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Review on Cancer

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Review Article

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ABSTRACT

Cancer is the abnormal cell growth which has an ability to invade and eventually spread to other parts of the body. The term cancer was given by a Greek Physician Hippocrates (460-370 BC). In the earlier days Non- Ulcer forming and ulcer forming tumors were called carcinoma and carcinos. Cells that grow abnormally cause cancer. Many people die due to cancer. It is the second leading disease in United States that cause death. Women are mostly affected by cancer. In the world one half of men suffer from cancer but one third of women suffer from cancer. Hence women are considered as the victims of cancer.

INTRODUCTION

The earliest evidence of cancer is found in the fossils of human mummies in ancient Egypt. In earlier days the cause of cancer was not certain hence people blamed the Gods if anyone was affected by cancer [1-5]. According to Hippocrates the human body had four fluids they are blood, phlegm, yellow bile and black bile. If the body fluids were balanced then the person was considered to be healthy. If the amount of black bile was more, it was considered as the cause of cancer [6-10]. In the earlier stages the cause of cancer was not confirmed. Many physicians have proposed many theories; few were Humoral theory, Lymph theory, Blastema theory, chronic irritation theory, Trauma theory and Infectious disease theory. Each theory had mentioned a different reason for the cause of cancer [10-20].

Many advances have been made in order to diagnose the cause of cancer. Some of the most common diagnostic tests are Biopsy, Bone Marrow Aspiration and Biopsy, Bone Scan, Breast MRI, Colonoscopy, Computed Tomography (CT) Scan, Types of Endoscopy, etc... These advances have helped physicians to identify the cause of disease. Early detection of disease will help the physician to treat the patient [21-25]. At many times early detection has helped to save people form dying from cancer. With the understanding of the biology of cancer cells further many other biological agents have been developed in treatment of cancers. These are called biological response modifier (BRM) therapy [26-28]. The first therapeutic monoclonal antibodies, rituximab (Rituxan) and trastuzumab (Herceptin) were approved during the late 1990's to treat lymphoma and breast cancer, respectively. Scientists are also studying vaccines that boost the body's immune response to cancer cells [29-35].

Causes of cancer

Genetic changes affect three main types of genes. They are Proto-oncogenes, Tumor suppressor genes and DNA repair genes [36-38]. The changes caused by these genes are called Drivers of cancer.

Proto-oncogenes help in growth and division of cells. When these genes are altered they cause abnormal growth of cells and thus cause cancer.

Tumor suppressor genes also help in controlling the growth and division of cells. They sometimes divide in an uncontrolled way and thus cause cancer [39-41].

DNA repair genes help in fixing damaged DNA. Mutations in these genes tend to cause changes in other DNA and thus become a cause for cancer. The cells thus become cancerous.

Mechanism of spreading of cancer

Cancer that spreads from the initial place of infection other parts of the body is known as metastatic cancer. The process by which the cancer spreads is known as metastasis [42-48]. For example, breast cancer that spreads to and forms a metastatic tumor in the lung is metastatic breast cancer, not lung cancer. The difference between the normal cancer cell and metastatic cancer is specific chromosome changes.

Types of cancer

There are many types of cancers. Cancers are named according to the tissue or organ they are formed from. Cancer is usually described with accordance to the cell they belong to i.e. epithelial cell or squamous cell [49-52].

Cancer is categorized with accordance to the cells they begin with. They are carcinoma, Sarcoma, Leukemia, Lymphoma, and Multiple Myeloma, Melanoma and brain and spinal cord tumors. Carcinoma is the most common type of cancer [53-56]. They are mainly composed of epithelial cells. Carcinoma is of different types depending upon the epithelial cells. Adenocarcinoma is a cancer that is formed by the epithelial cells that produce mucus and fluids [57,58]. Basal cell carcinoma is formed in the base or lower layer. Basal cells generally form the layer of the skin. Squamous cell carcinoma is mainly constituted with squamous cells that form the second layer of the skin. Squamous cell carcinoma is commonly known as epidermoid carcinomas [59-65]. Transitional cell carcinoma is composed of epithelial tissue. This tissue is mainly found in the inner lining of the bladder.

Sarcoma cancers are mostly found in bones and soft tissue. The sarcoma in bone is mostly known as Osteosarcoma. Soft tissue sarcomas are leiomyosarcoma, Kaposi sarcoma, malignant fibrous histiocytoma, liposarcoma, and dermatofibrosarcoma protuberans [66-70].

Leukemia begins from the blood forming tissue of the bone marrow. In this form of cancer large numbers of abnormal white blood cells build up thus crowding out the normal blood cells. The side effects of this condition are the number of normal blood cells become less and the transport of oxygen to the tissue and even control bleeding.

Lymphoma is seen in lymphocytes. In this case abnormal lymphocytes build in up in lymph nodes and lymph vessels [71-75]. Two types of lymphoma are Hodgkin Lymphoma and Non-Hodgkin Lymphoma.

Multiple Myeloma begins in plasma cells. Abnormal myeloma cells build up and form tumors in the bone all through the body [76-78].

Melanoma begins in melanocytes. Melanocytes main function is to produce melanin.

Brain and Spinal cord tumor are differentiated depending upon the type of cell they are formed and place where the tumor is seen in the central nervous system [79-85]. For example, an astrocytic tumor begins in star-shaped brain cells called astrocytes, the function of astrocytic cells are to keep the nerve cells healthy. Brain tumors can be benign (not cancer) or malignant (cancer) [86-90].

CONCLUSION

Cancer is not just one disease it is a mixture of many diseases. It is one of the most common disease [86-90]. February 4th of each year is considered as world cancer day all around the world. Many ways have been included to treat cancer [91-95]; some of the basic methods are surgery, chemotherapy, radiation therapy, hormonal therapy, targeted therapy and palliative care. The use of each treatment depends upon the type, location and grade of cancer [96-100].

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