Wondrous Roots, Inc.

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Nutrition, herbs & complementary therapies

"…and if the root be holy, so are the branches…"

NUTRIENTS FOR COVID-19 PREVENTION & TREATMENT

ZINC

PERSPECTIVE ARTICLE

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The Potential Impact of Zinc Supplementation on COVID-19 Pathogenesis

Inga Wessels[1†], Benjamin Rolles[2†] and Lothar Rink[1*]

- Zinc Directly Inhibits Viral Replication
- Zinc Balances the Immune Response During Infectious Diseases
- Zinc Supplementation in Respiratory Infections
- Risk Groups and Symptoms of COVID-19 and Zinc Deficiency Reveal a Large Overlap

"Zinc supplementation improves the mucociliary clearance, strengthens the integrity of the epithelium, decreases viral replication, preserves antiviral immunity, attenuates the risk of hyper-inflammation, supports anti-oxidative effects and thus reduces lung damage and minimized secondary infections. Especially older subjects, patients with chronic diseases and most of the remaining COVID-19 risk groups would most likely benefit."

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REVIEW ARTICLE

Free Access

Targeting zinc metalloenzymes in coronavirus disease 2019

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Abstract

Several lines of evidence support a link between the essential element zinc and the coronavirus disease 2019 (COVID-19). An important fact is that zinc is present in proteins of humans and of viruses. Some zinc sites in viral enzymes may serve as drug targets and may liberate zinc ions, thus leading to changes in intracellular concentration of zinc ions, while increased intracellular zinc may induce biological effects **in both the host and the virus**. Drugs such as chloroquine may contribute to increased intracellular zinc. Moreover, clinical trials on the use of zinc alone or in addition to other drugs in the prophylaxis/treatment of COVID-19 are ongoing. Thereby, we aim to discuss the rationale for targeting zinc metalloenzymes as a new strategy for the treatment of COVID-19.

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COVID-19: Poor outcomes in patients with zinc deficiency

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- Patients with coronavirus disease 2019 (COVID-19) had significantly low zinc levels in comparison to healthy controls.
- Zinc deficient patients developed more complications (70.4% vs 30.0%, p = 0.009).
- Zinc deficient COVID-19 patients had a prolonged hospital stay (7.9 vs 5.7 days, p = 0.048).
- In vitro studies have shown that reduced zinc levels favour the interaction of angiotensin-converting enzyme 2 (ACE2) with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) spike protein and likewise that increased zinc levels inhibit ACE2 expression resulting in reduced viral interaction.

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Zinc sulfate in combination with a zinc ionophore may improve outcomes in hospitalized COVID-19 patients

Philip M. Carlucci,[1] Tania Ahuja,[2] Christopher Petrilli,[1,3] Harish Rajagopalan,[3] Simon Jones,[4,5] and Joseph Rahimian[1,*]

“In univariate analyses, zinc sulphate increased the frequency of patients being discharged home, and decreased the need for ventilation, admission to the ICU and mortality or transfer to hospice for patients who were never admitted to the ICU. After adjusting for the time at which zinc sulphate was added to our protocol, an increased frequency of being discharged home (OR 1.53, 95% CI 1.12–2.09) and reduction in mortality or transfer to hospice among patients who did not require ICU level of care remained significant (OR 0.449, 95% CI 0.271–0.744).

Conclusion

This study provides the first *in vivo* evidence that zinc sulphate may play a role in therapeutic management for COVID-19."