ODOMENE JUSTICE

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BCH 308

1. **What do you understand by primary obesity?**

Firstly, **obesity** is defined as an abnormal or excessive fat accumulation that presents a risk to health. Obesity is said to be primary when no obvious cause exists other than an imbalance in energy intake and expenditure.

3. **Discuss the aetiology of cancer and its molecular basis.**

Aetiology of cancer:

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.
We should bear in mind, though, that in the majority of cancer cases we cannot attribute the disease to a single cause.
We can roughly divide cancer risk factors into the following groups:
  ➢ biological or internal factors, such as age, gender, inherited genetic defects and skin type

  ➢ environmental exposure, for instance to radon and UV radiation, and fine particulate matter

  ➢ occupational risk factors, including carcinogens such as many chemicals, radioactive materials and asbestos

   lifestyle-related factors.

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).

Lifestyles can prevent cancer

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)

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)

Radiation can cause cancer:
> ➢ ionising radiation (e.g. X-ray radiation, soil radon)

> ➢ non-ionised radiation (the sun's ultraviolet radiation)

Some drugs may increase the risk of cancer:
> ➢ certain antineoplastic agents

> ➢ certain hormones

> ➢ medicines that cause immune deficiency

In 5 – 10 per cent of breast cancer genetic predisposition plays an important role in the emergence of the disease.

Molecular basis of cancer:

Cancer is a group of diseases characterized by an autonomous proliferation of neoplastic cells which have a number of alterations, including mutations and genetic instability. Cellular functions are controlled by proteins, and because these proteins are encoded by DNA organized into genes, molecular studies have shown that cancer is a paradigm of acquired genetic disease. The process of protein production involves a cascade of several different steps, each with its attendant enzymes, which are also encoded by DNA and regulated by other proteins. Most steps in the process can be affected, eventually leading to an alteration in the amount or structure of proteins, which in turn affects cellular function. However, whereas cellular function may be altered by disturbance of one gene, malignant transformation is thought to require two or more abnormalities occurring in the same cell. Although there are mechanisms responsible for DNA maintenance and repair, the basic structure of DNA and the order of the nucleotide bases can be mutated. These mutations can be inherited or can occur sporadically, and can be present in all cells or only in the tumor cells. At the nucleotide level, these mutations can be substitutions, additions or deletions. Several of the oncogenes discussed below, including the p53, c-fms, and Ras genes, can be activated by point mutations that lead to aminoacid substitution in critical portions of the protein.

2. **How does drug therapy and congenital syndrome affect secondary obesity?**
Weight gain is a common side effect of many widely used drugs. Weight gain of a few kilograms to an increase of 10% or more of initial body weight has been described. Not only the weight gain as such puts a burden on the health risks of the involved patients, the accompanying increase in the incidence of the metabolic syndrome, type 2 diabetes mellitus, and cardiovascular risk factors urges the caregiver to identify and to closely monitor the patients at risk. In this review, the different classes of drugs with significant weight gaining properties and the metabolic consequences are described. Specific attention is given to pathogenetic mechanisms underlying the metabolic effects and to potential therapeutic measures to prevent them.