

Magnesium Deficiency: An Overview

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EDITORIAL

Magnesium deficit is an electrolyte imbalance in which the body's magnesium levels are low. It can cause a variety of symptoms. Tremor, poor coordination, muscle spasms, lack of appetite, personality changes, and nystagmus are some of the symptoms. Seizures or cardiac arrest, such as from torsade de pointes, are possible complications. Potassium deficiency is common in those who have insufficient magnesium. Low caloric intake, drunkenness, diarrhoea, increased urine loss, poor intestinal absorption, and diabetes mellitus are all causes. Proton pump inhibitors (PPIs) and furosemide are two drugs that might produce low magnesium levels. Low magnesium levels in the blood are commonly used to make the diagnosis (hypomagnesemia).

Magnesium levels in the blood should be between 0.6 and 1.1 mmol/L (1.46–2.68 mg/dL), with levels below 0.6 mmol/L (1.46 mg/dL) indicating hypomagnesemia. It's possible to see specific electrocardiogram (ECG) alterations. Magnesium is given orally or intravenously as a treatment. Intravenous magnesium sulphate may be utilised for people with severe symptoms. Low potassium or calcium levels should be treated as well. The illness is rather common among hospital patients. Tiredness, generalised weakness, muscle cramps, abnormal heart rhythms, increased irritability of the nervous system with tremors, parenthesis, palpitations, low potassium levels in the blood, hypoparathyroidism, which can lead to low calcium levels in the blood, chondrocalcinosis, spasticity, and tetany, migraines, epileptic seizures, basal ganglia calcifications, and in severe and prolonged cases, coma Magnesium plays a key part in glucose metabolism, and a lack of it can exacerbate insulin resistance, which typically precedes diabetes, or can be a result of it.

Low magnesium levels in patients in intensive care units (ICUs) may increase their risk of needing mechanical ventilation and mortality. Magnesium shortage can be caused by gastrointestinal or renal problems. Low magnesium intake in the food, poor gastrointestinal absorption, or increased gastrointestinal loss due to rapid gastrointestinal transits are all gastrointestinal reasons. Magnesium excretion is enhanced in the kidneys. Magnesium deficiency due to a diet high in refined foods such as white bread and polished rice, which have been stripped of magnesium-rich plant fiber, has become an increasingly critical factor. In hospitalized patients, magnesium insufficiency is prevalent. Hypomagnesaemia affects up to 12% of all persons admitted to hospitals, and up to 60%–65% of people in intensive care units.

Approximately 57 percent of the US population does not get enough magnesium in their diet to achieve the RDA. The kidneys are quite efficient at maintaining body levels; nevertheless, if the diet is inadequate, or if certain medications such as diuretics or proton pump inhibitors are used, or if persistent alcoholism is present, levels may fall. Low magnesium levels in the blood can be caused by a lack of magnesium in the diet, a lack of magnesium absorption in the intestines, or a surplus of magnesium excreted by the kidneys. Syndromes induced by genetic mutations in SLC12A3, CLNCKB, BSND, KCNJ10, FXVD2, HNF1B, or PCBD1 are known as Gitelman-like disorders. Hypomagnesemia is often accompanied by additional electrolyte management problems, such as hypocalciuria and hypokalemia, in these disorders. The genes that cause this category of illnesses all code for proteins that aid in the resorption of electrolytes (including magnesium) in the kidney's distal convoluted tubule.

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