

Hospital admission rates in patients with chronic obstructive pulmonary disease throughout the COVID-19 pandemic

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Background: Reduced hospital admissions for exacerbations of chronic obstructive pulmonary disease (COPD) have been reported during the COVID-19 pandemic. However, there is no data comparing pandemic COPD admissions for exacerbations with admissions for respiratory infections, including COVID-19, during a prolonged observation time.

Aim: We wanted to examine admission rates for exacerbations and respiratory infections among COPD patients, before and during the COVID-19 pandemic.

Material and methods: A retrospective cohort study was performed, obtaining anonymized data on hospital admissions of patients with COPD from the register of discharge diagnoses at a large Swedish hospital. 6166 admissions with a primary diagnosis code for exacerbation, pneumonia, influenza or COVID-19 during a five-year period, were included. Two different pandemic periods, with and without COVID-19 restrictions (February 2020 - March 2022 and April – August 2022, respectively) was compared to a period prior to the pandemic (June 2017 - January 2020). We used Poisson regression to compare monthly admission rates, controlling for admission month.

Results: Hospital admission rates decreased during the period with restrictions, with incidence rates ratios of 0.72 for exacerbations (95%CI 0.67-0.77; $p<0.001$), 0.56 for pneumonia (95%CI 0.49-0.62; $p<0.001$), 0.18 for influenza during the winter period (95%CI 0.10-0.30; $p<0.001$) and 0.79 for total COPD admissions (95%CI 0.75-0.84; $p<0.001$). No significant effect on admissions were seen during the period without COVID-19 restrictions.

Conclusion: Thus, the overall pandemic rate of hospital admissions among COPD patients for exacerbation or respiratory infections was, despite COVID-19 admissions, significantly reduced during this prolonged observation period. Prepandemic levels returned after withdrawal of COVID-19 restrictions. The results support that COVID-19 restrictions reduced severe respiratory infections in COPD patients.

Pandemic vs. prepandemic COPD admissions

— Exacerbation — COVID-19 + COPD - - - Total COPD admissions
— Influenza + COPD — Pneumonia + COPD

