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Perspective

Therapies used in the Treatment of Cancer

Matt Henry*

Department of Urology, University of Alberta, Edmonton, Canada

DESCRIPTION

Cancer refers to abnormal cell growth with the potential to invade or spread to other parts of the body. These are in contrast with benign tumors which do not spread. Abnormal bleeding, lumps, prolonged cough, change in bowel movements, unexplained weight loss are the symptoms. Presence of these symptoms may be due to other reasons but not only due to cancer. There are 100 different types of cancer which can affect humans. Cancer can be treated using three different types –

Primary treatment

The main aim of this treatment is to remove the cancer cells from the body or to kill the cancer cells. The most common primary treatment for cancer is surgery. Either radiation therapy or chemotherapy can be used as a primary treatment if the cancerous cells are sensitive to radiation.

Adjuvant treatment

The main aim of this treatment is to prevent the cancer from recurring. In this treatment, they kill if there are any other cancerous cells that remain after the primary treatment. Adjuvant therapies include chemotherapy, radiation therapy and hormone therapy.

Palliative treatment

This treatment helps in reliving the side effects of treatments or signs and symptoms caused by cancer itself. Other symptoms like pain, shortness of breath can be treated. Surgery, Radiation, Chemotherapy and hormone therapy are used to relieve symptoms.

Various types of cancer treatment include:

Biomarker testing

This helps in providing information about the cancer by detecting the genes, proteins, biomarkers and tumor markers. Cancer biomarkers are biological molecules produced by the body or tumor in a person with cancer. Biomarker testing helps characterize alterations in the tumor. Biomarkers can be DNA, RNA, protein or metabolomic profiles that are specific to the tumor. Testing can include genomic testing to look at the DNA sequence, DNA or RNA tests to look for gene fusions, or tests to measure RNA or protein levels.

Surgery

The main aim of the surgery is to remove the cancerous cells from the body. This comes under the primary treatment. The surgeon usually does this by cutting into your body and removing the cancer along with some surrounding healthy tissue to ensure that all of the cancer is removed.

Chemotherapy

It is a type of cancer treatment that uses drugs to kill cancer cells. Chemotherapy is mostly done in stage 4 cancers. Chemotherapy drugs include alkylating agents, Anti-metabolites, Plant alkaloids and natural products, Hormonal agents, Biological response modifiers.

Radiation therapy

In this therapy, high doses of radiation are used to kill cancer cells and shrink tumors. It slows down the growth of the tumor cells by damaging the DNA. If the DNA of the cancer cells is damaged beyond the repair they either stop dividing or die. The dead cells are removed. It takes some time to damage the DNA. It is of two types: External beam radiation therapy and internal radiation therapy.

Hormone therapy

Certain cancers rely on hormones to grow. In these cases, hormone therapy may slow or stop their spread by blocking the body's ability to produce these particular hormones or changing how hormone receptors behave in the body. Breast and prostate cancers are the two types most commonly treated with hormone therapy.

Correspondence to: Matt Henry, Department of Urology, University of Alberta, Edmonton, Canada, E-mail: henry.matt@sfg.edu.ca

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Hyperthermia

It is a treatment where the body tissues are heated to high temperatures as 113°F to damage or kill the cancer cells. This causes little harm or no harm to the normal tissues.

Immunotherapy

Immunotherapy is a type of biological therapy that helps the immune system to fight the cancer. As part of its normal function, the immune system detects and destroys abnormal cells and most likely prevents or curbs the growth of many cancers.

Photodynamic therapy

This therapy uses a drug activated by light called a photosensitizer or photosensitizing agent to kill the cancer and other abnormal cells. The light source can be laser or other sources such as LEDs. It is often used as a local treatment which is used to treat the specific part of the body.

Cryoablation

This helps in killing the cancer cells with the help of cold. A cryoprobe is inserted through the skin and directly into the cancer tumor. A gas is pumped into the cryoprobe to freeze the tissue followed by thawing the tissue. The repeated process of freezing and thawing for several times helps to kill the cancerous cells.

Targeted therapy

It is a type of cancer treatment that targets the changes in cancer cells that help them to grow, divide and spread.