In 1931, the French medical missionary Dr. Albert Schweitzer wrote, "Pain is a more terrible lord of mankind than even death itself." In its most benign form, pain warns that something is not quite right. At its worst, it greatly detracts from the quality of life. Pain is a widespread problem that cuts across many patient populations. For example, 75 percent of cancer patients in one study reported suffering pain, and over two-thirds of nursing home residents experience serious chronic pain. One study concluded that more than half of all patients who undergo surgery suffer post-operative pain. Indeed, pain is a serious and costly health issue, and a challenge for those who are suffering from the physical as well as the emotional consequences of pain.

Hundreds of types of pain have been described. There are the most benign, fleeting sensations of pain, such as that of a pin prick. Then there is the pain of childbirth, the pain of a heart attack, and the pain that sometimes follows amputation of a limb. There is also pain that follows severe trauma, such as that associated with head and spinal cord injuries. However, pain may be classified into essentially two categories: acute and chronic. Acute pain, for the most part, results from inflammation or injury to tissues. This type of pain generally begins suddenly, for example, after trauma or surgery or as in the case of a headache. Acute pain, which is generally the easiest to control, has a diagnostic value; that is, it may lead to the discovery of a pathological issue. Unlike acute pain, chronic pain persists over a longer period of time and is resistant to most medical treatments. Examples include low back pain, fibromyalgia, and arthritis. Aside from the psychological effects of hopelessness and anxiety, chronic pain is an extensive problem that contributes to an untold amount of suffering.

Many conditions and diseases have specific pain syndromes associated with them. Arthritis, for example, is characterized by joint pain in the extremities. Migraines, one type of chronic headache, are characterized by throbbing pain and sometimes by other symptoms, such as nausea and visual disturbances. Cancer pain can accompany the growth of a tumor, the treatment of cancer, or chronic problems related to cancer's permanent effects on the body. Neuropathic pain, which can result from injury to nerves, either in the peripheral or central nervous system, can occur in any part of the body and is frequently described as a hot, burning sensation. Vascular pain occurs when communication between blood vessels and nerves is interrupted. Constriction, or obstruction of blood vessels, as well as a condition called ischemia in which blood supply to organs, tissues, or limbs is cut off can result in vascular pain.

There is no way to tell how much pain a person has. No test can measure the intensity of pain, no imaging device can show pain, and no instrument can locate pain precisely. Sometimes physicians find that the best aid to diagnosis is the patient's own description of the type, duration, and location of pain. Physicians, however, do have a number of technologies they use to find the cause of pain. Primarily these include electrodiagnostic procedures. Information from electromyography, or EMG, can help physicians tell precisely which muscles or nerves are affected by weakness or pain. In this technique, thin needles are inserted in muscles and a physician can see or listen to electrical signals displayed on an EMG machine. In a second type of electrodiagnostic technique referred to as nerve conduction studies, the doctor uses two sets of electrodes that are placed on the skin over the muscles. The first set gives the patient a mild shock that stimulates the nerve that runs to that muscle. The second set of electrodes is used to make a recording of the nerve's electrical signals, and from this information the doctor can determine if there is nerve damage. MRI, a third technique, provides physicians with pictures of the body's structures and tissues.
The goal of pain management is to improve an individual’s overall functioning, enabling individuals to work, attend school, or participate in other day-to-day activities. Patients and their physicians have a number of options for the treatment of pain; some are more powerful than others. Analgesics, a class of drugs derived from the ancient Greek word meaning to reduce or stop pain include painkillers, such as aspirin, acetaminophen, and ibuprofen. Analgesics may be sold on a nonprescription basis for mild to moderate pain, or in a more powerful prescription form, for more severe pain. Sometimes drugs intended for another purpose can help relieve pain. Some of these include anti-depressants, and anti-convulsants, which are normally used to treat seizures. Opioids, among the oldest drugs known to mankind, include codeine and morphine. While these are very effective in relieving pain, they induce sedation, and more significantly, opioids may result in physical dependence or addiction.

Nerve blocks interrupt the relay of pain messages between specific areas of the body and the brain. Although they are used routinely for dental procedures, they can also be used to prevent or even diagnose pain. Nerve blocks can be accomplished by drugs, surgery, or a combination of drugs and surgery. Surgery, although not always an option, may be required to relieve pain, especially pain caused by back problems or serious musculoskeletal injuries.

Aside from drugs or surgery, exercise or physical therapy is often suggested, depending on the cause of the pain. Some popular alternative therapies include acupuncture, biofeedback, and hypnosis.

