Vitamin D deficiency increased risk of COVID in healthcare workers, new study shows

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Healthcare workers who self-isolated after developing symptoms of COVID-19 were more likely to have a vitamin D deficiency, with workers from Black, Asian or ethnic minority backgrounds particularly affected, a new study by experts at the University of Birmingham has found.

The study, an extension of previous work to establish convalescent immunity in NHS staff at University Hospitals Birmingham NHS Foundation Trust, analyzed blood samples from 392 healthcare workers recruited in May 2020 towards the end of the first surge of the COVID-19 pandemic. Samples were first tested for the presence of SARS-Cov-2 antibodies using a unique in-house assay developed by the University's Clinical Immunology Service in partnership with The Binding Site before undergoing testing to establish the concentration of vitamin D.

Of the 392 workers, over half (55%) had SARS-Cov-2 antibodies, showing that they had been infected with the virus. A total of 61 (or 15.6%) were deficient in vitamin-D with significantly more of these staff coming from from BAME backgrounds or in junior doctor roles. Vitamin D levels were lower in younger and male staff, and those who had a high BMI.

Results also showed that staff who were vitamin D deficient were more likely to report symptoms of body aches and pains, but interestingly, not respiratory symptoms including breathlessness or a continuous cough. Vitamin levels were also lower in staff who reported symptoms of fever. Within the cohort as a whole, there was an increase in seroconversion (or the development of detectable SARS-Cov-2 antibodies) in staff with vitamin D deficiency (72%) compared to those without a deficiency (51%) suggesting that lower vitamin D levels could increase susceptibility to the virus. This was particularly prevalent in the proportion of BAME males who were vitamin D deficient (94%) compared to non-vitamin D deficient BAME males (52%).

Author Professor David Thickett, from the University of Birmingham's Institute of Inflammation and Aging said: "Our study has shown that there is an increased risk of COVID-19 infection in healthcare workers who are deficient in vitamin D. Our data adds to the emerging evidence from studies in the UK and globally that individuals with severe COVID-19 are more vitamin D deficient than those with mild disease. Finally, our results, combined with existing evidence further demonstrates the potential benefits of vitamin D supplementation in individuals at risk of vitamin D deficiency or who are shown to be deficient as a way to potentially alleviate the impact of COVID-19."
The full pre-print paper "Vitamin D status and seroconversion for COVID-19 in UK healthcare workers who isolated for COVID-19 like symptoms during the 2020 pandemic" is available on MedRxiv.

www.medrxiv.org/content/10.110...020.10.05.20206706v1

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