

ONYEMA FAVOUR CHINAZAM

17/MHS01/266

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1 What do you understand by Primary or Simple Obesity?

### Primary or Simple Obesity

Obesity is a medical condition in which excess body fat has accumulated to an extent that it may have a negative effect on health. It is a disorder of body weight regulatory system characterized by accumulation of excess fat. It is a nutritional disorder in which excess body fat has accumulated.

Obesity is classified into simple <sup>or</sup> primary obesity and secondary obesity. Simple Obesity is a nutritional disorder characterized by a normal or increased growth rate with an acceleration of bone age maturation. It is a condition characterized by normal growth in the presence of hypsomatotropicism. It is associated with high insulin and low Growth Hormone secretion.

This type of obesity is caused by increased food intake and decreased energy usage only.

Physical carcinogens: This includes x-rays, light, gamma rays etc. This includes aniline,

It is caused by Congenital susceptibility unlike secondary obesity caused by diseases of Endocrine glands and violations of functions of thalamus nucleus.

Primary obesity is also called Exogenous or Constitutional obesity. It is caused by

- i Excess of Carbohydrate
- ii Hyperinsulinism
- iii Increase of Triglycerides
- iv Increase of fatty cell synthesis
- v Increase of Adrenocorticotrophic Hormone secretion and Hypercorticism

vi. Primary obesity leads to development of secondary diencephalic syndrome at puberty

## 2. How does Congenital Syndrome and Drug therapy Affect Obesity

Congenital Syndrome is an <sup>often</sup> inherited medical condition that occurs at or before birth. There are numerous congenital syndromes that affect or cause obesity. Some include

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Bardet - Biedl syndrome, Prader - Willi syndrome, Cohen syndrome, Alstrom syndrome, Hypothyroidism, hyperinsulinism etc

Bardet - Biedl syndrome is a autosomal recessive genetic disorder that affects many body systems and is characterized by obesity.

Prader - Willi syndrome is a genetic disorder caused by deletion of a part of chromosome 15 that causes obesity, intellectual disability and shortness in height. Obesity is affected by this syndrome because the syndrome causes chronic imbalance between energy intake and expenditure due to hyperphagia, decreased physical intake, reduced metabolic rate etc all leading to Obesity.

Hypothyroidism also causes decreased thermogenesis and metabolic rate leading to obesity. While Hyperinsulinemia (hyperinsulinism) as increased insulin levels causes increased lipid uptake, lipogenesis etc causing obesity.

Drug therapy also affects obesity as psychotropic drugs (such as clozapine, olanzapine, risperidone and quetiapine) are known

Physical Carcinogens: etc

1. amphetamine

to cause marked weight gain. Antidepressants also causes weight gain. While drugs like Orlistat treats obesity as it deactivates intestinal lipase and inhibits intestinal fat lipolysis thereby causing weight loss

3. Outline the Aetiology of Cancer and its Molecular Basis

### Aetiology of Cancer

Cancer which is abnormal growth of cells (both increase in size and number) arises from many factors. These factors could be External (from environment) or internal (from genes etc). Aetiology of Cancer is multifactorial and they cause mutation of genes

The Causes of Cancer are,

- i) Carcinogens: These are mutagens which when they enter or come in contact with the body cause cancer. Carcinogens are classified into the following

- a Physical carcinogens: This includes x-rays, UV light, gamma rays etc
- b Chemical Carcinogens: This includes aniline, asbestos, tobacco, food additives, colouring agents, nitrites, poly-aromatic hydrocarbons, benzopyrene, vinyl chloride tar and pitch
- c Natural Chemicals; Aflatoxin B in Aspergillus fungus

All the above are External Factors

- ii) Oncogenic virus: This is also an external factor: These viruses get integrated into the host DNA leading to multiplication of viral gene which overtakes the normal multiplication of host's gene cells causing uncontrollable multiplication of the cell. Examples of viruses that cause cancer are Hepatitis B virus (causes Hepatoma), Epstein-Barr virus (causes Burkitt's Lymphoma) etc.

Internal factors include

- iii) Hormones: Some hormones in the body cause

Cancer. Such hormones are steroid hormones. Example is progesterone and oestrogen that increase risk of breast cancer. It is an internal factor.

iv) Hereditary: Mutated genes causing cancer have a 50% chance of being passed to the offspring. Cancers such as Xeroderma pigmentosa and Familial adenomatous Polyposis are known to be highly hereditary. This is an internal factor.

Other factors such as age, gender, skin type are also associated with cancer.

### Molecular Basis of Cancer.

Cancer cells are cells with mutated genes. They are able to escape apoptosis of normal cell cycle due to production of the enzyme Telomerase Polymerase which lengthen the telomeres on the chromosome. By this process, cancer cells are immortalized.

by avoiding apoptosis. Carcinogens destroy signals that normal cells receive for apoptosis hence cancer cells continue to multiply uncontrollably.