

CANCER

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ABSTRACT:-Now-a-days a cancer become a major disease worldwide .It occurs due to changes in gene mutation .These gene mutation develop into tumors and spread throughout the body.Many researchers found out that this gene mutation cause uncontrolled growth of cell an invade to other parts of body In order to damage them. There are several stages in cancer by knowing its correct stage and detection of cancer in early stage help us to cure it properly .How the cells abnormality begins in the human body? Which causes them to grow? All these information's help us to get more new diagnosis new techniques , more realistic details about cancers.

KEYWORDS:- Carcinogenesis, Human Cancer ,Gene mutation, Oncology, malignant tumor, malignant neoplasm.

INTRODUCTION:-

Cancer is become the serious problem worldwide.It affects the health in societies .The cases of cancer has actually been increased throughout the year. Cancer has become the second leading cause of death on a large scale. Usually in men the highest percentages of cancer mostly occur in the prostate ,lung and bronchus, colon and rectum, and urinary bladder respectively whereas, in women the highest percentages of cancer is

How cancer starts?

found in the breast ,lung end bronchus,colon and rectum, uterine corpus and thyroid, respectively. In children, the highest percentage type of cancer disease are blood cancer and cancer related to the brain and lymph nodes respectively. Cancer is occur through a series of successive mutations in genes so that these mutations change cell functions.

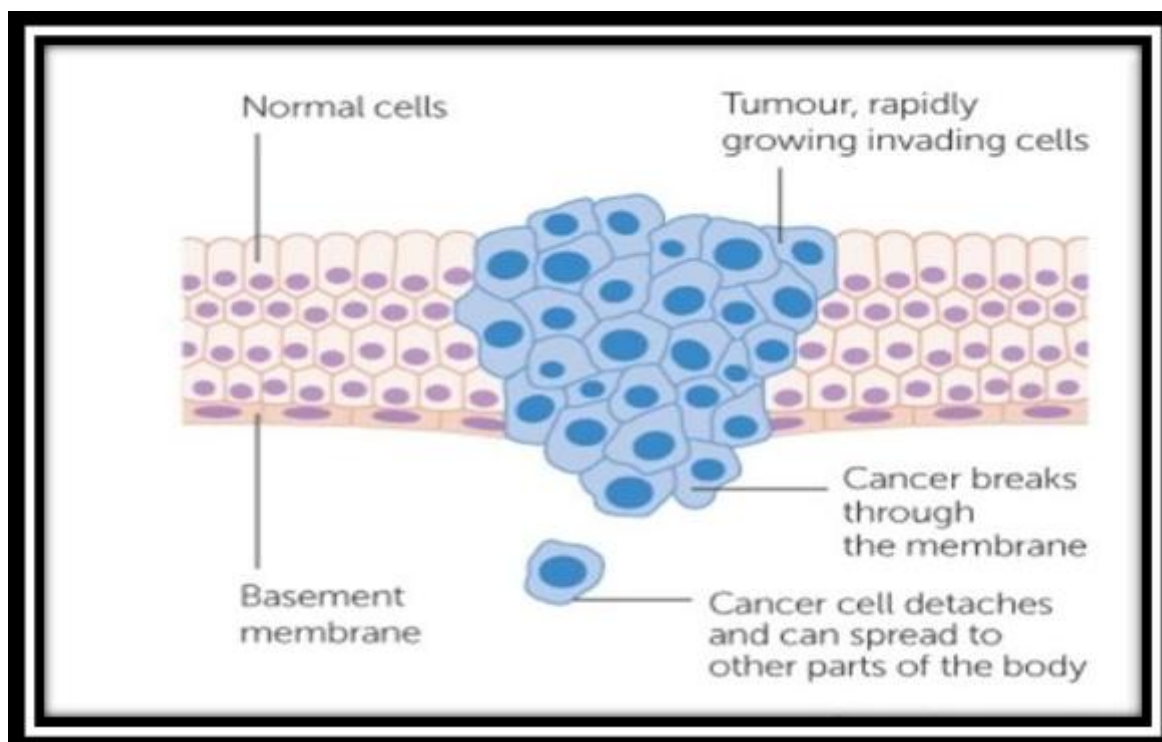
What is cancer?

Cancer develops when our bodies does not function properly. The age-old cell does not die instead they grow out of the control. This uncontrolled growth of cell form abnormality in the cell system. This extra cell forma mass of tissue called as tumour.[1]

How cancer starts, grows and spreads ?

Our tissue and organs are made up of trillions of cells.In each cell nucleus is present , inside the nucleus genes are present. These genes instruct the cell to grow ,divide ,work or die. When the cell follow the commands of gene our bodies stay healthy.

When are DNA get altered or any damage to it gene get mutated. Mutation in genes cause problem to cell working as they do not get proper commanding because of gene mutation in their DNA. These irregularities caused the cells to divide and grow out of control which leads to cancer.[2]



