

New study examines COVID vaccine protection for patients with lung conditions

October 10 2023



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Clinicians and researchers at National Jewish Health have studied COVID vaccine effectiveness in patients with underlying lung conditions such as asthma, chronic obstructive pulmonary disease (COPD) and

interstitial lung disease (ILD). Findings show that nearly half of respiratory patients have lower vaccine-specific antibody, B cell, and T cell responses than healthy individuals. Decreased immunity to the vaccine suggests that patients with underlying lung conditions may be less protected against COVID-19. Understanding why they aren't responding can give doctors a chance to treat patients differently.

"Most of the studies for the COVID vaccine have focused on how well the vaccine protects healthy people," said R. Lee Reinhardt, Ph.D., Associate Professor in the Department of Immunology and Genomic Medicine, and senior author of the study recently published in [ERJ Open Research](#). "There is not a lot of data available to know if it protects people with respiratory conditions the same way."

Researchers studied the antibody, B cell and T cell responses in patients with respiratory conditions compared to healthy controls using samples from patients participating in the National Jewish Health Biobank research database. From [blood samples](#), investigators measured vaccine-specific serum antibody, B cell and T cell levels, as well as their function. All parameters showed that patients with lung disease were significantly more likely to generate a poor vaccine response than their healthy counterparts.

"If these [patients](#) with lung conditions have fewer antibodies, their pulmonologists may have to design a more personalized vaccine approach," said Haolin Liu, Ph.D., Assistant Professor in the Department of Immunology and Genomic Medicine and first author on the study. "They are more susceptible to exposure and can have their vaccine schedule adjusted."

"COVID-19 is still around, and we don't know what the future holds," said Dr. Reinhardt. "There could be a winter surge and we need to understand how the immune response affects everyone—not just healthy

people."

More information: Haolin Liu et al, Vaccine-elicited B and T cell immunity to SARS-CoV-2 is impaired in chronic lung disease patients, *ERJ Open Research* (2023). [DOI: 10.1183/23120541.00400-2023](https://doi.org/10.1183/23120541.00400-2023)

Provided by National Jewish Health

Citation: New study examines COVID vaccine protection for patients with lung conditions (2023, October 10) retrieved 28 April 2024 from <https://medicalxpress.com/news/2023-10-covid-vaccine-patients-lung-conditions.html>

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