASE REPORT

Background:

SLE is an autoimmune disease in which organs, tissues and cells undergo damage mediated by tissue binding autoantibodies and immune complexes. People of both genders, all ages and all ethnic groups are susceptible. The diagnosis is based on characteristic clinical features and autoantibodies and by using certain criteria.

Case Summary:

A 50 year old Saudi lady presented with two months history of weakness in lower limbs, urinary dripping, fecal incontinence. Clinically there was a proximal lower motor neuron weakness in the lower limbs, sensory loss in a saddle distribution with lax anal reflex, her bladder was palpable and dull to percussion. Investigations showed pancytopenia with hypocellular bone marrow, high ESR, polyclonal gammopathy in protein electrophoresis, positive ANA, Anti ds DNA, Anti sm and Anti histone antibodies. NCS and EMG showed mildly axonal motor and sensory polyradiculopathy. Renal and Liver functions were normal as well as serum B12 level, CSF and MRI of the spinal cord. The patient was treated with corticosteroid and showed marked improvement in her blood cell count and moderate improvement in paraparesis.

Conclusion:

SLE is a multisystem disease that has a wide spectrum of clinical presentation. Our case is an unusual presentation with polyradiculopathy and pancytopenia with hypocellular bone marrow (classically normocellular).

Key Words: Systemic Lupus Erythematosus (SLE); Paraparesis; Pancytopenia.

Medicine

Category: Clinical

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A case of steroid-dependent giant cell arteritis of multiple major vessels presenting as

a breast mass

Al-Herz AA

Division of Rheumatology, Department of Medicine,
Mubarak Al-Kabeer Hospital, Kuwait

CASE REPORT

Clinical summary: A 59-year-old lady presented two years ago with bilateral tender breast masses diagnosed histologically as giant cell arteritis (GCA). She also complained of throbbing headache in the temporal areas, muscle stiffness and lethargy. She was diagnosed with hypertension during work up of her symptoms and was put on anti-hypertensive medications. Physical examination revealed tender thickened pulsating right temporal artery, left carotid bruit and right subclavian bruit. Ultrasound Doppler showed intimal wall thickening and stenosis of the left common carotid artery, both external carotid arteries, both internal carotid arteries, both subclavian arteries and antigrade flow of the vertebral arteries. Doppler of the lower limbs was normal. She refused angiography and MRI could not be done because of claustrophobia. She was started on prednisolone 1mg/kg with a significant improvement in her symptoms. Prednisolone was then tapered down gradually. She has been maintained in remission on 5mg of prednisolone daily as she flares on further reduction.

Conclusion:

Unlike most of the cases of GCA of the breast, our case had an associated major vessel disease and she was steroid dependent. The majority of the cases of breast GCA reported in the literature had a localized disease with a spontaneous recovery. Few needed a short course of steroid. Patients presenting with GCA of the breast should be investigated for major vessel involvement and may need to be treated aggressively.

Key Words: Giant cell arteritis; Breast; Breast lump.

Medicine

Category: Clinical

297

AIDS presenting as lupus-like syndrome

Al-Herz AA

Division of Rheumatology, Department of Medicine,
Mubarak Al-Kabeer Hospital, Kuwait

CASE REPORT

Background:

Our case emphasizes the need to consider the diagnosis of HIV in the differential diagnosis of systemic lupus erythematosus (SLE).

Case Summary:

A 58-year-old Jordanian married man presented with one-year history of symmetrical polyarthritis, fatigability and alopecia. Patient denied risk factors for sexually transmitted diseases. Investigations revealed leukopenia with lymphopenia, anemia and thrombocytopenia. The ESR was 133 mm/1st hr. Creatinine was elevated and 24-hr urine had more than one gram of protein. Serology showed a positive ANA (1:160), negative anti-ds DNA antibodies, low complements and a negative rheumatoid factor. Renal biopsy showed mesangial cell proliferation with deposition of IgM and IgG on the basement membrane. The patient was diagnosed with SLE based on the ACR criteria and on the renal biopsy classical for stage II lupus nephritis. High dose steroid and azathioprine were started with a marked improvement clinically and biochemical. Persistent lymphopenia and fatigability, progressive muscle wasting and a gradual impairment in the cognitive functions, however, warranted further workup. A work up for malignancy was negative but HIV serology came back positive with an extremely high viral load. A diagnosis of AID was established and anti-retroviral therapy was initiated.

Conclusion:

SLE and AIDS can share many clinical, biochemical and serological features. The renal biopsy in lupus nephritis can also mimic HIV nephritis. Physicians treating patients with SLE should have a high index of suspicion for the diagnosis of HIV.

Key Words: Systemic Lupus Erythematosus (SLE); HIV; Lupus Nephritis.

Medicine

Category: Clinical

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First report of leprosy presenting as acute polyarthritis in the setting of type I downgrading lepra reaction

*Uppal SS^{1,2}, Al-Raquum HA², El-Abdalghani RAR², Lasheen I²

¹Department of Medicine, Kuwait University, Faculty of Medicine, Kuwait

²Department of Medicine, Mubarak Al-Kabeer Hospital, Kuwait

CASE REPORT

Background:

Leprosy is a rare cause of acute polyarthritis. We describe a case of borderline leprosy presenting with acute polyarthritis and oedema of the hands and feet. This report is unique because, firstly, leprosy is a rare cause of acute polyarthritis; secondly, acute polyarthritis is a rare manifestation of leprosy; and thirdly, acute polyarthritis has been reported only in lepra type 2 reactions occurring in lepromatous leprosy, whereas our report pertains to acute polyarthritis in the setting of type I (downgrading) lepra reaction. Furthermore, this report is of interest because Kuwait is known to have a very low prevalence of leprosy.

Case Summary:

Our patient, a 26 year old unmarried Indian male had fever, acute polyarthritis of small and large joints, swollen hands and feet, multiple annular hypoesthetic skin lesions, and markedly thickened and tender ulnar nerves. Skin biopsy showed findings of borderline leprosy, with formation of ill defined granulomas and presence of *Mycobacteria leprae* in macrophages and lymphocytes by modified Ziehl Neelsen stain. The patient was diagnosed to have borderline leprosy with acute polyarthritis due to lepra type I downgrading reaction, and treated with prednisolone 30 mg per day in divided doses, dapsone 100 mg/day, and Clofazimine (Iamprene) 100 mg/day. The swelling of hands and feet as also the arthritis gradually subsided over the next 10 to 14 days and the skin lesions became quiescent and non-erythematous. The patient has been progressing well since then, and steroids have been tapered off.

