

Transcript Details

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www.reachmd.com
info@reachmd.com
(866) 423-7849

Understanding the Role of Vitamin B12 in COPD

ReachMD Announcer:

You're listening to *Clinician's Roundtable* on ReachMD. On this episode, we'll hear from Dr. Nasibul Alam, who's an internal medicine resident at the Rosalind Franklin University of Medicine and Science. He'll be discussing his research on vitamin B12 deficiency and COPD exacerbations.

Here's Dr. Alam now.

Dr. Alam:

What motivated us to investigate vitamin B12 deficiency in patients with COPD exacerbations is the close link between B12 deficiency and COPD. Micronutrient deficiencies, including vitamin B12 deficiency, are not uncommon in patients with COPD. In fact, depending on the population studied, approximately 20 to 30 percent of COPD patients may have vitamin B12 deficiency. Vitamin B12 is closely linked to cardiovascular health, systemic inflammation, and functional capacity. This is particularly relevant because recent GOLD guidelines for COPD have placed increasing emphasis on cardiovascular health as well as metabolic and nutritional health, and we already know that COPD patients have worse cardiovascular and metabolic outcomes.

Vitamin B12 deficiency itself is associated with worse cardiovascular outcomes and reduced functional capacity. So, when you consider that up to one-fourth to one-third of COPD patients may have vitamin B12 deficiency, there is a strong biological rationale that B12 deficiency could influence overall physiologic reserve and clinical outcomes in this population.

We conducted a retrospective cohort study using the TriNetX platform, which allowed us to analyze a large multicenter database of real-world patients. We included adults aged 18 and older who were hospitalized for acute COPD exacerbation between December 2014 and December 2024. We stratified patients based on their vitamin B12 levels. Those with levels below 150 picograms per milliliter were classified as deficient, and those at or above that threshold were considered non-deficient. Our primary outcomes were one-month all-cause mortality and ICU admission.

What we found was quite compelling. Patients with vitamin B12 deficiency had significantly worse short-term outcomes compared to those without the deficiency. Specifically, they had an odds ratio of 1.88 for one-month mortality, which translates to having 88 percent higher odds of death within one month of hospitalization. They also had approximately a 94 percent higher odds of ICU admission. Interestingly, we did not observe significant differences in thromboembolic events, myocardial infarction, stroke, acute kidney injury, vasopressor use, or mechanical ventilation. All of these findings remained consistent even after all the sensitivity analyses that we performed, indicating the robustness of the findings.

The next important step would be prospective validation to determine whether this association is truly causal. Observational studies like ours are very useful in identifying strong associations, but prospective and interventional studies are needed to determine whether correcting B12 deficiency can actually improve clinical outcomes. Mechanistic studies are also important to better understand how B12 deficiency may influence COPD outcomes. There are already some proposed pathways, but further research could help clarify those mechanisms.

If future prospective and international studies confirm these findings, screening for and correcting vitamin B12 deficiency could become a simple, low-cost strategy to improve risk stratification and potentially improve outcomes in patients with COPD.

ReachMD Announcer:

That was Dr. Nasibul Alam talking about his research on COPD and vitamin B12 deficiency. To access this and other episodes in our

series, visit *Clinician's Roundtable* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening!