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Pharmaceutical Sciences **Review Article……!!!**

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BASIC REVIEW ON CANCER

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ABSTRACT

Cancer is the potentially fatal disease caused mainly by environmental factor that mutate genes encoding critical cell regulatory proteins, in 1996 these were 9 million death in cancer. Cancer is one of the common type of cancer in the world since nervous system control the regulation of body. The causes of serious ill health world are changing epithelial cell covering the skin, line the respiratory and alimentary tracks and metabolize ingested carcinogens , 80% cancer occurs in epithelia.[2]

Introduction:

Cancer are caused due to abnormal cell are grow rapidly and it becomes masses called as the tumors. They can destroy the normal cell.

Cancer is the complex genetic disease that is caused by Environmental factor. Cancer causing agent known as carcinogens it can be present in the environmental factor like food and water, chemical and sunlight. Cancer can start almost anywhere in the human body as they body need them.

Cancer in leading causes of death group worldwide accounted for 7.4 million death in 2004.

The main type of cancer are :

1. Lung (1.3 million death per year)
2. Stomach (803,000 death)
3. Colorectal (639,000 death)
4. Liver (610,000 death)
5. Breast (519,000 death)

Risk factor for cancer :

1. Tobacco use
2. Alcohol use
3. Dietary factor , including insufficient fruit and vegetable intake
4. Overweight and obesity
5. Environmental and occupational risk containing ionizing and non-ionizing radiation.

Cancer is a genetic disease it is caused by changes to into the genes they control the way our cell function. Genetic changes that causes inherited from our parents. Each person's cancer has a unique combination of genetic changes. Cancer is continuous to grow addition changes will occurs in body.

Cancerous tumors are malignant which means they can spread into the tissue. Some cancer cells are break in body and travel to the distinct place to the body through the blood and form the new tumor from the original tumor[1].

CLASSIFICATION :

Cancer is the classify using the site at which cancer started or the type of tissue where the cancer originated. For example, a person can have breast cancer, which is usually a type of carcinoma, or cancer that arise from epithelial tissue. This is a type of tissue that forms a particular layer of the skin.

From a histological standpoint there are hundreds of different cancers, which are categories into six major types :

1.Carcinoma

2.Sarcoma

3.Myeloma

4.leukemia

5.lymphoma

6.Mixed types

CARCINOMA:

Carcinoma refers to a malignant neoplasm of epithelial origin or cancer of the internal or external lining of the body. Carcinomas, malignancies of epithelial tissue ,account for 80 to 90 percent f all cancer cases. Epithelial tissue is found throughout the body. It is present in the skin , as well as the covering and lining of organs and internal passageways, such as the gastrointestinal tract. Carcinomas are divided into two subtypes: adenocarcinoma, which develops in an organ or gland, and squamous cell carcinoma, which originates in the squamous epithelium. Adenocarcinomas generally occurs in mucus membranes and are first seen as a thickened plaque like white mucosa. They often spread easily through the soft tissue where they occur. Squamous cell carcinomas occur in many areas of the body.

SARCOMA :

Sarcoma refers to cancer that originates in supportive and connective tissue such as bones, tendons ,cartilage, muscle , and fat. Generally occurring in young adults, the most common sarcoma often develops as a painful mass on the bone. Sarcoma tumors usually resemble the tissue in which they grow.

Examples of sarcoma are follows :

1.Osteosarcoma or osteogenic sarcoma (bone)

2.Chondrosarcoma

3.Leiomyosarcoma

MYELOMA:

Myeloma is cancer that originates in the plasma cells of bone marrow . the plasma cells produces some of the proteins found in blood.

LEUKEMIA:

Leukemia (‘’liquid cancers” or “ blood cancers”) are cancers of the bone marrow (the site of the blood cell production). The word leukemia means ‘’white blood’’ in greek. The disesse if often

associated with the overproduction of immature which blood cells. These immature white blood cells do not performs as well as they should, therefore the patient is often prone to infection. Leukemia also affects red blood cells and can cause poor blood clothing and fatigue due to anemia.

