

Editorial

Magnesium deficiency and COVID-19 – What are the links? Some remarks from the German Society for Magnesium Research e.V.

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The novel coronavirus SARS-CoV-2 is causing an ongoing worldwide pandemic of COVID-19.

The infection with this single-stranded RNA virus appears to be asymptomatic in a large fraction of people, and many other patients may experience mild symptoms such as fever, cough, anosmia, and myalgia. Some German patients need hospitalization, and some will develop acute respiratory distress syndrome (ARDS), and a significant subset will require treatment in the intensive care unit to provide respiratory ventilator support.

Unfortunately, there is no causal curative treatment or a vaccination available, so far.

In this context, the potential prophylactic and therapeutic options for the novel SARS-CoV-2 infection and corresponding COVID-19, as well as interventions with special nutrients like zinc or vitamin D are discussed, especially due to their role in the immune system [1, 2, 3, 4]. Magnesium (Mg) has a strong relation with the immune system as well, and immunological functions are disturbed in case of Mg deficiency [5, 6]. Interestingly, in patients with XMEN disease (X-linked immunodeficiency with Mg defect, Epstein-Barr virus (EBV) infection,

and neoplasia) it has been reported that free basal Mg concentration has an important role in regulating cytotoxic immune function [7]. By that, intracellular free Mg concentration contributes significantly to antiviral immunity. Therefore, decreased resistance against infection with SARS-CoV-2 in case of Mg deficiency can be assumed. However, there are some more potential connections between Mg and COVID-19 worth mentioning.

QT interval prolongation – think of Mg

Possible drugs for the treatment of COVID-19 increase the risk of QT interval prolongation, e.g., chloroquine, hydroxychloroquine, azithromycin, lopinavir, ritonavir [8]. QT prolongation can provoke life-threatening torsade-de-pointes arrhythmias (TdP) and sudden cardiac death. Mg deficiency and other electrolyte imbalances also belong to the known risk factors for QT prolongation and TdP [9]. Consequently, it is recommended to obtain baseline assessment of Mg and other electrolytes and to correct deficiencies before using QT-prolonging

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