Conclusion:

This case report highlights the importance of considering leprosy among the causes of acute polyarthritis, especially in expatriates and in residents who have traveled to areas where leprosy is endemic. It should also be considered in the differential diagnosis of annular skin lesions, which our patient had. Palpation for thickened ulnar nerves can easily establish the clinical diagnosis.

Key Words: Acute polyarthritis; Leprosy; Kuwait.

Medicine

Category: Clinical

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Peripheral neuropathy due to carbon monoxide poisoning

Behbehani AM, Hilal J, Al-Shimmari A
Medical Department, Al-Jahra Hospital, Kuwait

CASE REPORT

Background:

Carbon monoxide is a gas produced by incomplete combustion of carbonaceous material. It causes impaired O₂ delivery and utilization at the cellular level. CO has its most profound impact on the organs with the highest O₂ requirement, e.g., brain and heart.

Case Summary:

We present a case of a 26 years old Indian domestic worker who was brought to hospital in Coma. His GCS was 8/15. History was not suggestive of any cause. His plantars were extensor bilaterally. He had fever of 38.0 but the rest of his vital signs, O₂ saturation, random blood sugar; ECG and CXR were all within normal limits. Arterial blood gases were normal but carboxy haemoglobin was not available. He had leukocytosis but the rest of his haematology and biochemistry tests were normal. ACT scan of the brain showed small infarcts in the left internal capsule and basal ganglia. These findings did not correlate with the clinical picture. CSF analysis was normal. An MRI scan of the brain and brainstem showed bilateral symmetrical hypodense areas in both basal ganglia consistent with CO poisoning. Patient was managed with high flow 100% O₂ and other supportive measures and made a rapid and significant progress. Permission was taken for a domiciliary visit. An indoor charcoal fire place used to warm the room was found. His LFTs and cardiac enzymes got transiently elevated but normalized rapidly. His ECG remained normal. He developed transient urinary retention which resolved spontaneously. He later on developed weakness and clawing in the right hand which clinically and on Nerve Conduction Studies was believed to be due to median and ulnar nerves peripheral neuropathy.

Conclusion:

Complications of carbon monoxide poisoning include peripheral neuropathy, which is usually confined to the lower extremities. We report a case of carbon monoxide-associated neuropathy involving the median, ulnar nerves and possibly nerves supplying the urinary bladder as well as myocardial and hepatic ischaemic injury.

Key Words: Carbon monoxide poisoning; Peripheral neuropathy; Hepatopathy.

Medicine

Category: Clinical

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Case report: lymphocytic hypophysitis

*Abdel-Hafiz HA, Fayed HM, Kabbarra H
Internal Medicine Division, Ahmadi Hospital

CASE REPORT

Background:

Lymphocytic hypophysitis is an uncommon cause of pituitary dysfunction in young females. It is characterized by lymphocytic infiltration and destruction of the pituitary gland. Clinical manifestations range from headache to features of hypopituitarism.

Case Summary:

We present 2 cases with features of lymphocytic hypophysitis. The first patient presented with symptomatic hyponatremia during late pregnancy and was found to have low serum cortisol and ACTH. She made a very good recovery with steroid treatment. The second patient presented with headache shortly before delivery. This was followed by failure to lactate and hypoglycemia post-delivery. This was associated with low serum cortisol, ACTH and IGF-1 levels. She also became completely normal following steroid replacement. MRI scans of pituitary gland were normal in both patients.

Conclusion:

Lymphocytic hypophysitis is an uncommon disorder but if it is kept in mind it can be diagnosed with increasing frequency. Treatment can give a very satisfactory response for both the patient and the physician.

Key Words: Hypophysitis; Hypopituitarism; Hyponatremia.

Microbiology and Immunology

Category: Basic Sciences

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***Cyclospora cayetanensis*: first report of infections with the gastrointestinal pathogen from the Arabian Gulf**

*Hira PR^{1,2}, Al-Ali F², Shelahi F², Khalid N¹, Iqbal J¹, deSilva A³, Eberhard M³

¹Department of Microbiology, Faculty of Medicine, Kuwait University, ²Farwania Hospital Laboratory, Kuwait, ³Division of Parasitic Diseases, Center for Diseases Control & Prevention, Atlanta, Georgia, USA

CASE REPORT

Background:

The intestinal coccidian parasites *Cryptosporidium* sp. and *Cyclospora cayetanensis* have emerged as significant human pathogens worldwide. In the Middle East in general and in Arabian Gulf countries in particular, reports of *Cryptosporidium* sp., are sporadic. In contrast, thus far no cases of *Cyclospora* sp. have been reported except in Egypt. *C. cayetanensis* was diagnosed in various parts of the world only after the effective use of acid-fast stains in laboratories to demonstrate oocysts in feces. We describe three such cases of human cyclosporiasis, perhaps the first report from the Arabian Gulf countries. *Cyclospora* sp. is probably an important etiological agent of diarrhea also in the Middle East. An awareness of the parasitic infection and use of appropriate diagnostic modalities are essential to elucidate the clinical and epidemiological significance of the parasitosis in this geographic area.

Case Summary:

Oocysts were demonstrated in the diarrheic stools of three symptomatic patients; a Nepali male resident in Kuwait and two Kuwaiti males, one on chemotherapy for lymphoma and another presenting with gastroenteritis. PCR shows it is the human genotype that is circulating in Kuwait. The paucity of reports is multifactorial but inter alia include the lack of awareness of clinicians to request for the appropriate laboratory examination, the need to incorporate acid-fast staining in the routine examination of stool, inexperience of laboratory personnel, lack of a micrometer on the bench to measure the organisms and the non-availability of UV fluorescence microscopy. We emphasize the need to distinguish/ identify the etiology of the diarrheal agent in the case of *Cryptosporidium* sp. versus *Cyclospora* sp. especially since cyclosporiasis is effectively treated with trimethoprim sulphamethaxazole. *Cyclospora* sp. is perhaps endemic and transmission is likely through food and water contamination.

Conclusion:

Cyclospora sp. is probably an important etiological agent of diarrhea also in the Middle East. An awareness of the parasitic infection and use of appropriate diagnostic modalities are essential to elucidate the clinical and epidemiological significance of the parasitosis in this geographic area.

Key Words: *Cyclospora*; Diarrhea; Kuwait.

