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ASSIGNMENT

1. DEFINE the following terms
 - a) Ketogenesis
 - b) Ketonaemia
 - c) Ketonuria
 - d) Ketogenesis
2. Consequences of ketosis
3. Write concisely on the management of ketoacidosis

ANSWER

1a) ketogenesis: it is the biochemical process through which organisms produce ketone bodies through breakdown of fatty acids and ketogenic amino acids.[1][2] This process supplies energy under circumstances such as fasting or caloric restriction to certain organs, particularly the brain, heart and skeletal muscle. Insufficient gluconeogenesis can cause hypoglycemia and excessive production of ketone bodies, ultimately leading to a life-threatening condition known as ketoacidosis.

b) ketonaemia: an abnormal increase of ketone bodies in the blood as in diabetes mellitus. It is also a condition marked by an abnormal increase of ketone bodies in the circulating blood.

c) ketonuria : the excretion of abnormally large amounts of ketone bodies in the urine, characteristic of diabetes mellitus, starvation, or other medical conditions. This condition is also called ketoaciduria and acetonuria.

2) what are the consequences of ketosis

Ketosis is a natural part of metabolism. It happens either when carbohydrate intake is very low or when you haven't eaten for a long time. Both of these lead to reduced insulin levels, which causes a lot of fat to be released from your fat cells. When this happens, the liver gets flooded with fat, which turns a large part of it into ketones. During ketosis, many parts of your body are burning ketones for energy instead of carbs. This includes a large part of the brain. However, this doesn't happen instantly. It takes your body and brain some time to "adapt" to

burning fat and ketones instead of carbs. During this adaptation phase, you may experience some temporary side effects. These are generally referred to as the "low-carb flu". These may include:

- Headache.
- Fatigue.
- Brain fog.
- Increased hunger.
- Poor sleep.
- Nausea.
- Decreased physical performance
- **Bad breath:** One of the more common side effects of ketosis is bad breath, often described as fruity and slightly sweet. It's caused by acetone, a ketone that is a byproduct of fat metabolism. Blood acetone levels are elevated in ketosis, and your body gets rid of some of it via your breath. Occasionally, sweat and urine can also start to smell like acetone.
- **Leg muscles may cramp :** Leg cramps in ketosis are usually connected to dehydration and loss of minerals. This is because ketosis causes a reduction in water weight.
- It may lead to digestive problems
- **Elevated heart rate:** This is also called heart palpitations or a racing heart, and can happen during the first few weeks of a ketogenic diet.
- Diarrhoea

Other, less common side effects may include:

- **Ketoacidosis:** A few cases of ketoacidosis (a serious condition that occurs in uncontrolled diabetes) have been reported in breastfeeding women, likely triggered by a very low-carb diet. However, this is extremely rare .

- **Kidney stones:** Although uncommon, some epileptic children have developed kidney stones on a ketogenic diet .

Raised cholesterol levels: Some people get increased total and low-density lipoprotein (LDL)

3) management of ketoacidosis

Ketoacidosis is a metabolic state caused by uncontrolled production of ketone bodies that cause a metabolic acidosis. ketoacidosis is a specific pathologic condition that results in changes in blood pH and requires medical attention. The most common cause of ketoacidosis is diabetic ketoacidosis but can also be caused by alcohol, medications, toxins, and rarely starvation.

Treatment depends on the underlying cause of the ketoacidosis.

a) Diabetic ketoacidosis is resolved with insulin infusion, intravenous fluids, electrolyte replacement and supportive care.

b) Alcoholic ketoacidosis is treated with intravenous dextrose and supportive care and usually does not require insulin.

c) Starvation ketoacidosis can be resolved with intravenous dextrose with attention to electrolyte changes that can occur with refeeding syndrome.