

Are We Following Evidence-Based Guidelines for the Treatment of Acute COPD Exacerbations at University Hospital?

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Background

- The World Health Organization estimates the third leading cause of death worldwide is Chronic Obstructive Pulmonary Disease (COPD).
- In 2019, COPD caused 3.23 million deaths, of which 80% occurred in low- and middle-income areas.
- Costs attributable to having COPD were \$32.1 billion in 2010 with a projected increase to \$49.0 billion by 2020.

Objective

- The purpose of this study was to determine adherence to evidence-based guidelines for the treatment of acute COPD exacerbations at University Hospital.
- Recommended care include a chest x-ray (CXR) completed at the time of the ED visit or initial admission, use of inhaled anticholinergic bronchodilators or short acting beta agonist, systemic corticosteroids for 5 to 14 days, noninvasive positive pressure ventilation (NPPV) in patients with evidence of respiratory acidosis or hypoxemia, and narrow spectrum antibiotics.
- Additionally, we determined whether patients with COPD received care considered contraindicated in the management of COPD exacerbation such as mucolytic medications, or methylxanthine.

Methods

- This study was a retrospective chart review of 50 patients that were admitted to University Hospital for acute COPD exacerbation as the primary diagnosis between 7/15/21 and 9/15/21.
- Inclusion criteria other than primary diagnosis was solely age > 18.
- Exclusion criteria included patients who expired during the admission, patients who had active COVID-19 infection or patients with active primary lung disease (lung cancer, pneumonia, or pulmonary emboli).
- Collected data includes demographics, medication administration record and provider notes of 80 subjects.
- A random number generator was then used to select 50 patients to be used for data analysis.
- Compliance rates were calculated out of 50 as correctly or incorrectly done.
- Furthermore, a 95% confidence interval was statistically derived for all values.

Results

- The largest size age group represented was ages 55 to 59
- The largest size patient-identified race was African-American and sex was male.
- Our results indicated the best adherence to recommendations for CXR on admission.
- Out of the 50 cases, 49 of them were correctly performed resulting in a 98% compliance rate.
- The adherence rate of the use of inhaled anticholinergic bronchodilators and inhaled short acting beta agonists with a rate of 92% (84.5, 99.5%).
- Nearly identical adherence rate observed for use of NPPV at 84% (73.8, 94.2%) and use of narrow spectrum antibiotic at 86% (76.4, 95.6%).
- There was a significant drop in the adherence rate of avoiding mucolytic medications, or methylxanthine at 74% (61.8, 86.2%).
- An even further drop was seen with the compliance rate of use of systemic corticosteroids for 5 to 14 days with a rate of 54.0% (40.2, 67.8%).

Conclusion

- The results show that University Hospital has great adherence to recommended care for patients with COPD in regards to admission CXR, use of inhaled anticholinergic bronchodilators or short acting beta agonists,
- Inappropriately providing care with NPPV, use of narrow spectrum antibiotics, corticosteroids and avoiding mucolytics demonstrate the need for improvement.

Clinical Implications

- Despite achieving high quality adherence in certain aspects of COPD care, our findings suggest the need for additional training in the care of COPD exacerbations.

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