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**MATRIC NO.: 17/MHS01/138**

**COURSE: BIOCHEMISTRY**

**COURSE TITLE: DIABETES, OBESITY AND CANCER (GROUP 2 CATEGORY MBBS)**

- ***Define the following terms:***
  - **Ketogenesis:** is the biochemical process through which organisms produce ketone bodies through breakdown of fatty acids and ketogenic amino acids.
  - **Ketonaemia:** the presence of an abnormally high concentration of ketone bodies in the blood.
  - **Ketonuria:** is a medical condition in which ketone bodies are present in the urine
  - **Ketogenesis:** is the biochemical process through which organisms produce ketone bodies through breakdown of fatty acids and ketogenic amino acids.
- ***What are the consequences of ketosis***

The Low-Carb/Keto Flu

In the beginning of ketosis, you may experience a range of negative symptoms.

They are often referred to as "low-carb flu" or "keto flu" because they resemble symptoms of the flu.

These may include:

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

- Bad breath
- Cramps in leg muscles
- Digestive problems e.g constipation
- Elevated heart rate
- Kidney stones
- Raised cholesterol levels (total cholesterol and LDL)
- Ketoacidosis: a condition where the body produces excess blood acids (ketones)

- ***Write concisely on the management of ketoacidosis***

- Correction of fluid loss with intravenous fluids
- Correction of hyperglycemia with insulin
- Correction of electrolyte disturbances, particularly potassium loss
- Correction of acid-base balance
- Treatment of concurrent infection, if present
- In excessive ketoacidosis, extra carbohydrate should be given:

**A) Orally or Nasogastrically:**

1. Administer child 30ml regular lemonade/apple or orange juice
2. Retest serum ketones using finger prick 15 minutes after administration.
3. If serum ketone level  $\geq 6$ mmol/L and/or patient showing clinical symptoms of excessive ketosis, administer another 30ml regular lemonade and monitor clinical symptoms.
4. If second dose of regular lemonade does not result in improvement the child may require IV glucose bolus or maintenance.
5. Serum ketones will need to be monitored 6 hourly whilst ketone levels are high or unstable.
6. Blood glucose levels will need to be monitored at the same time as blood ketone levels or as clinically indicated. Aim for  $\geq 2.6$ mmol/L. Contact Neurology Consultant before any treatment.

**B) Intravenously:**

If ongoing excessive ketosis a child may require management with IV a Maintenance 5% Dextrose and Normal Saline or IV bolus.

Note: an IV bolus of (30mls of 10% glucose is equivalent to 30mls lemonade/juice) and may be utilised if clinically appropriate.