Microbiology and Immunology

Category: Clinical

302

Fatal strongyloidiasis in 3 kidney recipients in Kuwait

*Aneesha VK¹, Shetty S¹, Mokaddas E^{1,3}, Nampoory MRN², Prasad S²,
Hira PR³, Iqbal J³

¹Department of Microbiology, Ibn Sina Hospital, ²Organ Transplant Center, Kuwait

³Department of Microbiology, Faculty of Medicine, Kuwait University

CASE REPORT

Background:

Hyperinfestation with *Strongyloides stercoralis* occurs mostly in immuno-compromised patients, mainly in kidney allograft recipients. Due to non-specific presentation and patient immunocompromisation, the mortality rate is very high (80 to 85%). Here we report 3 cases of fatal strongyloidiasis in renal transplant patients. The first two cases received their allografts from the same cadaveric donor (Indian nationality).

Case Summaries:

Case1: A 52 year old male Kuwaiti received cadaveric renal transplant on 12/8/2004. He was on immunosuppressive therapy. On 28/9/2004 he presented with abdominal pain, diarrhoea, dyspnoea. On 6/10/2004 *Strongyloides* larvae were found in his bronchoalveolar lavage. Patient expired.

Case2: A 43 year old, female Kuwaiti received cadaveric renal transplant on 12/8/2004. On 10/11/ 2004 she presented with diarrhoea, vomiting, abdominal pain and dyspnoea. On 22/11/2004 *Strongyloides* larvae was detected in her bronchoalveolar lavage specimen. She expired.

Case3: A 43 year old female Kuwaiti received cadaveric renal transplant on 28/8/2004. She presented on 27/11/2004 with abdominal distension, cough, nausea and dyspnoea and *Strongyloides* larvae were found in her bronchoalveolar lavage specimen. Patient expired. All the 3 cases were on immunosuppressive therapy which included prograf and prednisolone. None were on cyclosporin. All the 3 cases received Albendazole orally. The first two received Ivermectin, both orally and rectally. All the three patients died from ARDS and hyperinfestation with *Strongyloides stercoralis*.

Conclusion:

The most likely source of infection could be the two donors (Indian & Bangladeshi) coming from endemic areas; cyclosporin is said to have anti-parasitic effect and all the three patients were excluded from this therapy; other modes of transmission (faeco-oral) although rare, are being investigated till date; *Strongyloides* should be included in the list for screening all renal transplant patients in Kuwait.

Key Words: Renal Transplant; Strongyloidosis; Fatality.

Microbiology and Immunology

Category: Clinical

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Fatal rhino-orbito-cerebral zygomycosis caused by *Apophysomyces elegans* in a young healthy patient: case report and literature review

Schutz P¹, Behbehani J², Khan Z³, Ahmad S³, Dhar R⁴, Kazem M², Hamed HH², Eskaf W⁴

¹Oral and Maxillofacial Surgery Unit, Al-Adan Hospital

²Department of Ophthalmology, Al-Adan Hospital

³Department of Microbiology, Faculty of Medicine, Kuwait University

⁴Department of Laboratories, Al-Adan Hospital

CASE REPORT

Background:

Zygomycosis is a rare but devastating infection which can result in rapidly fatal disease. The predominant pathogen is *Rhizopus (oryzae) arrhizus*. The infection typically occurs in immunocompromised patients. We report the seventh documented case of rhino-orbito-cerebral zygomycosis (ROCZ) caused by *Apophysomyces elegans* (a new genus of the family Mucoraceae first isolated in 1979) in an immunocompetent individual and review the literature.

Case Summary:

A 31-year-old previously healthy Indian male farm laborer presented with right orbital apex syndrome secondary to presumed orbital cellulitis. He failed to respond to systemic antibiotics and steroids and progressed to develop facial cellulitis and intracranial extension. Biopsy results confirmed the diagnosis of zygomycosis. Both tissue culture and molecular identification through DNA sequencing and amplification confirmed the genus *Apophysomyces elegans*, a new genus and species of the family Mucoraceae. Combinations of surgical intervention and high dose intravenous amphotericin were used in the treatment. According to our knowledge, only 7 documented cases (including our case) have been reported accounting for 18% of the total 38 reported cases of zygomycosis caused by *A. elegans*. A fatal outcome could not be avoided despite aggressive therapy was used. The delayed diagnosis and the initial treatment with systemic corticosteroid and broad-spectrum antibiotics were contributory for the poor outcome.

Conclusion:

ROCZ caused by *A. elegans* is rare. Ours is the 7th reported case which occurred in a healthy young individual. Being a farm laborer he was probably exposed to the infectious agent by inhalation of soil particles. It is noteworthy that soil used for gardening and growing crops is in general imported from other countries as Kuwait is considered a desert land. There were no previous reports of *Apophysomyces elegans* isolation from our region.

Key Words: Zygomycosis; *Apophysomyces elegans*; Amphotericin.

Obstetrics and Gynecology

Category: Clinical

304

Anaesthetic management for morbidly obese parturient complicated with multiple medical problems

Mlechkova L, Al-Refaai AR, Vedi HJ, Botev S, Guenov D, Nagi M, Al-Harmi J
Anaesthesia and ICU Department, Maternity Hospital, Kuwait

CASE REPORT

Background:

Morbid obesity especially in obstetrics is a very serious problem due to the high morbidity and mortality rate. Complications from cardiovascular, respiratory, neurology, endocrine and gastrointestinal systems, superimposed over pregnancy are real challenge for physicians. We report a successful anaesthetic outcome for a morbidly obese parturient with multiple medical problems.

Case Summary:

41years old lady, 36 weeks pregnant, morbidly obese BMI 63, was presented for induction of labor. The patient was known to have diabetes with nephro-, neuro- and retinopathy, hypertension with superimposed preeclampsia, ischemic heart disease, supraventricular tachycardia and hypothyroidism. Epidural analgesia via infusion pump was initiated for labor pain relief. Due to failed induction, a cesarean delivery has been performed. Epidural blockade was extended with plain bupivacain 0.5% and fentanyl to establish an appropriate surgical level. The patient was invasively monitored all the time. 24h postoperative ICU admission ensured close observation, pain relief and early physiotherapy and ambulation. Throughout the delivery the patient was managed with stable haemodynamic and good respiratory performance. A healthy female baby has been delivered. Early ICU physiotherapy and ambulation contributed to the successful outcome with uneventful subsequent progress for both mother and baby.

