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****Assignment Title:**** DIABETES, OBESITY AND CANCER
****Course Title:**** Medical Biochemistry IV
****Course Code:**** BCH 313

****Question****

GROUP 2 CATEGORY (MBBS)

1.DEFINE THE FOLLOWING TERMS

A. KETOGENESIS

B. KETONAEMIA

C. KETONURIA

D. KETOGENESIS

2. WHAT ARE THE CONSEQUENCES OF KETOSIS

3. WRITE CONCISELY ON THE MANAGEMENT OF KETOACIDOSIS.

**Answer**

**1.**

**A.Ketogenesis** is the biochemical act to produce ketone bodies through breakdown of fatty acids and ketogenic amino acids. This process supplies energy under circumstances such as fasting or caloric restriction to certain organs, particularly the brain, heart and skeletal muscle. Ketogenesis is the normal pathway by which ketones are formed in the liver.

**B**..**Ketonaemia**, ketones in the bloodstream, is a physiological consequence of lipid metabolism. the presence of an abnormally high concentration of ketone bodies in the blood.

**C. Ketonuria**is a medical condition in which ketone bodies are present in the urine. It is seen in conditions in which the body produces excess ketones as an indication that it is using an alternative source of energy. It is seen during starvation or more commonly in type 1 diabetes mellitus.

**2**.

**Ketosis** is generally considered to be safe for most people. However, it may lead to a few side **effects**, especially in the beginning.
**These may include:**

* Headache.
* Fatigue.
* Brain fog.
* Increased hunger.
* Poor sleep.
* Nausea.
* Decreased physical performance

**keto flu**

Most people already know about the keto flu, which can happen when you start the diet. It’s a result of the body adapting to the low-carb state. Lowering carb intake forces the body to burn ketones for energy instead of glucose. Once the body is in ketosis — burning fat instead of glucose — the keto diet is working. But you may not feel so great at first, hence the term keto flu. Symptoms of the keto flu can include everything from headache, weakness, and irritability, to constipation, nausea, and vomiting. “With the start of the keto diet, the body switches from using sugar as a source of energy to using the body’s stored fat,” Rahnama explained. “In the process of breaking down fat, the body produces ketones, which are then removed by the body through frequent and increased urination. This may lead to dehydration and flu-like symptoms, such as fatigue, dizziness, irritability, nausea, and muscle soreness.”

## **Kidney and heart damage**

Because the body can be low on electrolytes and fluid on top of the increased urination, that can lead to a loss of electrolytes such as sodium, magnesium, and potassium. This can make people prone to acute kidney injury. “Dehydration is serious and may result in lightheadedness, kidney injury, or kidney stones,” she said. This may put the dieter at risk of a cardiac arrhythmia, as electrolytes are necessary for the normal beating of the heart, Rahnama added.

## **Yo-yo dieting patterns**

The keto diet can also lead to yo-yo dieting, because people have difficulty staying on the restrictive diet permanently. That can have other negative effects on the body. There are few long-term studies on the keto diet, which may be because it’s difficult to follow, so people aren’t staying on it for a long time.

## **Other impacts**

## Other side effects can include bad breath, fatigue, constipation, irregular menstrual cycles, decreased bone density, and sleep issues. Then there are other effects that are not well studied, mostly because it’s hard to track dieters on a long-term basis to find out the lasting effects of the eating plan.“We don’t know for sure the effects on blood cholesterol, some studies show increases, others show decreases, but we don’t know over the long-term because of a lack of research,” Palmer said.

## **3**.

## **Treatment**

The therapeutic goals of DKA management include optimization of 1) volume status; 2) hyperglycemia and ketoacidosis; 3) electrolyte abnormalities; and 4) potential precipitating factors. The majority of patients with DKA present to the emergency room. Therefore, emergency physicians should initiate the management of hyperglycemic crisis while a physical examination is performed, basic metabolic parameters are obtained, and final diagnosis is made.

IIf you're diagnosed with diabetic ketoacidosis, you might be treated in the emergency room or admitted to the hospital. Treatment usually involves:

* **Fluid replacement.** You'll receive fluids — either by mouth or through a vein (intravenously) — until you're rehydrated. The fluids will replace those you've lost through excessive urination, as well as help dilute the excess sugar in your blood.
* **Electrolyte replacement.** Electrolytes are minerals in your blood that carry an electric charge, such as sodium, potassium and chloride. The absence of insulin can lower the level of several electrolytes in your blood. You'll receive electrolytes through a vein to help keep your heart, muscles and nerve cells functioning normally.
* **Insulin therapy.** Insulin reverses the processes that cause diabetic ketoacidosis. In addition to fluids and electrolytes, you'll receive insulin therapy — usually through a vein. When your blood sugar level falls to about 200 mg/dL (11.1 mmol/L) and your blood is no longer acidic, you may be able to stop intravenous insulin therapy and resume your normal subcutaneous insulin therapy.

As your body chemistry returns to normal, your doctor will consider additional testing to check for possible triggers for the diabetic ketoacidosis. Depending on circumstances, you might need additional treatment.