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REVIEW ON CANCER

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ABSTRACT : Cancer is a genetic disorder that results from genetic or epigenetic altera red if diagnose in eary stage of life. Treatmend of cancer depends on the tions in the somatic cells and has abnormal cell growth which may be spread to other body parts. cancer is due to uncontrolled growth of cell which can be cu various internal and external factors causing cancer. The number of treatments are now available those days such as gene therapy, chromatoghraphy, surgery,radiadtion therapy, immunotherapy, etc.Cancer are diagnose by different treatment.

KEYWORDS : Cancer, Carcinogen ,Prevalance.

INTRODUCTION: Cancer are a group of disease characterised by uncontrolled growth and spread of abnormal cells. If the spread of cancer cells this stage is known as metastasis is not controlled , it can result in death. Cancer is caused by many external factors (Tobacco, chemicals, radiations, and infectious organisms) as well as some internal factors (Inherited Mutation, Harmones,Immune conditions and Random mutations). The causes of cancer divers, complex and only partially understood. Many things known to increase the risk of cancer, including dietary factor, certain infections , lack of physical activity, obesity, and environmental pollutants.[1] These factors may act together to initiate or pramote carcinogenesis in human body and thus, cancer is leading to cause of death.

Cancer has a become one of the cause of death in India. It is estimated that there are nearly 2 to 2.5 million cancer causes and any given point of time. Over 7 lakhs new causes and 3 lakhs deaths occurs annually due to cancer. Nearly 15 lakhs patients required facilities for diagnosis, treatment and follow up at a given time.[2]

Carcinogens : Caecinogens are a class of substance that are directly responsible for damaging DNA, promoting or aiding cancer. Tobacco, Asbestos, Arsinic, Radiation such as Gamma and X-rays, the sun and compounds car exhaust fumes are all examples of carcinogens. When our bodies are exposed to carcinogen, free radicals are formed that try to steal electrons from other molecules in the body, These free radicals damage cells and effect their ability to function normally.[3]

Types of Cancer: Cancers are divided into various types that are: [4]

a. Carcinomas: It starts in the tissue or the skin, which covers the glands and internal organ surface. It forms a solid tumor. Breast cancer, prostate cancer, colorectal cancer, lung cancer.

b. Sarcomas: It starts in the tissues which connect and support the body. It can be formed in nerves, tendons, joints, fat, blood vessels, bone, lymph vessels, muscles, or cartilage.

c. Leukemia's: Leukemia is a cancer of the blood. It begins when healthy blood cells grow uncontrollably and change. It is divided into 4 types, that are acute myeloid leukemia, acute lymphocytic leukemia, chronic myeloid leukemia, and chronic lymphocytic leukemia.

d. Lymphomas: Lymphoma is cancer that begins in the lymphatic system and it is a network of glands and vessels that helps to fight with infection.

e. Central Nervous System Cancers: Cancer that starts in brain tissues and spinal cord called "brain and spinal cord tumors", and others primary CNS lymphomas, vestibular schwannomas, gliomas, pituitary adenomas, primitive neuro-ectodermal tumors, meningiomas, and vestibular schwannomas.

f. Multiple Myeloma: Multiple myelomas is cancer that begins in plasma cells, another type of immune cell. The myeloma cells which are plasma cells, are build up in bone marrow and make tumors in bones. It is called plasma cell myeloma and Kahler disease.

g. Melanoma: It starts in cells that become melanocytes. These cells are specialized cells that make melanin, i.e., the pigment that gives the color to the skin. Mainly melanomas develop on the skin, but it can also develop in other pigmented tissue

like an eyes.

***Symptoms and Signs of Cancer*:** [5,6,9]

1. Fatigue
2. Fever
3. Loss of apetite
4. Cough or hoarseness
5. Chnage in bowel or bladder habit
6. Unexplained bleeding

7. Unusual upset stomach
8. Blood-Tinged saliva
9. blood in stool
10. Breast lump or breast discharge
11. Change in urination
12. Persistant back pain
13. Unexplained weight loss
14. Bone pain
15. lls

Causes of Cancer [7,8]**:** There are many causes which may cause cancer in different body parts like mainly 22% deaths are due to tobacco consumption, 10% of deaths are due to poor diet, obesity, lack of physical activity, excessive drinking of alcohol or other facts include certain exposure to ionizing radiation, environmental pollutants, and infection.

