National Jewish Health Study Examines COVID Vaccine Protection for Patients with Lung Conditions

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DENVER — Clinicians and researchers at National Jewish Health 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 compared to 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, PhD, Associate Professor in the Department of Immunology and Genomic Medicine and senior author of the study recently published in the European Respiratory Journal-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, PhD, 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.”

National Jewish Health is the leading respiratory hospital in the nation. Founded 124 years ago as a nonprofit hospital,
National Jewish Health today is the only facility in the world dedicated exclusively to groundbreaking medical research and treatment of patients with respiratory, cardiac, immune and related disorders. Patients and families come to National Jewish Health from around the world to receive cutting-edge, comprehensive, coordinated care. To learn more, visit the media resources page.

**Media Contacts**

Our team is available to arrange interviews, discuss events and story ideas.

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