Despite the existence of numerous methods of pain relief, pain undertreatment is itself a chronic problem. Reasons treatment is inadequate for both acute and chronic pain are thought to include concern about side effects, particularly addiction, and inadequate knowledge of assessment and pain management. More significantly, however, is the fact that many doctors are afraid to prescribe pain medication, particularly in the case of controlled substances, for fear of legal penalties.

Nevertheless, researchers are still working to develop stronger pain-killing drugs. For example, a type of frog native to Ecuador has been found to have a chemical in its skin that is a potent analgesic and, surprisingly, resembles the chemical nicotine found in cigarettes. Also under development are other less toxic compounds that may prove to be more potent than morphine but without its addictive properties. Although scientists now understand a great deal about the causes and mechanisms of pain, much remains unknown. For those who fight every day against the limitations imposed by pain, research offers a powerful weapon in the battle to prolong and improve their lives: hope.
Questions

1. Which of the following consequences result from pain?
   a. financial  
   b. physical  
   c. psychological  
   d. all of the above (lines 8-9)

2. Which of the following was mentioned about pain?
   a. acute pain is uncommon in nursing home residents.
   b. acute pain is common in nursing home residents.
   c. acute pain is fairly common following surgery (line 16)
   b. acute pain is prevalent among cancer patients

3. Which condition is characterized by acute pain?
   a. post-accident (lines 14-16)  
   b. arthritis  
   c. low back pain  
   d. fibromyalgia

4. Which of the following statements is true?
   a. acute pain is difficult to control, but may help doctors diagnose underlying disease
   b. acute pain is easy to control, and may help doctors diagnose underlying disease (lines 17-18)
   c. chronic pain is difficult to control, and may lead to hopefulness and anxiety.
   d. chronic pain is easy to control, but may lead to hopefulness and anxiety

5. Which type of pain induces a feeling of burning?
   a. arthritis pain  
   b. vascular pain  
   c. neuropathic pain (lines 28-30)  
   d. cancer pain

6. Which type of pain is often accompanied by nausea?
   a. cancer pain  
   b. vascular pain  
   c. neuropathic pain  
   d. migraine (lines 24-26)

7. Which of the following is possible to determine about pain using electrodiagnostic techniques?
   a. its appearance  
   b. its cause (lines 37-39)  
   c. its intensity  
   d. its duration

8. Which of the following are NOT involved in EMG studies?
   a. electrodes (line 40)  
   b. needles  
   c. nerves  
   d. muscles

9. Which of the following can detect muscle pain?
   a. nerve conduction studies  
   b. EMG (lines 39-40)  
   c. MRI  
   d. x-rays

10. Which class of drug, used ordinarily to treat seizures, can be used to treat pain?
    a. antidepressants  
    b. analgesics  
    c. anti-convulsants (lines 56-57)  
    d. opioids
11. In which class of drug is ibuprofen classified?
   
   a. antidepressants  
   b. analgesics (lines 52-54)  
   c. anti-convulsives  
   d. opioids

12. Codeine is considered in which class of drug?
   
   a. antidepressants  
   b. analgesics  
   c. anti-convulsives  
   d. opioids (lines 57-59)

13. Which is untrue of opioids?
   
   a. they cause hyperacidity (lines 58-59)  
   b. they are addictive  
   c. they do their job well  
   d. they tranquilize patients

14. What is the purpose of pain management?
   
   a. to cure the underlying disease  
   b. to arrest the underlying disease  
   c. to restore a normal lifestyle (lines 49-50)  
   d. b and c

15. What is true about nerve blocks?
   
   a. they are used only by dentists  
   b. they can be used to prevent pain  
   c. they can be used to diagnose pain  
   d. b and c (lines 61-63)

16. Which of the following was mentioned as a use of pain-related surgery?
   
   a. to repair nerve injuries  
   b. to create nerve blocks (lines 61-64)  
   c. to repair muscles  
   d. a and b

17. What are some of the reasons mentioned for undertreatment of pain?
   
   a. lack of physician interest  
   b. poor pain assessment  
   c. fear of the law  
   d. b and c (lines 80-83)

18. What is true about the current state of pain management?
   
   a. there are so many treatment options that pain is well-controlled in most patients.  
   b. in spite of the fact that there are many treatment options, many patients continue to suffer from pain  
   c. although much research is underway, researchers understand little about the causes of pain  
   d. undertreatment of pain remains a problem despite the fact that pain is well-controlled in most patients