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17/MHS01/013

MEDICINE AND SURGERY

300 LEVEL

BIOCHEMISTRY

1. What do you understand by primary or simple obesity?
2. How does congenital syndrome and drug therapy affect obesity
3. Outline the aetiology of cancer and its molecular basis.

ANSWER

1. **Primary or simple obesity:** Simple Obesity/Primary obesity is due to excessive energy intake and too little consumption, also known as diet-induced obesity and has the largest proportion in all types of obesity(95%).
2. Obesity can be seen as an effect of some other conditions or as a result of prolonged use of certain medications.

Obesity is a major feature of a number of rare genetic conditions that often present in childhood:

- Prader–Willi syndrome with an incidence between 1 in 12,000 and 1 in 15,000 live births is characterized by hyperphagia and food preoccupations which leads to rapid weight gain in those affected.
- Bardet–Biedl syndrome
- Leptin receptor mutations
- Congenital leptin deficiency
- Melanocortin receptor mutations

Antipsychotics, antidepressants and antiepileptics can increase body weight, probably through their effect on the monoamines in the CNS. Among newer neuroleptic medications, clozapine and olanzapine have been associated with an average weight gain ranging between 3–4.4 kg and an increased risk of diabetes and dyslipidemia.

3. **The aetiology(causes) of cancer:**

Cancer is caused by accumulated damage to genes. Such changes may be due to chance or to exposure to a cancer causing substance. The substances that cause

cancer are called carcinogens. A carcinogen may be a chemical substance, such as certain molecules in tobacco smoke. The cause of cancer may be environmental agents, viral or genetic factors.

A. Lifestyle-related factors that cause cancer include:

- Tobacco
- Alcohol
- UV radiation in sunlight
- Some food-related factors, such as nitrites and poly aromatic hydrocarbons generated by barbecuing food).

B. Cancer causing factors related to work and living environments include:

- Asbestos fibres
- Tar and pitch
- Polynuclear hydrocarbons (e.g. benzopyrene)
- Some metal compounds
- Some plastic chemicals (e.g. Vinyl chloride)

C. Bacteria and viruses can cause cancer:

- Helicobacter pylori (H. pylori, which causes gastritis)
- HBV, HCV (hepatitis viruses that cause hepatitis)
- HPV (human papilloma virus, papilloma virus, which causes changes eg. Cervical cells)
- EBV (Epstein-Barr virus, the herpes virus that causes inflammation of the throat lymphoid)

D. Radiation can cause cancer:

- Ionising radiation (e.g. X-ray radiation, soil radon)
- Non-ionised radiation (the sun's ultraviolet radiation)

E. Some drugs may increase the risk of cancer:

- Certain antineoplastic agents
- Certain hormones
- Medicines that cause immune deficiency