

## Study Confirms Correlation Between Low Vitamin K and Severe COVID-19

By: Angela Sabarese, Top Headlines



Results of a study confirm that vitamin K status is lower in hospitalized patients with COVID-19 compared to healthy population control. Researchers also show low vitamin K status to be predictive of higher mortality.

Initial promising data published by Dr. Rob Janssen, MD and researcher at Canisius Wilhelmina Hospital (Nijmegen, The Netherlands), showing a significant correlation between serum K2 status and the severity of COVID-19, sparked scientific interest globally.

A team from Bispebjerg Hospital (Denmark), led by Professor Allan Linneberg, MD, PhD, director of the Center for Clinical Research and Prevention, repeated previously performed research to investigate the hypothesis that low vitamin K status could be a common characteristic of hospitalized COVID-19 patients, and whether low vitamin K status may predict mortality in those patients. Their preliminary results were recently submitted as a preprint.

Vitamin K2 status (measured as dephosphorylated-undercarboxylated matrix Gla protein – dp-ucMGP) was analyzed in over 138 COVID-19 patients, and compared to a control group of 140 persons from the general population, matched for similar age distribution. Levels of dp-ucMGP were significantly higher among COVID-19 patients, compared to the control population.

Forty-three of the hospitalized patients with COVID-19 died within 90 days from admission. Mortality was significantly associated with high age, hypertension, cardiovascular disease, and increased levels of dp-ucMGP.

A Kaplan-Meier plot of cumulated risk of death stratified by dp-ucMGP levels was created. Mortality among COVID-19 patients appears to be strongly dependent on vitamin K2 status. “This suggests that vitamin K plays a role in the disease mechanisms,” the authors noted.

“In a state of severe vitamin K deficiency, the intrahepatic vitamin K-dependent activation of prothrombotic proteins is prioritized on the expense of peripheral activation of vitamin K-dependent proteins, such as the antithrombotic protein S, and calcification-inhibitory MGP. In addition, this may increase calcification and subsequent degradation of elastic fibres in lung tissue, leading to more severe lung damage in COVID-19 patients,” Linneberg explained.

Because of their structural differences, vitamin K1 and K2 have different outcomes in the body. Vitamin K1 is preferentially absorbed in the liver, whereas K2 is left available for extrahepatic tissues.

The research team highlights a possible benefit of vitamin K2 supplementation: “As countries worldwide are experiencing a second, or even third wave of the COVID-19 pandemic, there is an urgent need for measures to improve the outcome and long-term consequences of COVID-19. Supplementation with vitamin K2 represents an inexpensive and simple-to-use solution.”

“Our study shows that low vitamin K status predicts mortality in patients with COVID-19. Randomized, double-blind placebo-controlled clinical trials are now needed to document potential beneficial effects of vitamin K2 supplementation on the course of COVID-19,” Linneberg added.