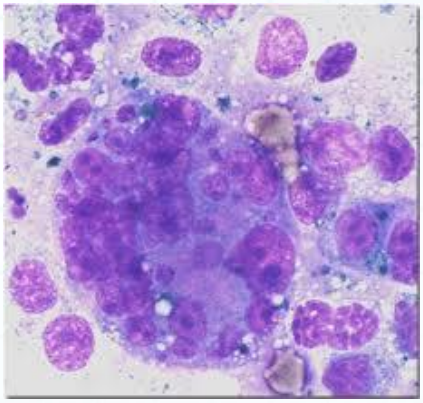
Oncology



Oncology is a branch of medicine that deals with tumours. A medical professional who practices oncology is an oncologist.

Cancer is a class of diseases characterized by out-of-control cell growth. There are over 100 different types of cancer, and each is classified by the type of cell that is initially affected.Cancer harms the body when altered cells divide uncontrollably to form lumps or masses of tissue called tumors (except in the case of leukemia where cancer prohibits normal blood function by abnormal cell division in the blood stream). Tumors can grow and interfere with the digestive, nervous, and circulatory systems, and they can release hormones that alter body function. Tumors that stay in one spot and demonstrate limited growth are generally considered to be benign.

More dangerous, or malignant, tumors form when two things occur:

- a cancerous cell manages to move throughout the body using the blood or lymphatic systems, destroying healthy tissue in a process called invasion
- that cell manages to divide and grow, making new blood vessels to feed itself in a process called angiogenesis.

When a tumor successfully spreads to other parts of the body and grows, invading and destroying other healthy tissues, it is said to have metastasized. This process itself is called metastasis, and the result is a serious condition that is very difficult to treat.

According to the American Cancer Society, Cancer is the second most common cause of death in the US and accounts for nearly 1 of every 4 deaths. The World Health Organisation estimates that, worldwide, there were 4 million new cancer cases and 8.2 million cancer-related deaths in 2012.

Causes

Most cancers are related to environmental, lifestyle, or behavioral exposures .

- Chemicals
- Diet and excericise
- Infection
- Radiation.
- Hereditry
- Physical agents
- Hormones
- Sun and UV exposure
- Other carcinogens

Symptoms

It's important to be aware of any unexplained changes to your body, such as the sudden appearance of a lump, blood in your urine or a change to your usual bowel habits.

These symptoms are often caused by other, non-cancerous illnesses, but it's important to see your GP so they can investigate.

Other potential signs and symptoms of cancer are outlined below.

1. Lump in your breast

If you notice a lump in your breast, or if you have a lump that's rapidly increasing in size elsewhere on your body

2. Coughing, Cheat pain and breathlessness

Visit your doctor if you've had a cough for more than three weeks.

Symptoms such as shorter breaths and chest pain may be a sign of an acute (severe) condition, such as pneumonia.

3. Change in bowel activities

See doctor if you've experienced one of the changes listed below and it's lasted for more than a few weeks:

- blood in your stools
- Diarrohoea or constipation for no obvious reason
- a feeling of not having fully emptied your bowels after going to the toilet
- pain in your abdomen (stomach) or your anus (back passage)
- persistent bloating

4. Bleeding

You should also see your doctor if you have any unexplained bleeding, such as:

- blood in your urine
- bleeding between periods
- blood from your back passage
- blood when you cough
- blood in your vomit
- Moles

Seek medical help of u have a mole that:

- has an irregular or asymmetrical shape

- has an irregular border with jagged edges
- has more than one colour (it may be flecked with brown, black, red, pink or white.
- is bigger than 7mm in diameter
- is itchy, crusting or bleeding

5. Unexpected weight loss

You should also see your doctor if you have lost a lot of weight over the last couple of months that can't be explained by changes to your diet, exercise or stress.

Treatment

The treatment of cancer has undergone evolutionary changes as understanding of the underlying biological processes has increased. Tumor removal surgeries have been documented in ancient Egypt, hormone therapy was developed in 1896, and radiation therapy was developed in 1899.Chemotherapy, immunotherapy and newer targeted therapies are products of the 20th century. As new information about the biology of cancer emerges, treatments will be developed and modified to increase effectiveness, precision, survivability, and quality of life.

Surgery

In theory, non-hematologist cancers can be cured if entirely removed by surgery,but this is not always possible. When the cancer has o other sites in the body prior to surgery, complete surgical excision is usually impossible. In the Halstadian model of cancer progression, tumors grow locally, then spread to the lymph nodes, then to the rest of the body. This has given rise to the popularity of local-only treatments such as surgery for small cancers. Even small localized tumors are increasingly recognized as possessing metastatic potential.

Surgery may be performed before or after other forms of treatment. Treatment before surgery is often described as neoadjuvent. In breast cancer, the survival rate of patients who receive neoadjuvant chemotherapy are no different to those who are treated following surgery.Giving chemotherapy earlier allows oncologists to evaluate the effectiveness of the therapy, and may make removal of the tumor easier. However, the survival advantages of neoadjuvant treatment in lung cancer are less clearr.

Radiation therapy

It is the use of ionizing radiation to kill cancer cells and shrink tumors. Radiation therapy can be administered externally via External beam radio therapy. The effects of radiation therapy are localised and confined to the region being treated. Radiation therapy injures or destroys cells in the area being treated (the "target tissue") by damaging their genetic material, making it impossible for these cells to continue to grow and divide. Although radiation damages both cancer cells and normal cells, most normal cells can recover from the effects of radiation and function properly. The goal of radiation therapy is to damage as many cancer cells as possible, while limiting harm to nearby healthy tissue. Hence, it is given in many fractions, allowing healthy tissue to recover between fractions.

It can also be done with the help of chemo therapy, Immuno therapy and hormonal therapy.

Angiogenesis inhibitors

Angiogenesis inhibitors prevent the extensive growth of blood vessels that tumors require to survive. Some have been approved and are in clinical use. One of the main problems with anti-angiogenesis drugs is that many factors stimulate blood vessel growth in cells normal or cancerous. Anti-angiogenesis drugs only target one factor, so the other factors continue to stimulate blood vessel growth. Other problems include maintenance of stability and activity and targeting at the tumor vasculature.

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