Conclusion:

A well prepared anaesthetic plan for morbidly obese parturient with co-morbidity is of great importance. Regional technique gives chance for safe anaesthesia, good postoperative pain relieve and early mobilization. A multidisciplinary team approach is a guaranty for successful outcome.

Key Words: Morbid obesity; Pregnancy; Epidural anaesthesia.

Obstetrics and Gynecology

Category: Clinical

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New diagnostic contribution of 3-D transvaginal ultrasound in assessment of C/S scar after vaginal delivery of women having a history of previous caesarean section.

*Jirous J¹, Diejomaoh FME^{1,2}, Al-Saadany MA¹, Al-Haj MI¹

¹Department of Obstetrics and Gynecology, Maternity Hospital, Kuwait

²Department of Obstetrics and Gynecology, Faculty of Medicine, Kuwait University, Kuwait

CASE REPORT

Background:

3-D ultrasonography became recently very popular particularly in obstetrics. The objective of authors is to demonstrate a new application of 3-D transvaginal ultrasonography in detailed morphological assessment of the postpartum uterus performed after vaginal delivery in women with history of previously performed caesarean section to exclude or confirm presence of abnormal changes in area of C/S scar.

Case Summary:

A 24-year old secundipara was admitted to our hospital 9 days after vaginal delivery by vacuum extraction due to progressive lower abdominal pain since delivery. The patient was hemodynamically stable, subfebrile. Clinical examination did not reveal any abnormality. CBC showed HGB 110g/L, HCT 0,315 and WBC 12,4. Hemocoagulation profile was normal. Transvaginal ultrasonographic examination performed by multifunctional probe equipped with 2-D,C-plane and 3-D modalities (Voluson 730 Expert, GE) imaged postpartum uterus of a corresponding size. Uterine cavity was empty. A relatively well-defined and variably echogenic area (36x24x66mm) compatible with hematoma was detected within the anterior uterine wall immediately beside distended uterine scar. Presence of broad ligament hematoma and /or bladder-flap hematoma was excluded. Integrity of the uterine serosa was reliably confirmed. Results: The patient received i.v. antibiotics (Zinacef, Gentamycin, Flagyl) and was discharged afebrile 3 days after admission.

Conclusion:

Presented case is illustrating diagnostic contribution of 3-D transvaginal ultrasonography in detailed assessment of the postpartum uterus. Routinely performed 3-D transvaginal ultrasound in this group of patients shortly after delivery could significantly accelerate detection of abnormal changes in area of C/S scar and decrease the number of nonindicated surgical interventions. This is a preliminary report of ongoing study.

Key Words: 3-D ultrasound; Uterine scar; Postoperative complications.

Pathology

Category: Clinical

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Pregnancy complicated with Evan's syndrome

Rooh Al-Deen N¹, Al-Kmaikh M², Madhu G³, Al-Khalidi D⁴, Al-Fflaig R⁵,
Al-Salem R⁵

¹Main Laboratory Department, Hematology Unit, Maternity Hospital, ²Obstetric and Gynecology Department, Maternity Hospital, ³Obstetric and Gynecology Department, Maternity Hospital, ⁴Main laboratory Department, Hematology Unit, Sabah Hospital, ⁵Main Laboratory Department, Hematology Unit, Mubark Hospital.

CASE REPORT

Case Summary:

We describe a rare case of Evan's syndrome diagnosed in 30-years- old Syrian pregnant lady on her admission for labor pain. The patient was 38 weeks gestation and was admitted through Maternity Hospital Reception for symptoms of labor pain. She presented with severe autoimmune hemolytic anemia (mixed type) Hb was 5 g/dl; and severe thrombocytopenia platelets count was 9 x 10. Clinically the patient didn't have any bleeding symptoms or symptoms of anemia. High dose I.V. Ig and prednisolone 1 mg/kg was started but she didn't show any clinical response despite adequate doses. During delivery she received platelets concentrates under the cover of I.V Ig. She delivered normally a healthy baby boy without any complication or bleeding. Post delivery the patient responded to methyl prednisolone given over three days intravenously followed by daily prednisolone therapy. During her stay in the hospital the patient was thoroughly investigated for various causes of AIHA and immune thrombocytopenia; no association with any secondary cause was found. After a period of two weeks the patient was discharged with Hg of 9 g/dl and platelets count of 98 x 10. She was maintained on daily dose of prednisolone (already started on tapering dose after three weeks).

Key Words: Evan's syndrome; Autoimmune hemolytic anemia; ITP.

Pathology

Category: Basic Sciences

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Castleman disease: a source of diagnostic difficulty on FNAC; but could there be helpful hints on cytological material?

*Mallik MK¹, Anim JT², Kapila K², Das DK²

¹Cytopathology Unit, Mubarak Al Kabeer Hospital

²Department of Pathology, Faculty of Medicine, Kuwait University

CASE REPORT

Background:

Castleman disease is a rare lymphoproliferative disorder of lymphnodes and extranodal tissue whose diagnostic basis is histopathological evaluation. However, this condition can be a source of considerable diagnostic difficulty on FNA. We present two such cases here and describe their cytomorphological findings. Some of these findings may serve as helpful clues to suspect this entity on FNA material. The Papanicolau stained and MGG stained FNA smears of two histopathologically proven cases of Castleman disease were reviewed retrospectively along with a review of the histopathology slides.

Case Summary:

The patients were a 32 year old female and a 35 year old male, respectively. Both presented with enlarged cervical lymphnode without any other complaints. In both cases the FNA smears revealed a polymorphous lymphoid cell infiltrate along with the presence of large round cells, with large nuclei, pale cytoplasm and ill-defined outlines. Intimate admixture of these cells with lymphocytes was noted. However, the number of the large cells was much more in the first case as compared to the second case. The FNA diagnosis in the first case was suggestive of a lymphocyte rich Hodgkin's Lymphoma whereas in the second cases it was reactive hyperplasia. However in the later case in view of the atypical cells a histopathological evaluation was advised. In both these cases histopathological evaluation showed hyaline vascular Castleman disease.

Conclusion:

Castleman disease can be a source of considerable diagnostic difficulty on FNA material. However both our cases showed two similar cytomorphological features (i.e., large oval cells with ill-defined outlines and pale cytoplasm and presence of clusters of these cells with small lymphocytes). These features may serve as helpful hints on smears to suspect this condition and call for a histopathological evaluation.

Key Words: Fine Needle Aspiration (FNA) cytology; Lymph node; Castleman's disease.

