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Question: OUTLINE THE TOXICITY VALUES AND DEFICIENCY MANIFESTATIONS OF THE FOLLOWING MINERALS

A. POTASSIUM

B. CALCIUM

C. MAGNESIUM

D. CHLORIDE

E. IRON

Potassium: The normal level of potassium in the bloodstream is in the range of 3.5–5.0 mM, while levels of 6.3–8.0 mM (severe hyperkalaemia) result in cardiac arrhythmias or even death due to cardiac arrest.

Signs of a potassium deficiency include:

extreme fatigue, muscle spasms, weakness, or cramping, irregular heartbeat

constipation, nausea, or vomiting.

Calcium: Calcium toxicity will cause excessive calcification of bone; calcification of soft tissue; hypercalcemia; vomiting; lethargy.

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

Magnesium: Symptoms of magnesium toxicity, which usually develop after serum concentrations exceed 1.74–2.61 mmol/L, can include hypotension, nausea, vomiting, facial flushing, retention of urine, ileus, depression, and lethargy before progressing to muscle weakness, difficulty breathing, extreme hypotension, irregular heartbeat, and cardiac arrest. The risk of magnesium toxicity increases with impaired renal function or kidney failure because the ability to remove excess magnesium is reduced or lost.

Early signs of magnesium deficiency include loss of appetite, nausea, vomiting, fatigue, and weakness. As magnesium deficiency worsens, numbness, tingling, muscle contractions and cramps, seizures, personality changes, abnormal heart rhythms, and coronary spasms can occur. Severe magnesium deficiency can result in hypocalcaemia or hypokalaemia.

Chloride: When chloride levels are moderately high, a person may not notice any symptoms. Long-term hyperkalaemia, however, can cause a range of symptoms.

Those include: fluid retention, high blood pressure, muscle weakness, spasms, or twitches, irregular heart rate, confusion, difficulty concentrating, and personality changes, numbness or tingling, seizures and convulsions.

Symptoms of Hypochloremia: Many people do not notice any symptoms, unless they are experiencing very high or very low levels of chloride in their blood. Dehydration, fluid loss, or high levels of blood sodium may be noted. You may be experiencing other forms of fluid loss, such as diarrhea, or vomiting.

Iron: Iron toxicity occurs when the body has too much iron. The most common cause of iron toxicity is accidental overdose of iron pills. Stomach problems, such as vomiting and diarrhea, usually occur within 6 hours of the overdose.

Iron deficiency can lead to paleness, fatigue, shortness of breath, headache and dizziness, swelling and soreness of mouth and tongue, brittle fingernails and fast heart rate.