When a gene of a body work properly they give direction to cells when to grow and divide. According to the message cell divide identical into two cells then these 2 cells divides into four cells and so on the process is going. In cancer, genes that promote cell growth and differentiation are must be altered. Cancer cells develop over a time or a year. The affected genes are broadly classified into two categories. Oncogenes are the genes help in growth of cell and their reproduction. Tumour suppressor genes inhibit cell division and survival.[3,4]Changes in genes can be occur due to different factors such as chemicals ,viruses ,radiation through x-rays, UV rays, sunlight etc.[5]There is some loss of chromosomes due to mutation. Usually mutations occur due to changes in sequence of nucleotides in DNA.Cancer is a multi step process involving mutation,cell proliferation malignant and metasis .Failure in DNA repair changes normal cell into cancer cell.DNA destruction are modified in changes in DNA methylation, histone modification and changes in chromosome and architecture caused by inappropriate expression of protein such as HMGA2 or HMGA1. This changes may remain through cell division which is further result in mutation. Reduce in expression of DNA it also

disrupts DNA repair.When the DNA repair deficiency remains in cells at higher level it cause increase in frequencies of mutation. When rates of mutation increase substantially in cells it also effects in DNA mismatch repair or in homologous recombination repair(HRR) .Deficient expression in DNA repair proteins due to inherent mutation can also increase cancer risks.[5,6]These gene alteration in cell progress to mutation which further result in abnormal proliferation of that cell known as tumour. Irregularities in DNA repair effect growth of cell or apoptosis.Cell proliferation increase cell numbers resulting from cell division which is tightly in control ,while in case of cancer cell acquire excessive proliferation due to sustaining proliferative signalling and evaded growth suppressors . Destruction in miRNA expression is the main reason for excessive cell proliferation and tumour progression.[7]Tumour progression starts when a cell growth is rapid and make a clone of death cells which is popularly known as tumour. With the beginning of tumour progression clone formation also start with increase rate of growth.Clone selection continues throughout the tumour progression which gives rise to neoplasm. Metastasis, the last stage of cancer .In this cancer spread to other parts of the body this is

a dead sign of the patient a very dangerous level in which surgery are almost impossible .Majorly metasis occur in the lung ,liver ,brain ,bones etc.[8,9,10]

How cancer grows?

Cancer cell grows unconditionally .They divide and grow out of the control and spread to other locations .This suppressed immune system to fight.They merge with other organs such as lymphatic system and other tissue and damage them too .They are not stick to each other while all are spread to different location and damage other tissue or organs.[11] Cancer cells also need nutrition, oxygen as like normal cell. When it grows more they need more amount of oxygen and nutrition to grow cancer .This is known as angiogenesis.

How can cancer cells spread in the body?

The site where cancer cell starts are called as primary cancer or primary site. The primary cell grow further and divide and spread to other parts and form tumours which is termed as secondary site or secondary tumours. The spreaded cell move into lymph vessel or blood vessels. Through blood vessels they pass into blood stream they circulate throughout the blood stream and get stuck into the small capillary. From capillary they enter into the tissue or organ where the cell multiply and form new tumour. Some of the cancer cells are killed by the white blood cell but many of them survive and move to other body parts and form new secondary cancer .Many cancer cell pass through the lymph vessel ,a network of tubes and glands in the body. Cancel cell spread through the lymph vessel many of them may die in the lymph glands.But some of them may survive and form tumour in lymph nodes .This is called lymph node spread not lymph cancer.[12]

Diagnosis:-

There are several test from which we can find out the presence of cancer cell .Detection of cancer at earliest stage may help doctor to try best result to outcome from the disease . The most common diagnostic method includes:-

1. Biopsy- A small piece of tissue is removed out from body by surgery .The tissue is examined under microscope the location and the type of

tumour is exactly present is search out through this diagnosis.

2. Endoscopy- In this a plastic tube is inserted in the body with a camera fitted on end of tube .Physician view a size and growth of colon in the organ , tissue an abdominal cavity.[13,14]
3. Imaging Tests- In this method doctor examined disease by non invasive way no part of tissue or organ is removed from body to examine .The diagnosis is carry out by computerised method such as bone scan, magnetic resonance emerging(MRI), tomography(CT) scan and positron emission tomography.
4. Laboratory Tests- Through blood test or urine test a doctor can examine an abnormalities which caused by cancer cell.[14]

Treatment:-

The methods of treatment and their benefits has been evolving since many years. Cancer is a tough challenge to treat as it is not detected in its primary stages. Even when the treatment are tough but it does not mean that it is incurable many type of cancer that are treated with 100% result. The treatment of any type of cancer depends on the type of cancer the patient is having and in which stage it lies.[15]There are many variety in treatment patients undergoes .Some of them are listed below-

- Chemotherapy- In this the cancer cells is demolished by using medicine. Chemotherapy is effective on cancer cells.
- Surgery- The main mot of surgery is to remove cancel from body.
- Radiation In radiation therapy, high powered radiation beams like x-rays, proton etc. are used to kill cancer cells.
- Immunotherapy- In this therapy, as suggests the immune system of body is use to fight against cancer.
- Hormone therapy- Some type of cancer are related to body hormone like breast cancer related to estrogen. In this therapy hormones are removed which causes cancer.
- Bone marrow therapy- Bone marrow is the part of body which generates blood cells for body. In this treatment bone marrow is used as transplant to overcome from the cancer.[

- Target drug therapy- In this kind of therapy a specific Organ is targeted to kill cancer cell.[16,17]
- Clinical trials- In this method new ways are investigated to treat cancer such as massage, relaxation techniques, acupuncture, exercise etc.

CONCLUSION:-

A genes play important role in the cancer. An report search out by researchers that gene mutation and protein destruction play a vital role in the production of cancer cell .Mostly cancer cells caused by environmental factors such as ultraviolet light, radiation, infectious agents ,use of tobacco which is hazardous to lung , pollution, etc. To overcome out of cancer a many new techniques, treatment are find out to cure the disease as soon as possible. Various studies on cancer their causes, pathology, etiology and how did they develop are studied to fight with the disease more strongly with 100% result. But many of the epigenetic are still unknown. However research is ongoing on what are the factor are responsible to cause cancer. This information gives us further knowledge to reduce cancer in the future.

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