

Types of Cancer Disease, Carcinogenesis and Some Epidemiological View: A Mini Review

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Abstract

Cancer is a large group of diseases characterized by uncontrolled growth and the proliferation of abnormal cells. The growth of new cells of tissue that do not serve any physiological function in the human body, and may be cancerous and benign, and is detected by laboratory tests or biopsies. The cancer family is a large family of diseases, involving the growth of abnormal cells, with the ability to invade or spread to other parts of the body, they form a subset of different types of tumors. The aim of this descriptive mini review is to shed light on the main types of Cancer diseases in biological system and carcinogenesis.

Keywords: *Cancer; Types; Cancer Disease; Carcinogenesis*

Introduction

Cancer is a medical term that encompasses a wide range of diseases characterized by abnormal growth of cells that are divided without control and have the ability to penetrate tissues and destroy healthy tissues in the body. It is able to spread throughout the body. Asymmetric random growth of tissue cells is clearly different from that of normal cells, so its function also varies even after the demise of the effect [1]. It gives an enlarged mass called tumor and begins to click on adjacent tissues and moves to other vital organs [2].

An old disease described its symptoms in the manuscripts of the Egyptians 2000 BC. Hippocrates described several types of breast, uterine, stomach and skin cancers and called it by this name and was not known as an independent disease until with the advent of modern civilization and was not known only as a surgical intervention for treatment, by the technological development in the twentieth century new strategies are emerged like radiation therapy, chemical and immunological [3].

Types of Cancer

Cancer tumors are in the form of three groups but here five (5) group has been described:

1. **Epithelial tissue Carcinoma:** This group includes many of the most common cancers, especially in the elderly, and includes what affects all of the cells developing in the breast, prostate, lung, pancreas and colon; it constitutes more than 90% of cases [4].
2. **Sarcoma (include solid tumors):** The Cancer of connective tissue such as: bone, cartilage, fat, and nerve cells and fibrous tissue, each developing by cells that originate in the cells outside the bone marrow.
3. **Cancer of the lymph nodes and leukemia:** These two categories of cancer arise from the blood components (blood forming cells), which are cells that emerge from the bone marrow and tend to mature in the lymph nodes and blood respectively, and leukemia is the most common type in children, About 30% of cases. It is composed of hematopoietic cells and immune system cells [5].
4. **Arteroma:** It is produced by immature cells or embryonic tissues, and these aromatic tumors are more common in children than in older adults.
5. **Malignant germ cell tumors:** A cancer derived from stimulating cells, often spread in the testicle or ovary (semen and uterine tumors, respectively [6].

Tumors are classified into:

- **Benign-tumor:** tumors are similar in form and function to the tissue cells arising from, and characterized by the status of not moving to other areas with slow growth and when eradicated it is not emerged for the second time. It is usually encased in a fibrous tissue in the form of a fibrous purse, as in utero fibroid tumors, rectal and moles, these tumors may press on the affected organ to affect its function [7].
- **Malignant tumors:** The tissue from which the cells originate the different forms and the variation of their sizes and characterized by an increase in the rate of division and the presence of chromosomal abnormalities [7]. Malignant tumors have a higher risk of coming back after treatment.

Carcinogenesis

Cancer begins by a simple tumor, and then turns into a malignancy through a chain of the processes that lead to the transformation of the normal cell into tumor. This process begins by the exposure to an internal or external carcinogenic effect (mutagen and carcinogen) which result in a mutation in the DNA. This process goes through three phases:

- **Initiation stage:** Sometimes an individual may be born with a certain genetic aberration, while genetic deviation may occur in others as a result of active forces within the body, such as hormones, viruses and chronic infections. Genomic drift can also occur as a result of extracellular forces, such as ultraviolet-UV rays, or carcinogens in the life environment. Initiation stage is unrecoverable and begins with the cell during exposure to the carcinogens agent in a sufficient time for a change in the genetic material and break one of the DNA strands and producing mutant cell [8-10].
- **Stimulation stage:** is reversible and re-transformed into Cancerous cells by transformation process due to external factors called Promoters are non-carcinogenic agents that directly affect the genetic material and make the cell susceptible to genetic mutations and lose their function but active in growth and reproduction [9].
- **Progression Stage:** Progression stage is the last stage where the size of the tumor becomes more dangerous and is called primary tumor [11].

The need for continuous and fast feed of tumor, the tumorous tissue begins to form the vessels and blood channels of its own by firing chemical substances affect the vessels adjacent to neighboring cells, in a remarkable process called angiogenesis [12].

The lack of proliferation of tumors varies according to the type. Some cancer cells have molecules on its surface is associated with special receptors on blood vessels or lymphocytes penetrate them [13].

Epidemiology of Cancer

Many studies suggest that developed countries are more susceptible to cancer. A Statistical report for International Agency for Cancer Research (IARC) reported that the rate of infection in 2002 in the world was 10.9 million cases [14].

According to the Economist Intelligence Unit, about 12.9 million people were diagnosed with cancer in 2009. It is estimated that there will be 17 million new cases by 2020 [5].

The World Health Organization (WHO) says cancer is the world's leading cause of death. It is responsible for more deaths than HIV/AIDS, tuberculosis and malaria combined and will cause more than 10 million deaths a year worldwide.

According to the latest World Health Organization statistics, cancer causes about 7.9 million deaths worldwide each year. About 70% of these deaths, or approximately 5.5 million, are currently occurring in the developing world [15].

If no action is taken, cancer deaths are likely to increase to 6.7 million in 2015 and 8.9 million in 2030. In contrast, the number of cancer deaths in rich countries is expected to remain fairly stable during the 20th Next year [16].

On average, 70% of cancer patients in developing countries are diagnosed at very advanced stages of the disease, where treatment is not effective.

Although 70% of the cancer burden individuals will be borne in the coming years, it is astonishing that developing countries will receive only 5% of global cancer support, and according to some reports, the rate is only 2%. It is very clear that this is not enough to take the necessary measures to combat cancer in the developing world [15].

Conclusion

The cancer prognosis with the mentioned types, with respect to the recent distribution, is obvious that there are an increasing numbers and new distributional proportion of all types of cancer worldwide, demonstrating a great danger of unique and also may be new types of cancer generated and misdiagnosed as former one.

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