Examples leukemia:

Myelogenous or granulocytic leukemia (malignancy of the myeloid and granulocytic white blood cell serials)

Lymphatic, lymphocytic, or lymphoblastic leukemia (malignancy of the lymphoid and lymphocytic)

LYMPHOMA :

Lymphomas develop in the glands or nodes of the lymphatic system, a network of vessel ,nodes ,and organs that purify bodily fluids and produce infection –fighting white blood cell,or lymphocytes. Unlike the leukemias which are sometimes called "liquid cancer," lymphomas are "solid cancers ". Lymphomas may occur in specific organs such as the stomach breast or brain. These lymphomas are referred to as extranodal lymphomas and Non –Hodgkin lymphoma.

Mixes Types:

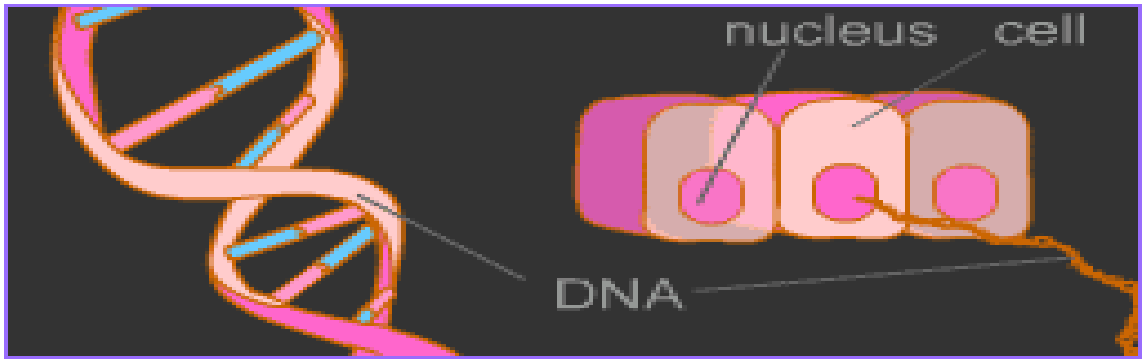
The type components may be within one category or from different categories. Such examples are:

1. adenosquamous carcinoma
2. mixed mesodermal tumor
3. carcinosarcoma [3]

THE DEVELOPMENT OF CANCER CELL:

Within the every nucleus of every one of the human body's 30 trillions cell exist DNA, the substance that contain information needed to make and control every cell with in the body. Here is a close-up view of a tiny fragment of DNA.

1. DNA of normal cell

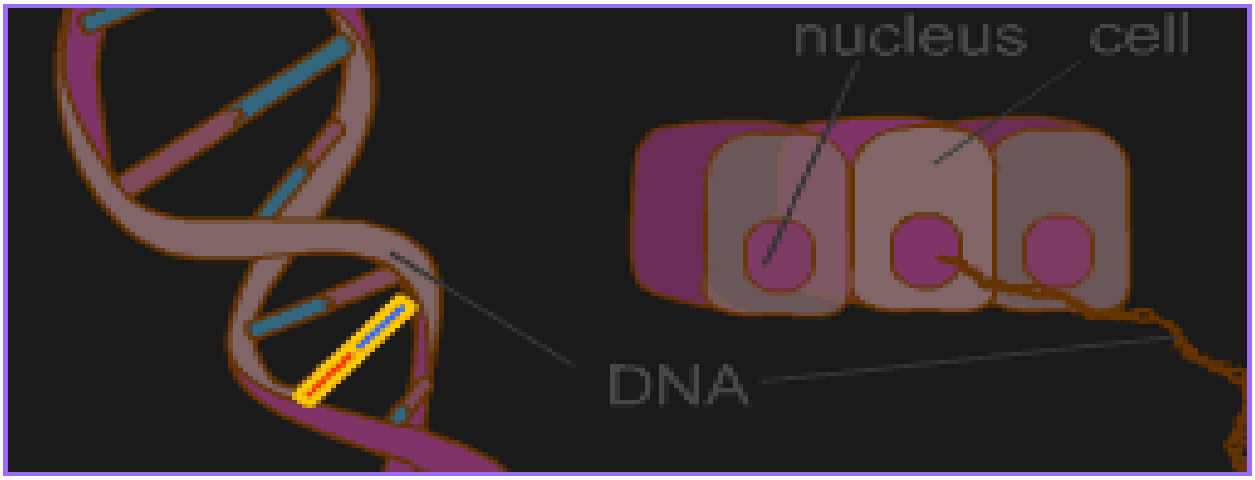


This piece of DNA is an exact copy of the DNA from which it came. When the parent cell divided to create two cells, the cell's DNA also divided, creating two identical copies of the original DNA.

