Three Subgroups of COVID-19 Acute Lung Injury Identified by Latent Class Analysis
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INTRODUCTION

Background
Two acute respiratory distress syndrome (ARDS) subgroups with differential response to treatments have been consistently identified in ARDS trials, including both all cause ARDS and COVID ARDS. Identifying subgroups among non-mechanically ventilated patients with COVID-19 acute lung injury (ALI) may facilitate triage decisions and enrichment of clinical trials.1,2,3

Hypothesis
There is more than 1 subtype of patients with COVID-19 ALI, including one characterized by “cytokine storm.”

METHODS
Single center retrospective cohort study of 1,339 adults admitted to Columbia University Irving Medical Center with COVID-19 ALI, defined as SpO2 < 93% on room air and no mechanical ventilation or death within 24 hours of admission, between March and June 2020.

RESULTS

The above 3 subgroups differ in clinical and lab variables.

The 3 subgroups differ in time to intubation or death.

CONCLUSIONS

• We identified three distinct clinical subgroups of COVID ALI with increasingly worse outcomes.
• There is no evidence of a cytokine storm subgroup. Instead, systemic inflammation appears directly and linearly associated with severity of hypoxemia across COVID ALI subgroups.
• Identification of subgroups of patients not requiring mechanical ventilation on the first day of hospitalization can allow for risk stratification upon presentation.

REFERENCES