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**COURSE:** MEDICAL BIOCHEMISTRY **COURSE CODE:** BCH204

**Q:** Outline the toxicity values and deficiency manifestations of the following minerals

Potassium, calcium, magnesium, chloride, iron

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**A:**

**A) Potassium**

Toxicity value- above 5.5mMol/L (hyperkalemia), severe toxicity 6.3-8.0mMol/l of blood

**Deficiency Manifestation**

- i. Muscle spasms
- ii. Irregular heartbeat
- iii. Constipation, nausea, or vomiting
- iv. Extreme fatigue
- v. Hypotension
- vi. Decreased reflexes

**B) Calcium**

Toxicity value- 2.63mMol/l of blood

**Deficiency Manifestation / Hypocalcemia**

- i. Tetany (Chvostek's sign, Trousseau's sign)
- ii. Osteoporosis
- iii. Neuromuscular irritability
- iv. Bradycardia
- v. Muscle cramps

**C) Magnesium / hypomagnesemia**

Toxicity value - 1.74-2.61mMol/L or more than 11mg/dL

**Deficiency Manifestation**

- i. Osteoporosis
- ii. Neuromuscular hyper-irritability
- iii. Cardiac arrhythmias
- iv. Muscle cramps
- v. Bradycardia

## **D Chloride**

Toxicity value- more than 107 MEq/L (blood level)

### **Deficiency Manifestation**

- i. Difficulty breathing
- ii. Dehydration
- iii. Fluid loss
- iv. Vomiting or diarrhea
- v. fatigue

## **E) Iron**

Toxicity value- 350-500µg/dL of blood, 1000 µg/dL indicate severe iron poisoning.

### **Deficiency Manifestation**

- i. Microcytic hypochromic Anemia
- ii. Achlorhydria
- iii. Plummer-Wilson Syndrome
- iv. Lowered memory
- v. fatigue