NAME: NWOKPOR NNAEMEKA COLLINS

MATRIC NO: 17/MHS01/211

COLLEGE: COLLEGE OF MEDICINE AND HEALTH SCIENCES

DEPARTMENT: MEDICINE AND SURGERY

COURSE: MEDICAL BIOCHEMISTRY IV.

LECTURER: MR. AYODEJI BENJAMIN

**GROUP 2 CATEGORY MBBS**

1. Define the following terms
2. Ketogenesis
3. Ketonaemia
4. Ketonuria
5. Ketogenesis
6. What are the consequences of Ketosis
7. Write concisely on the management of Ketoacidosis
8. **KETOGENESIS**

Ketogenesis is a catabolic pathway of metabolism that produces ketone bodies, which provide an alternative form of energy for the body. It occurs when beta-oxidation exceeds carbohydrate breakdown. Ketogenesis primarily occurs in the mitochondria of liver cells.

1. **KETONAEMIA**

Ketonaemia is the presence of abnormally high concentrations of ketone bodies in the blood plasma.

1. **KETONURIA**

**Ketonuria** is the excretion of ketone bodies in urine.

2) **CONSEQUENCES OF KETOSIS**

i. **Metabolic Acidosis:** Acetoacetate and Beta-hydroxybutyrate are acids. When they accumulate, metabolic acidosis results. There will be increased anion gap.

ii. **Reduced Buffers:** The plasma bicarbonate is used up for buffering of these acids.

iii.**KUSSMAUL’S RESPIRATION**: Patients will have typical acidotic breathing due to compensatory hyperventilation.

iv. **SMELL OF ACETONE** in patient’s breath.

v. **OSMOTIC DIURESIS:** induced by ketonuria may lead to dehydration.

vi. **SODIUM LOSS:** The ketone bodies are excreted in urine as their sodium salt, leading to loss of **cations from the body.**

vii**. HIGH POTASSIUM:** Due to lowered uptake of potassium by cells in the absence of insulin.

viii. **DEHYDRATION:** The sodium loss further aggravates the dehydration.

ix. **COMA:** Hypokalaemia, dehydration and acidosis are contributing for the lethal effect of ketosis.

3) **MANAGEMENT OF KETOACIDOSIS**

**DIAGNOSIS:**

* Hyperglycaemia (> 200mg/dL)
* Ketones in the blood
* Blood pH below 7.3
* Serum bicarbonate level below 15 mEq/L
* Venous Ph <7.3 and/or bicarbonate <15 mmol/L

**TREATMENT**

* Monitoring
* Consider ICU admission for closer monitoring if:
* **Severe DKA5**
* **Altered level of consciousness**
* **Under age of 5 years**
* **Increased risk of cerebral edema**
* Neurological status
* Treatment is divided into three phases
* **Treatment of ketoacidosis**
* **Transition period**
* **Continuing phase and guidance**

1. Start intravenous fluids before insulin therapy.
2. Potassium level should be >3.3 mEq/L before the initiation of insulin therapy (supplement potassium intravenously if needed)
3. Administer priming insulin bolus at 0.1 U/kg and initiate continuous insulin infusion at 0.1 U/kg/h.