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1] Toxicity value of potassium :

2.5 mol/kg of potassium can theoretically overwhelm the capabilities of the kidneys and cause hyperkalaemia.

3 x 600mg tablets could potentially cause severe hyperkalaemia in a 10 kg toddler.

Sodium bicarbonate 50 – 100 mmol slow IV (1 mmol/kg in children)

Nebulised salbutamol 10 -20mg

Potassium deficiency

Certain conditions can cause potassium deficiencies, or hypokalemia. These include:

- kidney disease
- overuse of diuretics
- excessive sweating, diarrhea, and vomiting
- magnesium deficiency
- use of antibiotics, such as carbenicillin and penicillin

The symptoms of hypokalemia are different depending on how severe your deficiency is.

A temporary decrease in potassium may not cause any symptoms. For example, if you sweat a lot from a hard workout, your potassium levels may normalize after eating a meal or drinking electrolytes before any damage is done.

However, severe deficiencies can be life-threatening. Signs of a potassium deficiency include:

- extreme fatigue
- muscle spasms, weakness, or cramping
- irregular heartbeat
- constipation, nausea, or vomiting

Hypokalemia is usually diagnosed with a blood test. Your doctor may also order an electrocardiogram of your heart and an arterial blood gas test to measure pH levels in your body.

2] Calcium toxicity and DEFICIENCY

large amount of calcium in bones, deficiency is rare. Hypocalcemia (low serum calcium levels in blood) can result in tetany (involuntary muscle contractions). In addition, calcium deficiency in children can lead to rickets, which is a vitamin D deficiency. While not a deficiency, low calcium intake can lead to decreased bone mineral density and the conditions osteopenia and osteoporosis.

Manifestation deficiency

Calcium is a vital mineral. Your body uses it to build strong bones and teeth. Calcium is also needed for your heart and other muscles to function properly. When you don’t get enough calcium, you increase your risk of developing disorders like:

- osteoporosis
- osteopenia
- calcium deficiency disease (hypocalcemia)

Children who don’t get enough calcium may not grow to their full potential height as adults.

You should consume the recommended amount of calcium per day through the food you eat, supplements, or vitamins.

3] magnesium

Toxicity value : 400 to 420 milligrams (mg)

310 to 320 mg

magnesium deficiency include: Magnesium deficiency is sometimes seen in patients with severe

- fatigue
- weakness
- loss of appetite

Osteoporosis

Osteoporosis is a disorder characterized by weak bones and an increased risk of bone fractures.

The risk of getting osteoporosis is influenced by numerous factors. These include old age, lack of exercise and a poor intake of vitamins D and K.

Asthma

asthma

Irregular Heartbeat

Among the most serious symptoms of magnesium deficiency is heart arrhythmia, or irregular heart beat .

4} Iron toxicity:

The body normally absorbs less iron if its stores are full, but some individuals are poorly defended against iron toxicity. Once considered rare, iron overload has emerged as an important disorder of iron metabolism.

Iron overload is known as hemochromatosis and usually is caused by a gene that enhances iron absorption. Other causes of iron overload include repeated blood transfusions, massive doses of dietary iron and rare metabolic disorders. Additionally, long-term overconsumption of iron may cause hemosiderosis, a condition characterized by large deposits of the iron storage protein hemosiderin in the liver and other tissues.

Deficiency of iron

Anemia occurs when you have a decreased level of hemoglobin in your red blood cells (RBCs). Hemoglobin is the protein in your RBCs that is responsible for carrying oxygen to your tissues.

Iron deficiency anemia is the most common type of anemia, and it occurs when your body doesn’t have enough of the mineral iron. Your body needs iron to make hemoglobin. When there isn’t enough iron in your blood stream, the rest of your body can’t get the amount of oxygen it needs.

5 deficiency manifestation of chloride

Hypochloremia : it is the main deficiency manifestation of chloride .

Symptoms include:

- fluid loss
- dehydration
- weakness or fatigue
- difficulty breathing
- diarrhea or vomiting, caused by fluid loss