Researchers identify incidence and risk factors for new-onset interstitial lung disease in systemic sclerosis

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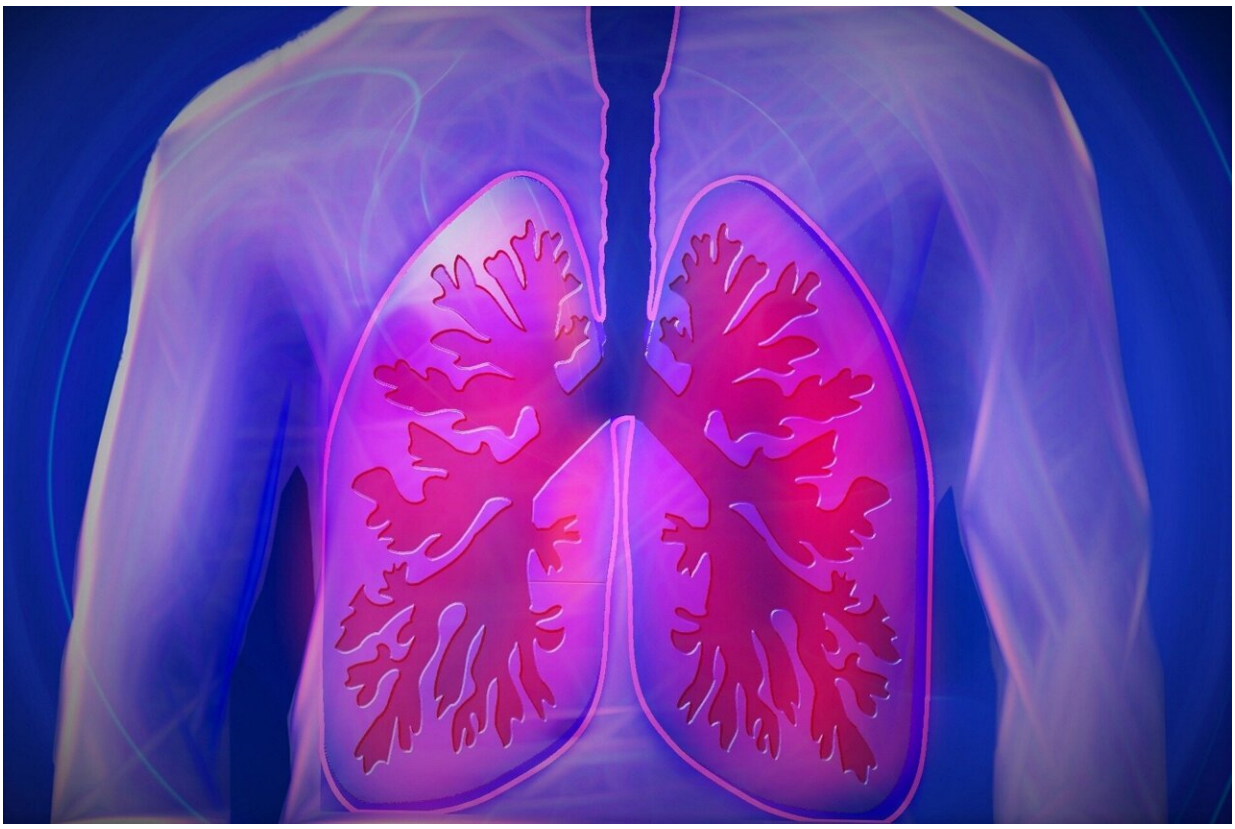

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New research at ACR Convergence 2023, the American College of Rheumatology's (ACR) annual meeting, reports the incidence and risk

factors for new-onset interstitial lung disease (ILD) in previously ILD-negative systemic sclerosis patients.

Interstitial lung disease is a common complication and cause of death in systemic sclerosis (SSc, scleroderma). Although the prevalence and risk factors for ILD are well known, less is known about the annual incidence and risk factors associated with the disease that occurs in patients who test negative on screening tests conducted at baseline. To answer these questions, Liubov Petelytska, MD, Ph.D., a postdoctoral researcher, and her colleagues at the University Hospital, Zurich, drew on data from the European Scleroderma Trials and Research (EUSTAR) group, an international scleroderma research network.

The team identified 5,331 SSc patients who were ILD-negative at baseline on high-resolution computed tomography (HRCT), the gold standard for diagnosing SSc-ILD. Based on follow-up imaging, the researchers divided patients into two groups: new-onset ILD (incident group) and those who remained ILD-negative (negative group). Incidence was calculated as the rate per 100 person-years, starting from the first visit to a center.

Results showed that new-onset ILD occurred in 1,075 or 20.2% of patients with a median of 3.8 years follow-up. Overall incidence was 3.83 per 100 person-years and could occur anytime during a 10-year observation period from baseline.

Factors that predicted ILD included:

- Shortness of breath (stage two or higher based on the New York Heart Association classification system)
- Male sex
- Age
- Elevated inflammatory markers

- Hemoglobin level
- Anti-topoisomerase I antibodies (anti-topo I)
- Anti-centromere antibodies

"We included both smoking and ethnicity in our prediction models, and surprisingly, they were not statistically significant," Petelytska says. "That might be an influence of the EUSTAR database, enrolling over 99% of Caucasian patients and underrepresenting African Americans. The reproducibility of our results in other races and ethnicities is limited, and it should be replicated and validated."

The biggest surprise, Petelyska says, was that disease duration was not a significant predictor of new ILD.

"It is commonly believed that ILD [mainly] appears in the early years of systemic sclerosis onset. Instead, we found that the onset of ILD was independent from disease duration, which was not included in the prediction model. To confirm this surprising result, we performed a sensitivity analysis, dividing patients with early and late disease onset, and this still showed similar incidence rates. These results indicate that screening should be repeated during follow-up, possibly on a yearly basis, together with screening for pulmonary hypertension and routine clinical observation."

Petelytska says the study has several limitations, especially the heterogeneity of patients included in the analysis.

"We had patients having two to 10 follow-up visits, as well as patients observed from one to 10 years after baseline," she says. "In addition, not all patients with ILD-negative status on baseline had follow-up HRCT information available, which might bias the results of our incidence rate of SSc-ILD."

Registry data with missing values and decentralized reading and lack of knowledge about medication can also lead to possible bias, Petelytska says.

The next stage of the project is to study different medications to determine whether they can effectively prevent ILD.

"It is our plan to include both immunosuppressants and vasoactive and vasodilating drugs, which are among those most commonly administered to SSc patients," Petelytska says.

More information: Abstract #1700: Liubov Petelytska et al, Incidence and Risk Factors for New Onset of Interstitial Lung Disease in Systemic Sclerosis: A EUSTAR Analysis (2023)

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