

COVID-19 and obstructive lung disease: Are COPD and asthma risk factors for severe COVID-19? Evaluating the data from the largest health system in New York state



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Abstract

Rationale: An analysis of data collected between March 1, 2020, through July 1, 2020, from the largest health system in New York sought to investigate the association between COVID-19 and obstructive lung disease including asthma and chronic obstructive pulmonary disease (COPD).

Methods: A total of 21,865 patients were included in the analysis, 2,518 had obstructive lung disease and COVID-19. There were 1,370 patients who had asthma and COVID-19, and 847 patients had COPD and COVID-19. There were 301 patients who had overlapping asthma and COPD diagnoses. There were 19,347 patients who had a diagnosis of COVID-19 without asthma or COPD.

Results: Analysis of our data showed COPD patients with COVID-19 were more likely to be intubated as compared to the control group (OR 1.346 95% CI 1.061-1.707 $p=0.0095$). Additionally, there was no association between COPD and mortality in patients with COVID-19 (OR 0.845, 95% CI: 0.685-1.042 $p=0.1436$). There was no association between asthma and COVID-19 and intubation (OR 1.175 95% CI 0.936-1.475 $p=0.2193$). There was no statistical association between asthma and mortality in patients with COVID-19 (OR 0.849 95% CI 0.669-1.079 $p=0.2455$). However, patients with asthma were at a decreased risk of dying from COVID-19 compared to COPD patients with COVID-19 even after controlling for comorbid conditions (OR 0.718, 95% CI 0.526-0.979 $p=0.0329$). Patients presenting with asthma exacerbation or COPD exacerbation in the setting of COVID-19 infection were not at increased risk of death as compared to COPD or asthma patients with COVID-19 (Asthma exacerbation OR 1.042, 95% CI 0.62-1.73 $p=0.8796$), (COPD exacerbation OR 0.95 95% CI 0.67-1.36 $p=0.762$).

Conclusion: Our finding with regards to intubation may be explained by an aggressive approach early on in the pandemic towards intubation especially in patients that may have been perceived as high-risk patients' due to underlying lung disease. No association between COPD and death in COVID-19 and asthma and mortality in COVID-19-meaning COPD and Asthma were not risk factors for death in our patient population. As to why asthma patients were at decreased odds of dying compared to COPD patients may be related to the different pathophysiological mechanisms of asthma as compared to COPD or a small protective effect of inhaled corticosteroids. Lastly, presenting with an asthma exacerbation or COPD exacerbation in the setting of COVID-19 infection did not increase your odds of mortality.

Biography

Bushra Mina is Director of the Pulmonary Critical Care Fellowship Program, and Section Chief for Pulmonary Medicine at Lenox Hill Hospital. He is an Associate Professor at Zucker Scholl of Medicine at Hofstra/Northwell. He is a key faculty member in the department of Internal Medicine and PCCM Fellowship Program. He is a graduate of Medical School, Alexandria University. He finished his Critical Care fellowship at Memorial Sloan Kettering Cancer Center, and Pulmonary Critical Care Fellowship at St. Vincent Hospital and Medical Center in New York. Other degrees include European Diploma of Intensive Care Medicine, and Diploma of Tropical Diseases, Royal College of Surgeons, Dublin, Ireland. His Main Research interest include noninvasive ventilation, thromboembolic disease, COVID-19, and COPD. My research experiences include multiple presentations, publication of abstracts, papers, and book chapters that address different topics of pulmonary and critical care medicine.



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