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COURSE : BIOCHEMISTRY

**ASSIGNMENT**

1. WHAT DO YOU UNDERSTAND BY PRIMARY OBESITY

2. HOW DOES DRUG THERAPY AND CONGENITAL SYNDROME AFFECT SECONDARY OBESITY

3. DISCUSS THE AETIOLOGY OF CANCER AND ITS MOLECULAR BASIS

 **ANSWER**

1. Obesity is a medical condition in which excess body fat has accumulated to an extent that it may have a negative effect on health.[1] People are generally considered obese when their body mass index (BMI), a measurement obtained by dividing a person's weight by the square of the person's height, is over 30 kg/m2; the range 25–30 kg/m2 is defined as overweight.**[**Obesity is a medical condition in which excess body fat has accumulated to an extent that it may have a negative effect on health.

**PRIMARY OBESITY**

Primary obesity can simply be defined as a state of excess adipose tissue in the body.

2. Secondary obesity means that you have a medical condition that has caused you to gain weight.

There are some congenital conditions that can lead to secondary obesity such as;

 **Hypothyroidism:** it is associated with decreased thermo genesis, decreased metabolic rate, and has also been shown to correlate with a higher body mass index (BMI) and a higher prevalence of obesity.

* **Polycystic ovarian syndrome (PCOS):**  is a condition that affects a woman's hormone levels. Women with PCOS produce higher than normal amounts of male hormones. This hormone imbalance causes them to skip menstrual periods and makes it harder for them to get pregnant.Polycystic ovary syndrome is a condition that can affect a woman's ability to produce eggs. PCOS is linked with higher levels of circulating insulin, which is characteristic in type 2 diabetes
* **Cushing disease**: it is a condition in which the pituitary gland releases too much adrenocorticotropic hormone (ACTH). The pituitary gland is an organ of the endocrine system. Cushing disease is a form of Cushing syndrome. Cushing disease can occur if you have high stress levels of the stress hormone cortical, in your blood. Cortisol increases our blood pressure and blood glucose levels and is one complication which can result from untreated Cushing's syndrome.
* Obesity is fairly significant in individuals with congenital syndrome such as heart disease. Obesity can also serve as a risk factor to hypertension. Pregnancy obesity can also serve as a risk factor to malformations on the fetus. Maternal obesity is associated with an increased risk for congenital anomalies. Obese women were more likely to have an infant with spinal bifida, omphalocele, heart defects and multiple anomalies. Overweight women were more likely to have infants with heart defects and multiple anomalies.

There are some certain kinds of medications that can induce diabetes but can be reversed when the drugs are discontinued. There are some drugs known to induce diabetes such as;

* Corticosteroid
* Thiazide diuretics
* Beta-blockers
* Antipsychotics
* Statins

**Corticosteroid:** This is a powerful drug used to treat symptoms like inflammation caused by rheumatoid arthritis and lupus.

However, particularly if corticosteroids are taken over longer periods of time, steroid treatment can sometimes lead to the development of type 2 diabetes permanently. Whilst on steroid medication, you may need to take diabetes medication which may include insulin. When you come off the steroids course of treatment, you may be able to go onto less strong diabetes medication or come off blood glucose lowering medication altogether. From my general understanding steroids can lead to type 2 diabetes.

3.**AETIOLOGY OF CANCER:**

Cancer is a disease caused by genetic changes leading to uncontrolled cell growth and tumor formation. The basic cause of sporadic (non-familial) cancers is DNA damage and genomic instability.

**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. This article examines the current concepts relating to cellular mechanism that underlie the molecular alterations that characterize the development of cancer.ancer is a disease caused by genetic changes leading to uncontrolled cell growth and tumor formation. The basic cause of sporadic (non-familial) cancer.