NEOPLASIA ASSIGNMENT

H12/02061/20

1. **Describe the epidemiology of cancer**.

Epidemiologic study of cancer has revealed strong associations between smoking and lung cancer. Also there is a link between diets low in fiber and high in fat to colon cancer. Studies have also shown relation between particular environmental, racial and cultural influences to certain neoplasms. The incidence of cancer varies with geography, age, race and genetics. Cancers are most common in adults over 55 years but there are some cancers that are common to certain age group, for instance, leukemia in children. Geographic variation is linked to different environment exposures to environmental carcinogens like nasopharyngeal cancer is common in Southern China, Southeast Asia and North Africa due to Epstein-Barr Virus and consumption of salted fish containing nitrosamines. Important environmental factors implicated in cancer include exposure to infectious agents, smoking, alcohol, diet, obesity and environmental carcinogens. Interactions between environmental factors and genetic factors may be important determinants of cancer risk. Alcohol abuse increases the risk of oropharynx, larynx, esophagus and by development of liver cirrhosis, they also get hepatocellular carcinoma. The most common tumors in men arise in prostate, lung, colon and rectum. In women, breast, lung, colon and rectum are most common. Estrogen excess also plays a role in development of cancer. Race sometimes describes groups of people at risk/ most susceptible to certain cancers.

2. Discuss the clinical Aspects of neoplasia

A.) **Cachexia** – Progressive loss of body fat and lean body mass accompanied by profound weakness, anorexia and anemia, that is caused by release of factors from tumor cells or immune cells of the host

-It most commonly occurs in patients with advanced gastrointestinal, pancreatic and lung cancers and is responsible for about 30% of cancer deaths. Mortality is generally due to atrophy of diaphragm and respiratory muscles

B.) **Local effects**

i) Compression - Tumors may impinge upon vital tissues and impair their function, cause death of involved tissue and impair their function. A small pituitary adenoma can compress and destroy the surrounding normal gland leading to hypopituitarism.

ii) Endocrine insufficiency – Cancers arising within or metastatic to an endocrine gland may cause destruction to the gland

iii) Ulceration and bleeding - The erosive and destructive growth of cancers or the expansile pressure of a benign tumor on any natural surface, such as the skin or mucosa of the gut, may cause ulcerations, secondary infections, and bleeding. Melena and hematuria are characteristic neoplasms of the gut and urinary tract

C.) **Paraneoplastic syndromes** – Malignant tumors invade local tissue, produce metastasis and can produce a variety of products that can stimulate hormonal, hematologic, dermatologic and neurologic responses. Paraneoplastic syndromes are important to recognize because:

i) They may be the earliest manifestation of an occult neoplasm.

ii) In affected patients they can cause significant clinical problems and may even be lethal

iii) May be mistaken for metastatic disease leading to inappropriate treatment

D.) **Grading and Staging of Cancer**

i) **Grading** – Is based on the degree of differentiation of tumor cells and in some cancers, the number of mitoses

ii) **Staging** - The staging of solid cancers is based on the size of the primary lesion, whether it has spread to regional lymph nodes and the presence or absence of blood-borne metastases. The major staging system currently in use is the American Joint Committee on Cancer Staging. This system uses a classification called the TNM system. T refers to size of primary tumor, N refers to lymph node status and M refers to the presence and anatomical extent of distant metastases.

- With increasing size, the primary lesion is characterized as T1 to T4. T0 is used to denote an in situ lesion.
- N0 would mean no nodal involvement, whereas N1 to N3 would denote involvement of an increasing number and range of nodes
- M0 signifies no distant metastases, whereas M1 indicates the presence of metastases.
- Prognosis of tumor depends on Histological type, grade and stage.