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Medicine and surgery

Biochemistry assignment

**QUESTION 1 - what do you understand by primary or simple obesity**

**Primary** **Obesity** is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health. It is defined by body mass index (BMI) and further evaluated in terms of fat distribution via the waist–hip ratio and total cardiovascular risk factors.

In primary obesity, the excess accumulation of fat is as a result of low insulin production of the body or reduced response to the insulin hormone without the any underlying condition. Any underlying condition that leads to the patient to gain weight and have disorder in the weight regulating system of the body is categorized as secondary obesity e.g endocrine conditions, hypothalamic conditions and congenital disorders.

**QUESTION 2 - how does congenital syndrome and drug therapy affect obesity**

**Congenital syndrome** aka congenital disorder, is a condition present at birth regardless of its cause. Congenital disorders can be structural or functional.

Science shows that genetics plays a role in obesity. Genes can directly cause obesity in specific disorders such as Bardet-Biedl syndrome and Prader-Willi syndrome

However genes do not always predict future health. Genes and behavior may both be needed for a person to be overweight. In some cases multiple genes may increase one’s susceptibility for obesity and require outside factors; such as abundant food supply or little physical activity.

Genes alone cannot deem a person obese but it simply puts them in a position to become obese easier than someone who has a different genetic make-up.

* **Prader-Willi Syndrome**: people with this disorder have a mental disorder that causes affected patients to overeat. This combined with the slow metabolic rate of affected patients will lead to easy weight gain and if not moderated, obesity.
* **Lawrence-Moon Bardet syndrome**: patients with such condition have increased leptin resistance in adipocytes(leptin is responsible for decrease in adipocytes and is regarded as the satiety hormone that tells a person they are satisfied after a meal). Because there is a resistance to leptin, the body is not satisfied and continues to crave food and increase food consumption and the fat cells continue to increase in size and number also. The basis of obesity.
* **Cohen syndrome**: people with this disorder become obese as a result of increased response of adipocytes to insulin.

## **Drug therapy** , also known as pharmacotherapy is a general term for using medication to treat disease. **Some medicines** might stimulate your appetite. This **causes** you to eat more and **gain** extra **weight**. **Some medicines** might affect your body's metabolism. This **causes** your body to burn calories at a slower rate.Some illnesses may lead to obesity or weight gain. These may include Cushing’s disease, and polycystic ovary syndrome. Drugs such as steroids and some antidepressants may also cause weight gain. 1. **Antipsychotics**: may be used to treat schizophrenia and symptoms of psychosis (seen in people with dementia). They cause weight gain and hyperglycemia and prolonged use can cause reduced insulin sensitivity.

## 2. **Depakote (valproic acid):** Depakote is used to treat bipolar disorder and seizures, and prevent migraines.A 2007 study of epilepsy patients found that 44% of women and 24% of men gained 11 pounds or more while taking Depakote for about a year. The drug affects proteins involved in appetite and metabolism, although it's not clear why it appears to affect women more than men. Lithium, another mood stabilizer for treating bipolar disorder, is also associated with weight gain, albeit less than Depakote.

## 3. **Thorazine (chlorpromazine**):When the first-generation antipsychotic Thorazine entered the market in 1954, it was clear that it could cause weight gain. Thorazine, along with Mellaril (thioridazine), has antihistamine activity, which increases your appetite and is sedating

**QUESTION 3 - Outline the aetiology of cancer and its molecular basis**

Neoplasia is an abnormal mass or tissue, the growth of which exceeds and is uncoordinated with that of normal tissue and persists in the same excessive manner even after cessation of stimuli which evoked the change.

Cancers are caused by genetic mutations, this genetic mutations result in altered proteins.

These mutations are from DNA amazing agents such as chemicals, radiations, viruses etc. which causes a normal cell to have a damaged DNA. the dna could repair itself through the stages of the cell cycle or undergo dpi-Tosin of repair is not possible, however in cancer the damaged cell does not die if or get repaired.

Failure of the DNA repair causes mutations in the genome of the somatic cells (mutations are common in somatic cells then in the germ cells) would cause things

1. Activation of growth promoting oncogenes

2. Inactivation of tumor suppressing genes

3. Alteration in genes that regulate apoptosis

This would lead to unregulated cell division and decreased apoptosis , eventually the damaged cell would increase and proliferate, there would be added mutations, growth of new blood vessels that aid to increase the life of the cancer. Tutor progression and then malignant neoplasms leading to invasion and metastasis of the cancer.