2. Mutation of DNA

Here is the same section of DNA but from another cell. If you can imagine that DNA is a twisted ladder, then each rung of the ladder is a pair of joined molecules, or a base pair. With this section of DNA, one of the base pairs is different from the original.

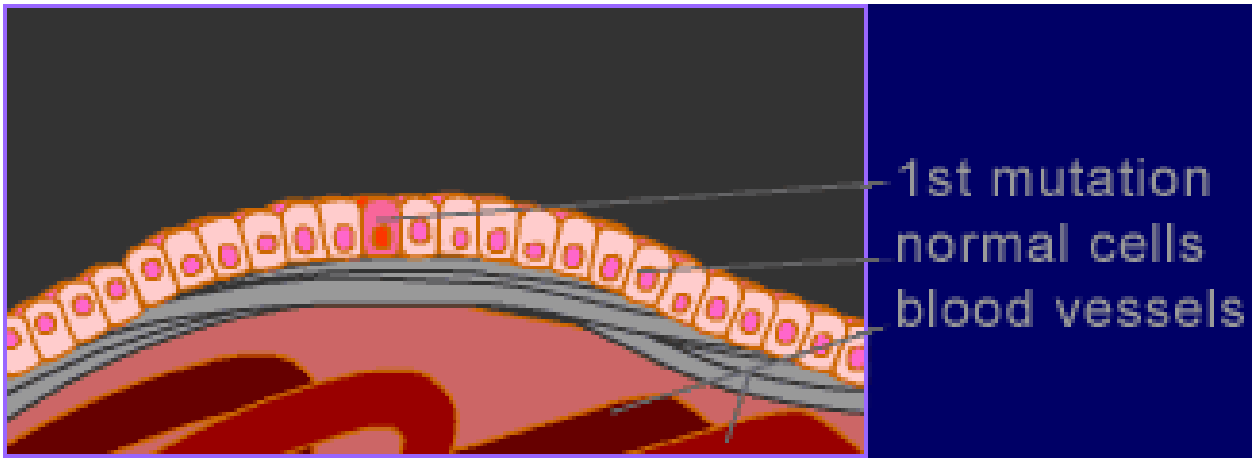
This DNA has suffered a mutation, either through mis-copying (when its parent cell divided), or through the damaging effects of exposure to radiation or a chemical carcinogen[4].



3. Genetically altered cell

Body cells replicate through mitosis, they respond to their surrounding cells and replicate only to replace other cells. Sometimes a genetic mutation will cause a cell and its descendants to reproduce even though replacement cells are not needed.

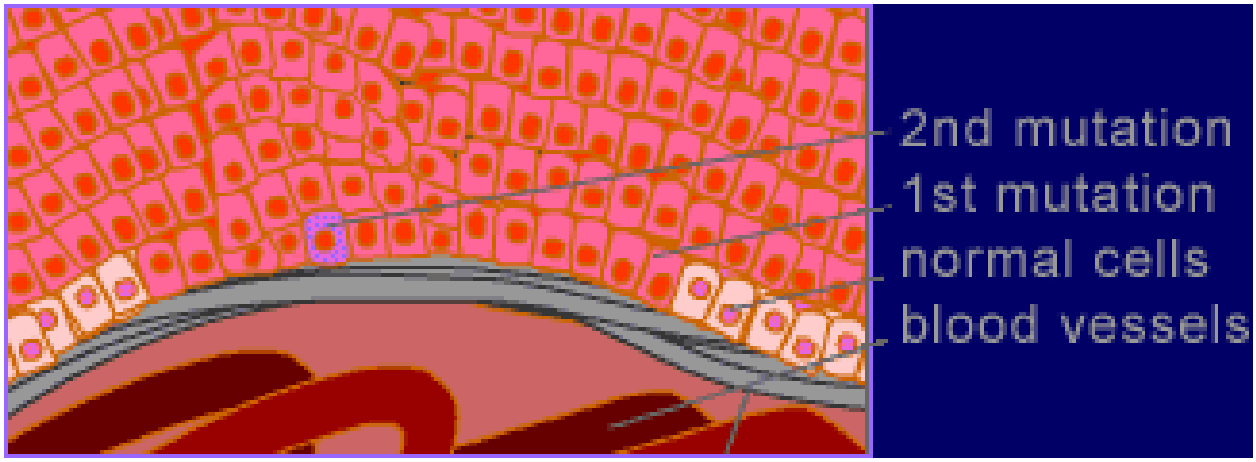
The DNA of the cell highlighted above has a mutation that causes the cell to replicate even though this tissue doesn't need replacement cells at this time or at this place.



