Background
This study seeks to determine the influence of specific ILD subtypes on mortality risk. There remains limited data on the impact that specific ILD subtypes have on mortality compared to matched controls.

Medications and thoracic radiation.

It is theorized that viruses contribute to disease exacerbations by either damaging an already dysfunctional epithelium or triggering immune-mediated tissue destruction.3

Patients with ILD are greater risk of death from SARS-CoV-2 infection when compared to matched controls.4 7

There remains limited data on the specific ILD subtypes have on SARS-CoV-2 mortality. This study seeks to determine the influence of specific ILD subtypes on SARS-CoV-2 mortality.

Methods
TriNetX Analytics Network, a global health research network with over 400 million patients, was used to analyze electronic health records across various healthcare organizations.

Control cohorts included individuals diagnosed with SARS-CoV-2 from January 1st, 2020 without any ILD.

Study cohorts were individuals with SARS-CoV-2 with one of the following ILDs: IPF, connective tissue related ILD (RA-ILD, SSc-ILD, Sjögren’s syndrome), and hypersensitivity pneumonitis (HP).

Cohorts were matched for age at index, sex, nicotine dependence, body mass index (BMI), diabetes mellitus (DM), ischemic heart disease, hypertensive disease, and cerebrovascular disease.

To determine mortality risk for individual ILDs, comparisons were made between control and study cohorts.

To determine relative mortality risk amongst different ILDs, comparisons were made between different study cohorts.

Results
Study vs. Control Cohort
- IPF vs. Control. IPF study cohort had significantly greater mortality risk than its control cohort (8.766% vs. 4.761%; p<0.0001) as seen in Table 1.
- RA-ILD vs. Control. RA-ILD had significantly greater mortality risk (10.566% vs. 7.799%; p<0.0001).
- HP vs. Control. HP had significantly greater mortality risk (6.21% vs. 3.347%; p<0.0001).

ILDs: IPF, connective tissue related ILD (RA-ILD, SSc-ILD, Sjögren’s syndrome), and hypersensitivity pneumonitis (HP). Table 1. Mortality Risk Comparison Between Study vs. Control Cohort.

Study Cohort Comparisons
- IPF vs. other ILD. IPF has a greater mortality risk than Sjögren’s (6.764% vs. 2.499%; p<0.0001). IPF has equal mortality risk to SSc-ILD (6.764% vs. 6.21%; p=0.8927).
- RA-ILD vs. remaining ILD. RA-ILD had significantly greater mortality than SSc-ILD (8.766% vs. 5.322%; p=0.0001) and HP (7.429% vs. 3.347%; p<0.0001) as seen in Figure 1.

HP had significantly greater mortality than RA-ILD (6.21% vs. 3.347%; p<0.0001). Mortality for HP did not significantly differ from SSc-ILD (6.21% vs. 5.322%; p=0.0912) or RA-ILD (6.21% vs. 7.429%; p=0.1150).

ILD had significantly greater mortality compared to SSc-ILD (10.566% vs. 3.717%; p<0.0001) and HP (10.566% vs. 3.717%; p=0.0001). ILD had increased mortality risk (5.499% vs. 3.051%; p=0.0001) relative to control group.

ILDs: IPF, connective tissue related ILD (RA-ILD, SSc-ILD, Sjögren’s syndrome), and hypersensitivity pneumonitis (HP).

Results Continued

False positive or negative is considered significant.

Conclusion
- Individual ILDs increase mortality risk compared to controls, except for Sjögren’s.
- It is hypothesized that tissue architectural derangements in ILD compromise ability to eradicate viruses, allowing for greater viral proliferation and consequent tissue injury.
- SARS-CoV-2 mortality in SSc-ILD, RA-ILD and HP was similar to IPF.
- Prevention and treatment must be an important focus in this population.
- As a limitation, patient coding can differ between hospital systems.

References
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