Name: Anamelechi Ngozi Joy

Department: Medical laboratory science

Matric no: 18/mhs06/016

Level: 200 level

Course: Bch 202. Mineral metabolism

ASSIGNMENT

1) Outline the toxicity values and deficiency manifestations of the following minerals.

A)Potassium B) Calcium c) Magnesium D) Chloride E) Iron

- Toxicity value of potassium

  Normal potassium levels are between 3.5 and 5.0 mmol/L ( 3.5 and 5.0mEq/L) with levels below 3.5 mmol/L defined as Hypokalemia. It is classified as severe when levels are less than 2.5 mmol/L.

  Deficiency manifestation of potassium

  Potassium deficiency also called hypokalemia, condition in which potassium is insufficient or is not utilized properly. Causes of Hypokalemia include vomiting, diarrhoea etc. Hypokalemia is a high level of potassium in the blood serum.

- Toxicity value of calcium

  A normal serum calcium level is 8-10 mg/dl (2-2.5 mmol/L). Toxicity value occurs when calcium level is greater than 10.5

mg/dl ( also expressed as 2.63 mmol/L ) or (>2.5mmol/L).

Deficiency manifestation of calcium

Hypercalcemia, commonly known as calcium deficiency disease occurs when calcium levels in the blood are too low. Some of the deficiency include: bulimia, anorexia and some other eating disorder. Mercury exposure, lack of parathyroid hormone, vitamin D and phosphate deficiency etc.

- Toxicity value of magnesium

  A normal body contains approximately 25g of magnesium with 50% to 60% present in the bones and most of the rest in soft tissues. Normal serum magnesium concentration range between 0.75 and 0.95 millimoles (mmol/L) [1,5]. Hypomagnesia is defined as a serum magnesium level less than 0.75mmol/L [6].

  Deficiency manifestation of magnesium

  Magnesium deficiency is an electrolyte disturbance in which there is a low level of magnesium in the body. Causes include low dietary intake, alcoholism ,increased urinary loss and diabetes mellitus.

- Toxicity value of chloride

Chloride toxicity has not been observed in humans except in the special case of impaired sodium chloride metabolism e.g. in congestive heart failure.

Deficiency manifestation of chloride

Chlorine deficiency, condition in which chlorine is insufficient or is not utilized properly known as “Hypochloremia”. Symptoms that may indicate a chloride imbalance include : a) excessive fatigue b) high blood pressure c) frequent vomiting

- Toxicity value of Iron

  Toxic effects begin to occur at doses above 10-20 mg/kg of elemental iron. Ingestions of more than 50mg/kg of elemental iron are associated with severe toxicity. In terms of blood values, iron levels above 350-500 microgram/dl are considered toxic and levels over 1000 microgram/dl indicate severe iron poisoning.

  Deficiency manifestation of Iron

  Iron deficiency is anaemia caused by a lack of Iron. Anaemia is defined as a decrease in the number of red blood cells or the amount of haemoglobin in the blood.