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18/MHS05/005

PHYSIOLOGY

Bch 204

Question: Outline the toxicity valve and the deficiency manifestation of the following mineral

1. **IRON**

**Toxicity value:**

Toxic effects begin to occur at doses above 10–20 mg/kg of elemental iron. Ingestions of more than 50 mg/kg of elemental iron are associated with severe toxicity.

**Deficiency manifestations:**

Iron deficiency anemia signs and symptoms may include: Extreme fatigue. Weakness. Pale skin.

1. **CHLORIDE**

**Toxicity value:**

Immediate respiratory arrest occurs at 2000 ppm, with the lethal concentration for 50% of exposed animals in the range of 800-1000 ppm. Bronchial constriction occurs in the 200-ppm range, with evidence of effects on ciliary activity at exposure levels as low as 18 ppm.

**Deficiency manifestations:**

Dehydration, fluid loss e.g.( diarrhoea and vomit) , or high levels of blood sodium

1. **MAGNESIUM**

**Toxicity value:**

**Magnesium levels** between 7 and 12 **mg**/dL can impact the heart and lungs, and **levels** in the upper end of this range may cause extreme fatigue and low blood pressure. **Levels** above 12 **mg**/dL can lead to muscle paralysis and hyperventilation. When **levels** are above 15.6 **mg**/dL, the condition may result in a coma.

**Deficiency manifestation:**

cardiovascular and other disorders: high blood pressure, heart rhythm problems such as atrial fibrillation, cholesterol-clogged coronary arteries, painful spasms of coronary arteries, sudden cardiac arrest, diabetes, osteoporosis, and more.

1. **CALCIUM**

**Toxicity value**:

Hypercalcemia occurs when serum calcium levels are 10.5 mg/dL or 2.63mmol/d

**Deficiency Manifestation:**

Hypercalcemia, commonly known as calcium deficiency disease, occurs when calcium levels in the blood are low. A longterm deficiency can lead to dental changes, cataracts, alterations in the brain, and osteoporosis, which causes the bones to become brittle

1. **POTASSIUM**

**Toxicity value:**

potassium level higher than 55.5m mol/L is critically high

**Deficiency manifestation:**

vomiting, diarrhoea