Pathology

Category: Basic Sciences

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Solitary intracranial Castleman's disease, plasma cell variant. A case report

*Mallik AA¹, Katchy KC¹, Clotan N²

¹Department of Pathology, Al-Sabah Hospital Kuwait

²Department of Neurosurgery, Ibn Sina Hospital, Kuwait

CASE REPORT

Background:

Castleman's disease is a rare low grade lymphoproliferative disorder affecting mainly nodal as well as extranodal sites. We report a case of plasma cell variant of Castleman's disease confined to the meninges.

Case Summary:

A 53-year-old woman presented with severe headache of a few months' duration which was insidious in onset but followed a progressive course with associated vomiting, blurring of vision and diplopia. Investigations revealed a dural-based mass which was considered both radiologically and intraoperatively as a meningioma. Total surgical excision of the mass was performed. Histologically, it was a plasma cell variant of Castleman's disease with kappa light chain restriction. Laboratory investigations and whole body computerized tomography (CT) scan showed no significant abnormality. A short course of local radiotherapy was given. The patient is well one year after treatment.

Conclusion:

The rarity of solitary intracranial Castleman's disease and the difficulty in radiological and intraoperative diagnosis are highlighted.

Key Words: Castleman's disease; Dura; Intracranial tumor.

Pathology

Category: Basic Sciences

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Inflammatory demyelinating pseudotumor: a report of 2 cases

Ziad F¹, Panda SM², Katchy KC¹, Alexander S¹

¹Department of Pathology, Al Sabah Hospital, Kuwait

²Department of Neurosurgery, Ibn Sina Hospital, Kuwait

CASE REPORT

Background:

Inflammatory demyelinating pseudotumor (IDP) is an inflammatory lesion of unknown etiology which presents as a space occupying lesion but responds dramatically to steroid therapy. The objective of this report is to document the cases of IDP seen in Kuwait between 1995 and 2004. Cases of IDP were identified from the records of Pathology Department of Al-Sabah Hospital for the period 1994 to 2004.

Case Summary:

There were 2 cases of IDP in Kuwait during this period. The first was a 35-year-old female who presented with a 2-week history of inability to walk. She had left facial weakness and paresis of the right lower limb with spasticity. Radiological investigations showed a partial ring-enhancing lesion in the right pre-motor area and left paracentral lobule respectively. Both were associated with insignificant mass effect. The second was a 27-year-old female who was admitted with generalized seizures. She had a previous history of headache associated with vomiting, dizziness, blurred vision and right-sided weakness for several months. On admission, she had right hemiparesis, bilateral papilloedema and right homonymous hemianopia. A left parietal enhancing lesion was detected on radiological investigations. Biopsies in both cases showed sharply demarcated lesions composed of sheets of macrophages with granular or vacuolated cytoplasm, and hypertrophic astrocytes. Perivascular lymphocytic infiltrate was focally present. Neurofilament positive axons were present in the lesions. Both patients subsequently received steroid therapy. The first patient recovered fully, with no radiological detectable lesion. The second had a remarkable clinical improvement with reduction of lesion size on computed tomography. Both were lost to follow up.

Conclusion:

An early correct diagnosis is essential in cases of IDP because of its dramatic response to steroids.

Key Words: Central Nervous System; Pseudotumour; Inflammatory.

Pediatrics

Category: Clinical

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Infant botulism due to honey consumption: first report in the Middle East

*Van der Vorst MMJ¹, Jamal W², Rotimi VO², Moosa A¹

¹Department of Pediatrics and ²Department of Microbiology, Faculty of Medicine, Kuwait University

CASE REPORT

Background:

To report the first case of infant botulism in Kuwait and the Middle East.

Case Summary:

We describe an infant, 6 weeks of age, who was admitted to the PICU with signs of sepsis. The past medical history was unremarkable, except that the infant was fed honey for 2 weeks because of constipation prior to admission. Due to progressive hypoventilation the infant was intubated and ventilated. In the days after admission the infant became increasingly hypotonic and neurological examination revealed decreased deep tendon reflexes and dilated pupils with minimal response to light. Infant botulism was highly suspected with the consumption of honey and the signs of acute flaccid paralysis. An electromyogram was made. His blood, stool and honey samples were sent for culture. The diagnosis of infant botulism was made by the typical pattern on electromyogram, which showed decreased amplitude of the compounds muscle action potentials and tetanic and post tetanic facilitation; the amplitude of the compounds muscle action potentials was >120% of base line by repeated nerve stimulation at high frequency (50 Hz). The diagnosis was confirmed by demonstrating the presence of *Clostridium botulinum* strains in the stool and honey by cultural and molecular techniques.

Intervention: The treatment consisted of meticulous nutritional and respiratory support, including ventilation for a total of 67 days. Although on discharge 3 months after admission, he was still hypotonic and required nasogastric tube feeding, by the end of the 3rd month post-discharge the neurological examination had returned to normal with no remarkable findings. The follow-up has been uneventful.

Conclusion:

This case highlights the lapses in the quality control aspect of imported honey and shows that safety is not 100% guaranteed. Therefore, it is necessary to be vigilant with any baby fed with honey showing signs of progressive weakness.

Key Words: Infant botulism; *Clostridium botulinum*; Honey.

Pediatrics

Category: Clinical

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Acute fulminant cerebellitis caused by Coxsackie A7

*Van der Vorst VVM¹, Habeeb Y²

¹Pediatric Department, Faculty of Medicine, Kuwait University, ²Pediatric Department, Mubarak Al Kabeer Hospital

CASE REPORT

Background:

Acute cerebellitis is a rare condition often characterized by cerebellar dysfunction with rapid onset. The disease has a variable course. Acute cerebellitis is postulated to result from viral and/or autoimmune etiologies. We report a case of sudden death from acute fulminant cerebellitis.

Case Summary:

A 4-year-old boy presented in the Children's Emergency Department of Mubarak Hospital, after an episode of tonic-clonic convulsion. History revealed fever, 38-39°C, and an upper respiratory tract infection of two days' duration. Upon arrival he underwent emergency intubation due to bradypnea and desaturation. After stabilization of the vital signs, physical examination revealed fixed and dilated pupils. Emergency CT scan showed marked obstructive hydrocephalus; the fourth ventricle was not visualized with suspicion of a posterior fossa mass. An external ventricular drain was immediately placed and thereafter the patient was transferred to the PICU. He was ventilated and received mannitol and dexamethasone for brain edema and valproic acid as anti-epileptic treatment. The patient needed inotropic support for cardiac instability. Although the CSF, obtained from the ventricular drain was unremarkable, he was empirically treated with acyclovir and cefotaxim. The same day MRI scan was performed and demonstrated a swollen cerebellum, with no other abnormality detected. The patient deteriorated rapidly, despite resuscitative measures and died after 3 days. A diagnosis of acute cerebellitis was made based on the MRI findings. PCR confirmed the presence of Coxsackie A7 in the CSF.

