

Lesson 5 Problem Set: Treatment and Prevention of Cancer
Teacher's Answers

Short Answer:

1. How do good detection methods of cancer help cure it?

A: Good methods of detection can help us to identify cancer at early stages, where it is generally easier to cure.

2. What is the difference between diagnosis and prognosis?

A: A diagnosis is when a doctor identifies the nature and cause of a disease, where as the prognosis is the prediction of the outcome of the disease and the likelihood of recovery.

3. Besides being used as a treatment, surgery also has other useful properties. What else might surgery be used for in cancer patients?

A: Surgery is important for diagnosing and determining the extent of the disease as well. A number studies can be done on a tumor that has been removed from a patient that can give the doctor an idea of what caused the cancer and what the prognosis of a patient might be. Surgery can also be used as a preventative method. Polyps, benign tumors of the colon, can be removed early, to prevent the onset of a malignant cancer phenotype.

4. What is radiation?

A: Radiation is energy that is carried by waves or a stream of particles that can alter the genetic code (DNA) and a variety of molecules of a cell.

5. Can cancer be prevented? How?

A: Cancer can be prevented by not smoking, drinking excessive alcohol or spending too much time in the sun without sunscreen.

True/False:

1. Finding most cancers early make the disease more manageable and easy to cure. Melanoma, cancer of the skin, is one exception to this rule. It does not matter whether you find it early or later on, the outcome will be the same.

A: False: Melanoma is a prime example of curing people because of early detection. If melanoma is found before it infiltrates deep into the skin, the 5-year survival rate is nearly 100%. If it is found in later stages, it can be very fatal.

2. There is a cure for cancer. Explain your answer.

A: This question is a tricky one. If the student says False, they should write that cancer is made up of more than 100 different types of diseases and that each one can arise in different ways and a person's treatment is dependent on their unique situation. If they happen to say True, they should explain for certain diseases there has been a significant success rate with certain drugs that could be considered a "cure". One such example is the use of a drug called Gleevec for Leukemia. The concept they should understand is that there is unlikely going to be one single cure for cancer, since all cancers occur differently and have different characteristics.

3. Staging a disease is important before determining how to treat it.

A: True

4. Tumors are staged according to the TNM staging rules. T stands for tumor size, N stands for nerve damage and M stands for extent of metastasis.

A: False: N stands for nodal involvement, which is defined as the number of lymph nodes that contain the cancer.

5. The five-year survival rate is 2% for a patient that has Stage IV non-small cell lung cancer.

A: True

6. Radiation is a laser that can alter DNA.

A: False: Radiation is energy that is carried by waves or a stream of particles that can alter the genetic code (DNA) and a variety of molecules of a cell.

7. The goal of any cancer treatment is to spare the host tissue and do minimal damage to the normal tissue and the maximum damage to the cancer tissue.

A: True

8. Chemotherapeutic agents can cause hair loss because they generally target rapidly growing cells, and cells in the hair follicle grow rapidly.

A: True

Vocabulary:

1. Teletherapy:

A: Radiation therapy at a large distance outside body

2. Brachytherapy:

A: Radiation sources placed directly into tumor volume

3. Chemotherapy:

A: Treatment of cancers with chemicals or drugs

4. Biologic Therapy:

A: Biologic therapies use the body's immune system to fight cancer or to lessen the side effects of some cancer treatments.

5. Symptom:

A: What you feel. A symptom is an indication of disease, illness, injury, or that something is not right in the body. Symptoms are felt or noticed by a person, but may not easily be noticed by anyone else.

6. Sign:

A: What the doctor finds. A sign is also an indication that something is not right in the body. But signs are defined as observations made by a doctor, nurse, or other health care professional.