TOBI KUYE

17/MHS07/015 CO

PHARMACOLOGY

1. Potassium: toxicity value

Potassium clearly has its potential for risks including life-threatening hyperkalaemia and cardiac arrest. It is very concerning that the slow-release preparation is available in bottles of 100 without prescription. Aggressive decontamination and haemodialysis are indicated in large overdoses. Like all metal ingestions they are a direct GI irritant. Once intracellular potassium interferes with electrical conduction in both nerves and muscle resulting in cardiac arrest.

**Toxicokinetic:**

Rapidly absorbed in the small bowel

Distributed to the intracellular compartment

Excreted in the urine (90-95%), faeces and sweat. Once absorption exceeds redistribution and excretion, hyperkalaemia ensues

Deficiency manifestation

Weakness and Fatigue.

Muscle Cramps and Spasms.

Digestive Problems.

Heart palpitations

Muscle Aches and Stiffness.

Tingling and Numbness.

Breathing Difficulties.

1. Calcium: toxicity value

toxicity can lead to calcification of soft tissues. In addition, a very high intake of calcium can lead to kidney stone formation.

Deficiency manifestation

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.

symptoms

Muscle problems. Calcium deficiency can lead to extreme tiredness and fatigue.

Extreme fatigue.

Low levels of calcium can cause insomnia or sleepiness.

Nail and skin symptoms.

Osteopenia and osteoporosis.

Painful premenstrual syndrome (PMS)

Dental Problems.

Depression.

1. Magnesium: toxicity value

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.

Deficiency manifestation

Magnesium deficiency is an [electrolyte disturbance](https://en.wikipedia.org/wiki/Electrolyte_disturbance) in which there is a low level of [magnesium](https://en.wikipedia.org/wiki/Magnesium) in the body. It can result in multiple symptoms. Symptoms include [tremor](https://en.wikipedia.org/wiki/Tremor), poor coordination, muscle spasms, loss of appetite, personality changes, and [nystagmus](https://en.wikipedia.org/wiki/Nystagmus). Complications may include [seizures](https://en.wikipedia.org/wiki/Seizures) or [cardiac arrest](https://en.wikipedia.org/wiki/Cardiac_arrest) such as from [torsade de pointes](https://en.wikipedia.org/wiki/Torsade_de_pointes). Those with low magnesium often have [low potassium](https://en.wikipedia.org/wiki/Low_potassium).  levels less than 0.6 mmol/L (1.46 mg/dL) show hypomagnesemia.

1. Chloride: toxicity value

 The toxicity of chloride salts depends on the cation present; that of chloride itself is unknown.

Deficiency manifestation

Hypochloraemia occurs when there's a low level of chloride in your body. It can be caused by fluid loss through nausea or vomiting or by existing conditions, diseases, or medications.

excessive fatigue.

muscle weakness.

breathing problems.

frequent vomiting.

prolonged diarrhoea.

excessive thirst.

high blood pressure

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. In terms of blood values, iron levels above 350–500 μg/dL are considered toxic, and levels over 1000 μg/dL indicate severe ironpoisoning.

Deficiency manifestation

Iron deficiency occurs when the body doesn’t have enough of the mineral iron. This leads to abnormally low levels of red blood cells. That’s because iron is needed to make haemoglobin, a protein in red blood cells that enables them to carry oxygen around the body. If your body doesn’t have enough haemoglobin, your tissues and muscles won’t get enough oxygen and be able to work effectively. This leads to a condition called anaemia.