Cancer is caused by the interaction between genetic factors and 3 categories of agents which we consume externally including:

i. Physical Carcinogens: Ionizing radiation such as radon, ultraviolet rays from sunlight, uranium, radiation from alpha, gamma, beta, and X-ray-emitting sources.

ii. Chemical Carcinogens: Compounds like n-nitrosamines, asbestos, cadmium, benzene, vinyl chloride, nickel, and benzidine and contains about 60 known potent cancer-causing toxins or chemicals in cigarette smoking or tobacco consumption, a drinking water contaminant (arsenic), a food contaminant (aflatoxin).

iii. Biological Carcinogens: Infections from certain bacteria, viruses, or parasites and Pathogens like human papillomavirus (HPV), EBV or Epstein-Barr virus, hepatitis B and C, Kaposi's sarcoma-associated herpesvirus (KSHV), Markel cell polyomavirus, Schistosoma spp., and Helicobacter pylori. Aging is also the cause of cancer. Age is the common incidence of cancer, which dramatically rises.

Diagnosis: Diagnosis of cancer is carried by doctors by taking screening tests of patients. Person with cancer who have no symptom then they diagnosed during tests of other condition or issues, and if any person has symptoms of cancer doctor will perform various tests.[10,11]

1. CT scan
2. MRI
3. Lab test
4. Imaging test
5. Biopsy
6. Nuclear scan
7. Bone scan
8. Pet scan
9. Ultra-sound
10. X-ray

After tests and reports if anyone having cancer then the doctor will figure out the stage of cancer for the best treatment.

Side effects of cancer treatment: The treatment of cancer can affect also to the normal cells, tissue, and organs .[12] Side effects are the effects of treatment which are shown with therapeutic effect. Common side effects are shown below :[13,14]

1. Anemia
2. Appetite loss
3. Bruising and bleeding (thrombocytopenia)
4. Constipation
5. Delirium
6. Diarrhea
7. Edema
8. Fatigue
9. Fertility issue in boys and men
10. Fertility issue in girl and women

11. Flu-like symptoms
12. Hair loss (Alopecia)
13. Infection and Neutropenia
14. Lymphedema
15. Memory or concentration problems
16. Mouth and throat problems
17. Nausea and vomiting
18. Nerve problems (Peripheral Neuropathy)
19. Organ related inflammation and immunotherapy
20. Pain
21. Sexual health issue in both men and women
22. Skin and nail changes
23. Sleep problems
24. Urinary and bladder problems.

Types of Cancer Treatments: The various types of treatments are[15]:-

1. **Surgery:** To prevent or reduce the disease's spread and remove cancer from the body, surgeon may remove lymph node.
2. **Radiation Therapy:** In this therapy high doses of radiation are used to treat cancer by shrinking tumors and to kill cancer cells.
3. **Chemotherapy:** In this therapy, chemicals are used to treat cancer by killing cancer cells and also by shrink tumors but have severe side effects.
4. **Immunotherapy:** In this therapy, the immune system is boost by medication or other treatments. Example, adoptive cell and checkpoint inhibitors treatment.
5. **Targeted Therapy:** In this therapy, changes in a cancer cell that help them divide, spread and grow by targeting and immune system also boost. Example, monoclonal antibodies and small-molecule drugs.
6. **Hormone Therapy:** In this therapy, hormones are used to treat cancer, such as prostate and breast by stop and slow growth.
7. **Stem Cell Transplants:** In this therapy, the stem cells restore in cancer patients, which are

destroyed by very high doses of radiation or chemotherapy.

8. **Precision medicine:**It is the newer approach, in which the best treatment for a patient is determined by genetic testing.

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