Risk Factors Associated with Acute Respiratory Distress Syndrome and Death in Patients with Coronavirus Disease 2019 Pneumonia in Wuhan, China Wu C et al. JAMA IM 2020

SARS-CoV-2 is the virus that causes COVID-19 pneumonia, which can progress to ARDS and death. This retrospective cohort study evaluated patients admitted to one hospital in Wuhan from 12/25/19-1/26/20 with follow-up through 2/13/20 to evaluate for risk factors for the development of ARDS and death. The study reports on 201 patients with median age 51 (20% age 65+) and 64% male.

From the entire cohort, 42% developed ARDS, 26% required ICU admission, and 22% died in-hospital. Of patients who developed ARDS, 66% died and 21% were discharged by the end of the study period. Median hospital stay was 13 days. For O2 requirements, max needs were: 49% required nasal cannula, 40% required non-invasive mechanical ventilation, 2.5% required invasive mechanical ventilation, and 0.5% required ECMO. Adjunct therapies included antibiotics, antivirals, antioxidants, and steroids.

Admission labs for patients demonstrated elevated ESR, CRP, D-dimer, and LDH, and lowered lymphocyte count, albumin and pre-albumin. Comparing the group with ARDS to the non-ARDS cohort, the ARDS patients were older (difference 12yr, 95% CI 8-16yrs), initially presented with dyspnea (diff 33.9%, 95% CI 19.7-48.1%), had higher fevers at home, had more comorbidities (HTN, DM), and were less likely to have received antiviral therapy (diff -14.4%).

Of the group with ARDS who died, these patients were older, were less likely to have received antivirals or steroids, and had labs consistent with end organ dysfunction (higher LDH, D-dimer). Limitations include small sample, retrospective analysis, short-term follow-up, low proportion of patients with comorbidities, and selection bias as only patients sick enough to be hospitalized were included in the study for analysis; therefore, risk factors for ARDS amongst all infected people remains unknown.