Conclusion:

Neuro-imaging plays an important role in the diagnostic work-up of patients with neurological symptoms. In the acute setting, a CT scan is indicated mainly to exclude evidence of raised intracranial pressure. MRI is the modality of choice to demonstrate cerebellar pathology, which may remain undetected on CT scan.

Key Words: Cerebellitis; MRI; Pediatrics.

Pediatrics

Category: Graduate (Resident)

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Cornelia de Lange syndrome associated with de novo balanced Robertsonian translocation (45,XX,-13,-14,T(13Q;14Q)-a case report

Soni AL¹

¹Department of Pediatrics, Farwaniya Hospital, Kuwait, ²Department of Genetics, Maternity Hospital, Kuwait

CASE REPORT

Background:

Cornelia de Lange syndrome (CdLS) [OMIM#122470] is a rare complex developmental disorder characterized by somatic and cognitive retardation, characteristic facial dysmorphism & limb anomalies. The majority is sporadic. Multiple modes of inheritance have been postulated. It is occasionally associated with nonspecific chromosomal abnormalities posing difficulty in genetic counseling.

Case Summary:

A newborn female child with marked congenital malformations was investigated to diagnose and delineate the pathogenesis. The proband was born to healthy, normal Kuwaiti parents with no family history of any congenital malformation or other genetic defects. On examination, the proband presented with cardinal features of CdLS. Cytogenetic studies in the proband showed a balanced Robertsonian Translocation - involving chromosome 13 and 14. The karyotype in the parents was normal.

Conclusion:

In about 10% of cases with CdLS chromosomal abnormalities involving different chromosome have been documented. However, there is only one report of translocation involving chromosomes 13 and 14. CdLS is believed to be an autosomal dominant disorder, with most cases representing new mutation in a currently unidentified gene. However, this finding has not been confirmed unequivocally. Possible explanations for this discrepancy include gonadal mosaicism, non-penetrance, imprinting effect, locus specific heterogeneity.

Key Words: Cornelia de Lange syndrome (CdLS); Syndrome; Translocation.

Pediatrics

Category: Clinical

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Mastoid Fontanel: an extended sonographic window to the neonatal brain

Al-Saad SA, Rajaram UR

Department of Pediatrics, Neonatal Intensive Care Unit,
Al Jahra Hospital, Ministry of Health, State of Kuwait

CASE REPORT

Background:

Cranial ultrasonography in the newborn is an established non-invasive modality for imaging the neonatal intracranial structures and lesions. The anterior fontanel provides an excellent acoustic window, for sequential sagittal and coronal images of the brain, ventricular system and CSF spaces in real time. However, there is limitation in the imaging of the cerebellum, the brain stem, and the CSF spaces of the posterior cranial fossa. This is due to the increased distance between the transducer placed at the anterior fontanel and these structures. The mastoid fontanel is situated at the junction of the temporal, parietal and occipital bones, and is located at either side, one centimeter posterior the helix of the ear and approximately one centimeter above the tragus. The evaluation of the brain stem (mid brain, cerebellum and the fourth ventricle, cisterna magna), and posterior fossa structures using the mastoid fontanel as an acoustic window is a technique first described in 1996. In this unit this has been incorporated into the routine study of neonatal brain for the past five years.

Case Summary:

In this case review we illustrate the utility of this technique in the study of the posterior fossa structures, and identifying pathological states like cerebellar hemorrhage, congenital malformation of cerebellum and cisterna magna.

Conclusion:

The clinical importance extends to the management of post hemorrhage hydrocephalus to choose between repeated lumbar punctures and ventricular drainage since it identifies the exact site of obstruction. In the past year we determine the transcerebellar diameter for estimation of gestational age in low birth weight preterms. Illustration of the U/S anatomy will be at the poster.

Key Words: Mastoid Fontanel; Posterior fossa; Transcerebellar Diameter.

Surgery and Transplantation

Category: Clinical

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Safety of caspofungin in treating invasive aspergillosis of nasal sinuses in a kidney transplant recipient

*Said T¹, Nampoory MRN^{1,4}, Nair MP¹, Al-Saleh M², Al-Haj KH³, Halim MA¹,
Samhan M¹, Al-Mousawi M¹

¹Hamed Al-Essa Organ Transplant Center, Ibn-Sina Hospital, Kuwait

²Al-Bahr Ophthalmology Center, Ibn-Sina Hospital, Kuwait

³ENT Department, Sabah Hospital, Kuwait.

⁴Department of Medicine, Faculty of Medicine, Kuwait University, Kuwait

CASE REPORT

Background:

Invasive fungal sinusitis in immunocompromised patients is rare but fatal infection. Aggressive antifungal treatment although mandatory is not without risk. Caspofungin, an echinocandin antifungal agent, is active against *Aspergillus* and *Candida* infections. It works on cell wall without affecting mammalian cells hence minimal toxicity.

Case Summary:

We reported here a case of invasive *Aspergillus* sinusitis invading the apex of the right orbit and compressing the optic nerve in a kidney transplant recipient with diabetes mellitus. He was treated with transnasal endoscopic decompression of the optic nerve and intravenous AmBisome (liposomal amphotericin B) for 2 weeks without clinical improvement. Caspofungin was introduced together with AmBisome for another 2 weeks with partial improvement. Because of deterioration of both renal and hepatic functions AmBisome was discontinued and we continued him on Caspofungin alone for a total of 7 weeks. The patient showed complete response proved by retro-orbital biopsy with normalization of both renal and hepatic functions.

Conclusion:

Caspofungin is effective in treating *Aspergillus* sinusitis in a kidney transplant recipient. It is well tolerated with clear safety regarding renal and hepatic functions.

Key Words: Kidney transplantation; *Aspergillus*; Caspofungin.