4. Spread and second mutation

The genetically altered cells have, over time, reproduced unchecked, crowding out the surrounding normal cells. The growth may contain one million cells and be the size of a pinhead. At this point the cells continue to look the same as the surrounding healthy cells.

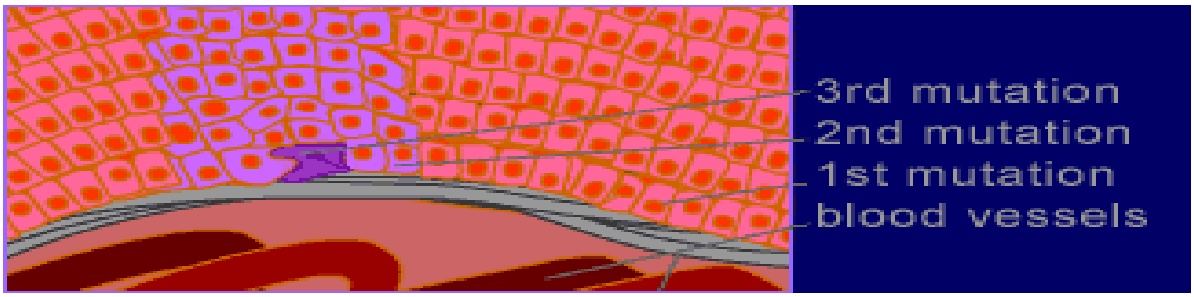
After about a million divisions, there's a good chance that one of the new cells will have mutated further. This cell, now carrying two mutant genes, could have an altered appearance and be even more prone to reproduce unchecked.



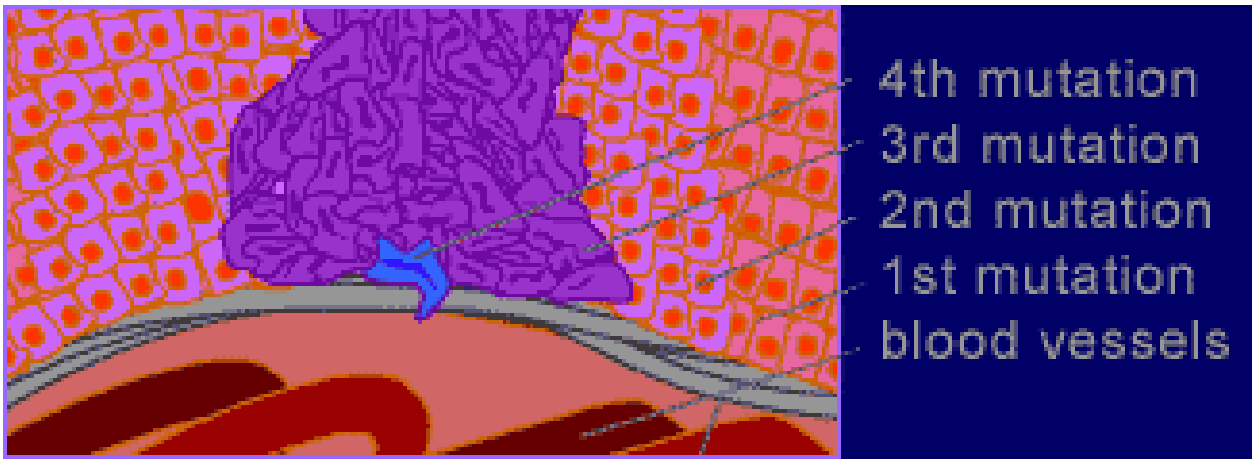
5. Third mutation

Not all mutations that lead to cancerous cells result in the cells reproducing at a faster, more uncontrolled rate. For example, a mutation may simply cause a cell to keep from self-destructing. All normal cells have surveillance mechanisms that look for damage or for problems with their own control systems. If such problems are found, the cell destroys itself.

