Magnesium (Mg^{2+})

- Supports muscle and nerve function.
- Plays a role in energy production and bone health.

Magnesium serves as an intracellular cation and plays a crucial role in various physiological processes. It is primarily involved in the metabolism of adenosine triphosphate (ATP), the proper functioning of muscles, neurological activities, and the release of neurotransmitters. During muscle contraction, magnesium facilitates the re-uptake of calcium by the calcium-activated ATPase located in the sarcoplasmic reticulum.[1] Hypomagnesemia is defined as serum magnesium levels falling below 1.46 mg/dL. This condition can arise from factors such as alcohol use disorder, gastrointestinal disorders, and excessive loss through the kidneys. Clinically, hypomagnesemia often manifests as ventricular arrhythmias, including torsades de pointes. Additionally, certain medications, such as omeprazole, may contribute to the development of hypomagnesemia.[2]

References

1. Jahnen-Dechent W, Ketteler M. Magnesium basics. Clin Kidney J. 2012 Feb;5(Suppl 1): i3-i14.
2. Hansen BA, Bruserud Ø. Hypomagnesemia as a potentially life-threatening adverse effect of omeprazole. Oxf Med Case Reports. 2016 Jul;2016(7):147-9.