Surgery and Transplantation

Category: Clinical

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Repair of common carotid artery injury with an external carotid artery flap: case report

Ben-Nakhi M¹, Asfar S^{1,2}, Al-Ali J¹

¹Vascular Surgery Unit, Department of Surgery, Mubarak Al-Kabeer Teaching Hospital and ²Department of Surgery, Faculty of Medicine, Kuwait University

CASE REPORT

Background:

The incidence of blunt carotid artery injuries is about 1 per 1,000 cases of blunt neck trauma, whereas penetrating carotid artery injuries accounts for 4-17%. Iatrogenic carotid artery injuries account for 5.6% of iatrogenic arterial injuries, all were due to inadvertent introduction of catheters into carotid artery during central line placement. No single literature mentioned iatrogenic carotid artery injury due to surgery. We aimed to report an intra-operative common carotid artery injury and describe a new technique to repair injuries of the common carotid artery.

Case Summary:

A 30 years-old healthy man sustained an iatrogenic injury to the left common carotid artery during surgical dissection of a left branchial cyst. The following repair technique was performed: ligation of the left external carotid artery distally, its stump was opened longitudinally to create an arterial flap which was then used to repair the defect in the common carotid artery. Up to one year follow up, the patient is asymptomatic with a normal carotid duplex scan.

Conclusion:

An external carotid artery flap provides an alternative method of repairing an injured carotid artery.

Key Words: Carotid artery injury; Vascular injury of the neck; Iatrogenic vascular injury.

Surgery and Transplantation

Category: Clinical

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Stromal sarcoma of the tongue: case report and review of the literature

*Hamed HH¹, Ahmad MS², Eskaf W², `Asfár S³, Schutz P¹, Belal MS³,
Al-Zoheriy N³, Mustagrudic D¹, El-Bassuoni K¹

¹Oral and Maxillofacial Unit, Adan Dental Center, Kuwait,

²Histopathology Unit, Department of Laboratories, Adan Hospital, Kuwait,

³Oral and Maxillofacial Unit, Amiri Dental Center, Kuwait

CASE REPORT

Background:

Stromal tumors of the gastrointestinal tract have been the subject of much controversy and debate in the literature regarding their histogenesis, criteria for diagnosis, prognostic features, and nomenclature. These tumors are thought to develop from the cells of the connective tissues that support the organs of the digestive system in the gastrointestinal tract. The number of the benign gastrointestinal tract tumors (GISTs) outnumbers the malignant ones. These tumors occur most commonly in the stomach and the small intestine. We can not find any report in the English literature about its occurrence in the tongue. In the earlier literature GISTs were designated as smooth muscle tumors. The advent of immunohistochemistry showed that only a small proportion of the stromal tumors truly fulfilled the modern criteria for the designation of the leiomyoma/ leiomyosarcoma. Perhaps the best defining feature for the stromal tumors are their expression of the KIT-protein (CD117).

Case Summary:

MA is 60 year old female patients with chief complain of tongue ulcer of about 6 weeks duration. The clinical examination showed painless, firm to hard ulcerated mass in relation to an extruded upper tooth. The ulcer has necrotic floor with inflamed irregular margins and the regional lymph nodes were free. Extraction of the tooth and incisional biopsy was done which revealed Stromal Sarcoma of the tongue of low grade malignancy. The patient underwent tracheostomy, neck dissection, extended hemiglossectomy via mandibulectomy and reconstruction of the defect with radial forearm microvascular free graft. The histopathology examination of the surgical specimen revealed malignant soft tissue sarcoma composed of spindle cells arranged in fascicles and bundles, with frequent mitosis and positive CD117. All resection margins were free.

Conclusion:

To the best of our knowledge this is the first report of a primary tongue malignant gastrointestinal stromal tumor.

Key Words: Stromal; Sarcoma; Tongue.

Surgery and Transplantation

Category: Clinical

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High index of suspicion for traumatic duodenal perforation in children, Kuwait experience

*Al-Dahham A, Hassan MS, Al-Ramadan S
Department of Pediatric Surgery, Ibn Sina Hospital, Kuwait

CASE REPORT

Background:

Evaluation of children with blunt abdominal trauma can be a difficult process. Traumatic duodenal perforation in children poses a diagnostic and therapeutic challenge, especially with the absence of trauma history and the misleading results of radiological studies. Literature review revealed few data focusing on this subject. Two cases of duodenal perforation in children following blunt abdominal trauma are presented to highlight the challenges in the diagnosis and describe the subsequent management and outcome.

Case Summary:

Case 1: Child presented, after heavy object fell on his abdomen, with vomiting, epigastric tenderness and elevated WBCS. Other investigations were unremarkable except later with rising temperature and CT abdomen disclosing right side subhepatic collection with edema in the duodenum as well as increasing upper abdominal tenderness. Laparotomy revealed transaction of the duodeno-jejunal junction. Single layer closure was undertaken with proximal duodenostomy tube decompression and nasogastric tube insertion. Postoperative course was uneventful.

Case 2: Child presented with vomiting, abdominal pain, fever, WBCS count 15 and mild epigastric tenderness. Second admission day the child WBCS started to rise, abdominal examination disclosed increasing tenderness, abdominal X-ray showed suspected pneumoperitoneum, upper GI contrast study showed leak from the duodenum. Abdominal exploration revealed injury at the 3rd part of the duodenum. Single layer closure, duodenostomy, and jejunostomy were done. Asking the parents about any history of previous trauma the mother remembered that the child fell down one day before vomiting started.

Conclusion:

Blunt duodenal trauma in children should be suspected in any child with vague upper abdominal symptoms and signs, and history of trauma even if mild, should be traced carefully from parents or child care-givers.

Key Words: Duodenal perforation; Blunt trauma; Pediatric trauma.

Surgery and Transplantation

Category: Clinical

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Abdominal wall implantation of hepatocellular carcinoma

Al-Dahham A¹, Al-Fodari A¹, Al-Abbad J¹, Malek L¹, Boodai S², Salah Y¹,
Al-Mousawi A¹, Asfar SK^{1,3}

¹Liver Unit, Department of Surgery, ²Department of Pathology, Mubarak Al-Kabeer Hospital and ³Department of Surgery, Faculty of Medicine

CASE REPORT

Background:

Abdominal wall implantation of hepatocellular carcinoma (HCC) is a rare complication. It was reported to occur in 2-3.4% after fine needle aspiration cytology (FNAC). We are presenting a case of HCC implantation following FNAC and surgery. This is probably the first ever-reported case in our geographic area.