Over time and after many cell divisions, a third mutation may arise. If the mutation gives the cell some further advantage, that cell will grow more vigorously than its predecessors and thus speed up the growth of the tumour.



6. Fourth mutation

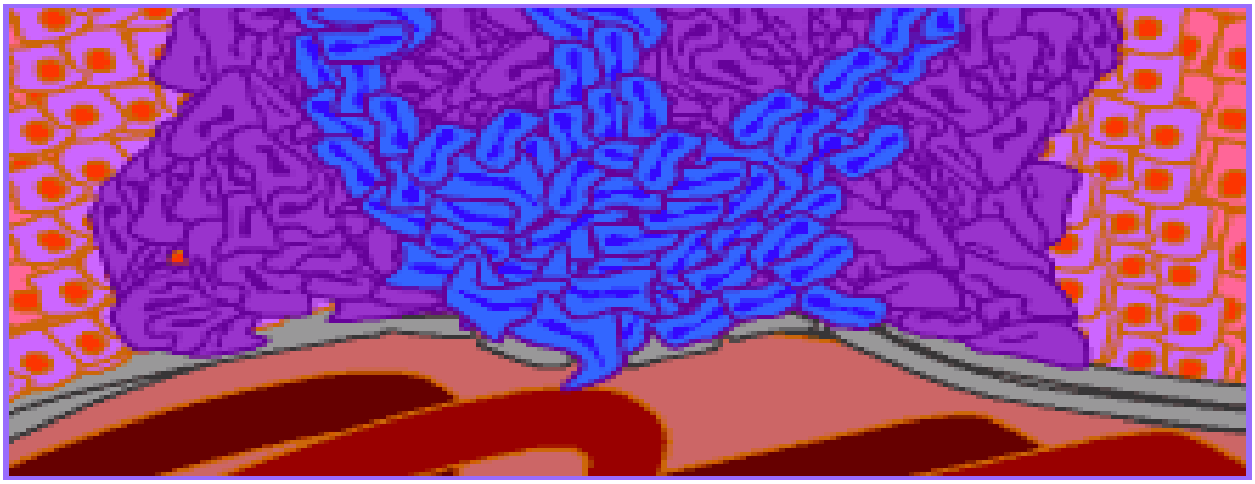


The new type of cells grow rapidly, allowing for more opportunities for mutations. The next mutation paves the way for the development of an even more aggressive cancer. At this point the tumour is still contained.

7. Breaking through the membrane

The newer, wilder cells created by another mutation are able to push their way through the epithelial tissue's basement membrane, which is a meshwork of protein that normally creates a barrier. The invasive cells in this tumour are no longer contained.[5]

At this point the cancer is still too small to be detected.



Solution of cancer

How to fight cancer

Prevention

More than 30% of cancers are caused by several leading behavioural and environmental risks that are potentially modifiable. Tobacco use is the single largest preventable cause of cancer in the world today. It is responsible for up to 1.5 million cancer death year.[6]

TREATMENT

Treatment is the series of interventions, including psychosocial support, surgery, radiotherapy, chemotherapy that is aimed at curing the disease or prolonging life considerably while improving the patients quality of life.[7]

Key strategies:

Treatment of early detectable cancers: Some of the most common cancer types, such as breast cancer, cervical cancer, oral cancer and colorectal cancer have higher cure rates when detected early and treated according to best practice.[8]

Treatment of other cancers with potential for cure:

Some cancer types, even though disseminated, such as leukemias and lymphomas in children, and testicular seminoma, have high cure rates if appropriate treatment is provided.[9]

Palliative Care

Palliative care is an urgent humanitarian need worldwide for people (adults and children) with cancer and other chronic fatal diseases. It is particularly needed in places where a high proportion of patients present in advanced stages and there is little chance of cure.

Relief from physical, psychosocial and spiritual problems can be achieved in over 90% of advanced cancer patients through palliative care.

For more information from WHO on how to develop and implement an effective cancer control plan and its main components, see Cancer control: Knowledge into action.

Conclusion:

The cancer is disease which is caused by the hereditary or direct contact. This disease can be treated when only if it is be identified at earlier stage. This review paper express the severity of the disease and there prevention should be taken.

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