

Shorter Telomere Length Associated With Usual Interstitial Pneumonia Pattern in Pulmonary Fibrosis

Glenview, IL (October 12, 2026) – Shorter telomere length was associated with a usual interstitial pneumonia (UIP) radiologic pattern in patients with interstitial lung disease (ILD), but not with the overall extent of fibrosis, according to new research.

Researchers evaluated the association between whole-genome sequencing-derived telomere length (WGS-TL) and radiologic features in patients with ILD. The study included participants from the Pulmonary Fibrosis Foundation Patient Registry who had age-adjusted WGS-TL and chest CT data obtained within one year of enrollment.

Radiologic variables included visual assessment of CT pattern of fibrosis and two machine learning–derived quantitative measures: multiple instance learning–usual interstitial pneumonia (MIL-UIP) and data-driven texture analysis (DTA) fibrosis. MIL-UIP is a continuous score in which higher values are predictive of histologically confirmed UIP, while higher DTA fibrosis scores indicate a greater extent of fibrosis. WGS-TL was analyzed as both a continuous variable and dichotomized at the 10th percentile.

Among 503 participants included in the analysis, 339 had idiopathic pulmonary fibrosis (IPF) and 164 had non-IPF ILD. A total of 138 participants, or 27%, had age-adjusted WGS-TL below the 10th percentile.

Participants with WGS-TL below the 10th percentile were more likely to have a radiologic UIP pattern compared with those above the 10th percentile (62% vs 50%) and had greater MIL-UIP scores (0.73 vs 0.66). However, researchers found no difference in the overall extent of fibrosis, as measured by DTA fibrosis scores, between participants above and below the 10th percentile for WGS-TL.

“MIL-UIP may help identify patients with telomere shortening, supporting a role for imaging-derived biomarkers in recognizing biologically distinct ILD phenotypes,” said Samuel B. Konkol, MD, a CHEST 2026 presenting author.

The findings suggest that shorter telomere length may be associated with the pattern of fibrosis rather than the overall fibrotic burden. This relationship supports a potential distinct mechanistic pathway linking telomere dysfunction with UIP-predominant ILD.

Further results will be presented at the CHEST Annual Meeting 2026 as part of the ILD: Emerging Insights original investigation presentations titled, *Shorter Telomere Length Associates With Automated Detection of Usual Interstitial Pneumonia on Imaging in Pulmonary Fibrosis*. The [study abstract](#) can be viewed on the CHEST® journal website.