Case Summary:

A 61-year-old female presented to another hospital with abdominal pain. She is known to be hepatitis C positive. A liver mass was found by CT scan probably in segment VII and FNAC was performed, it showed features of HCC. January 2001 she traveled abroad, and underwent resection of the liver tumor. October 2004 she presented to the Liver Unit, with an abdominal wall mass of one-year duration. On physical examination the mass was under the right subcostal scar, the skin over it was free and it seemed to be within the abdominal wall. CT confirmed that the mass was within the abdominal wall muscles with no intra-abdominal extension. Tumor markers were AFP 6.23 (normal < 5.6 ng/ml), CEA 1.5 ng/ml (normal < 6.9 ng/ml) and CA19-9 15.9 (normal < 43 ng/dl) and FNAC of this mass showed features of HCC. En-block resection of the mass was performed under general anesthesia with primary closure. Histopathology of the removed specimen confirmed abdominal muscles implantation of HCC with free surgical margin and no peritoneal penetration. Follow up at 3 months showed no local recurrence or distant metastasis.

Conclusion:

This tumor implantation may be due to FNAC or spillage during surgery. We found no reports of the latter assumption but tumor implantation after FNAC does occur. This case confirms the policy adopted in our Liver Unit stating that: FNAC should not be a routine procedure whenever HCC is suspected especially in the clinical sitting of hepatitis C and liver cirrhosis.

Key Words: Fine Needle Aspiration (FNA) cytology; Hepatocellular Carcinoma; Abdominal wall implantation.

Surgery and Transplantation

Category: Basic Sciences

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Tolosa-Hunt syndrome a case report and literature review

Al-Buloushi A

¹Departments of Ophthalmology, McGill University, Montreal,

²Department of Otolaryngology, McGill University, Montreal

CASE REPORT

Background:

Tolosa-Hunt syndrome (THS) has been described as a painful, unilateral, partial or total ophthalmoplegia caused by a nonspecific granulomatous process in the cavernous sinus, the superior orbital fissure, or the orbital apex. IT is a diagnosis of exclusion. It should be differentiated from other lesions involving the cavernous sinus region, such as meningiomas or lymphomas, posterior communicating artery aneurysms.

Case Summary:

A 39 year old healthy male presented with a progressive three week history of pain of the left eye (OS), headache and diplopia. Pain radiated to the left parietal region. There was a marked decrease in extraocular movement of the left eye. Proptosis of 1 mm and ptosis of the left eye were noticed as well the rest of the eye exam was normal.

Results: patient was treated with oral prednisolone. On follow up visits, his symptoms were improved, especially the extraocular movements. Three months later there was a complete recovery of the extraocular movements and diplopia but persistence of some residual ptosis.

Conclusion:

Tolosa-Hunt syndrome is a rare disease should be differentiated from other more frequent causes of painful ophthalmoplegia, such as ophthalmoplegic migraine, diabetic ophthalmoplegia, giant cell temporal arteritis, meningiomas, lymphomas, parasellar tumors and vascular malformations of the posterior communicating artery or intracavernous carotid artery.

Key Words: Tolosa-Hunt syndrome; Ophthalmoplegia; Headache.

Surgery and Transplantation

Category: Graduate (Basic Sciences)

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Early onset of Wernicke's encephalopathy post gastric bypass: case report and literature review

*Al-Fahad TB¹, Mohammad AI¹, Osama SM¹, Khoursheed M^{1,2}

¹Department of Surgery, Mubarak Al-Kabeer Hospital, ²Department of Surgery,
Faculty of Medicine, Kuwait University

CASE REPORT

Background:

The number of adolescent and adult patients submitting to bariatric surgery is increasing rapidly around the world. Postoperative complications and nutritional deficits resulting from bariatric surgery can lead to severe vitamin-deficiency states, such as Wernicke's encephalopathy (WE). Patients with acute WE generally present with the classic clinical triad of memory disturbance, cerebellar signs, and ophthalmoplegia.

Case Summary:

A 29-year-old woman with no history of alcoholism developed acute WE after a gastric bypass surgery for morbid obesity (BMI 41.7). After persistent vomiting for two weeks post-operative symptoms began with headache, vertigo, diplopia, nystagmus, tingling and weakness in both upper and lower extremities, urine incontinence, and memory disturbance to recent events. All investigations, including upper GI endoscopy, gastrograffin meal and even MRI, turned out to be normal. A clear improvement occurred less than 24 hrs after starting 100mg thiamine infusion daily.

Conclusion:

Choledocal cysts can have a vague clinical course for many years before they can be discovered. Although rare, we recommend that choledocal cyst be considered when investigating recurrent attacks of idiopathic abdominal pain in children. The relevant world literature is reviewed.

Key Words: Bariatric surgery; Thiamine Deficiency; Wernicke's Encephalopathy.

Surgery and Transplantation

Category: Clinical

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Giant sigmoid diverticulum: case report & literature review

*Mohammad AI¹, Bin-Nakhi A², Al-Fahad TB¹, Khoursheed M^{1,3}

¹Department of Surgery, Mubarak Al-Kabeer Hospital, ²Department of Radiology, Mubarak Al-Kabeer Hospital, ³Department of Surgery, Faculty of Medicine

CASE REPORT

Background:

Diverticulosis of the colon is a common clinical entity affecting 35% of individual over the age of 60. Giant sigmoid diverticulum is a rare manifestation of diverticular disease, consisting of an air-filled cystic cavity more than 3 to 4 cm in diameter.

Case Summary:

A 48 years old Syrian man complained of abdominal pain for 5 years, associated with altered bowel habit between constipation and diarrhea, and gaining of weight. Past history was unremarkable. Abdominal examination revealed a huge abdominal mass measuring 30X30 cm, firm but indentable with pressure. Plain abdominal X-ray revealed a huge soft tissue density mass with mottling noted occupying almost the entire pelviabdominal areas. Water soluble contrast enema revealed a huge sigmoid diverticulum with communication with the lumen of the sigmoid colon. CT scan abdomen with contrasts revealed a huge well defined pelviabdominal mass measuring 32X18X16 cm with wide communication about 8 cm with the sigmoid colon. There was no evidence of diverticuli in the remaining colon. Hartmann's procedure was performed. Operation was complicated with wound dehiscence. The patient developed a septic shock with renal & hepatic failure that lead to death 20 days later. Histopathology reported a perforated giant sigmoid diverticulum, with acute and chronic serositis. No neoplastic changes were identified.

Conclusion:

We review the pathogenesis, types, clinical presentation, investigations, differential diagnosis, and management of this condition.

Key Words: Giant sigmoid diverticulum; Diverticulosis; Colectomy.

