

# Different dosing, administration of corticosteroids for severe COPD shows comparable outcomes

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In contrast to clinical guidelines, new research finds that the vast majority of patients hospitalized for severe symptoms of chronic obstructive pulmonary disease (COPD) were initially treated with higher doses of corticosteroids administered intravenously, with analysis indicating that these patients had outcomes comparable to patients who received the recommended and lower-cost, less-invasive treatment of low doses of steroids administered orally, according to a study in the June 16 issue of *JAMA*.

COPD is the fourth leading cause of death in the United States, affects more than 6 percent of adults in the U.S., and accounts for \$32 billion in direct health care costs. "In 2006, there were approximately 600,000 [hospital admissions](#) for acute exacerbation COPD, making this 1 of the 10 leading causes of hospitalization nationwide," the authors write. "Systemic corticosteroids are beneficial for patients hospitalized with acute exacerbation of COPD; however, their optimal dose and route of administration are uncertain."

Peter K. Lindenauer, M.D., M.Sc., of Baystate Medical Center, Springfield, Mass., and colleagues investigated the use of cortico[steroids](#) among patients hospitalized for acute exacerbation of COPD at 414 U.S. hospitals in 2006 and 2007. The researchers compared the outcomes of those initially treated with low doses of steroids administered orally to those initially administered steroids at higher

doses intravenously during the first 2 hospital days. Among the outcomes the researchers analyzed included a composite measure of treatment failure, defined as the initiation of [mechanical ventilation](#) after the second hospital day, inpatient mortality, or readmission for acute exacerbation of COPD within 30 days of discharge.

Of 79,985 patients, 73,765 patients (92 percent) were initially treated with higher doses of steroids administered intravenously, while 6,220 (8 percent) began low doses of steroids given orally. A total of 1.4 percent of patients initially treated with intravenous steroids died during the hospitalization and 10.9 percent experienced the composite treatment failure outcome, whereas 1.0 percent of orally treated patients died during the hospitalization and 10.3 percent experienced the composite outcome. A total of 1,356 patients (22 percent) initially treated with low-dose oral steroids were later switched to intravenous therapy.

The researchers found that in analysis that adjusted for various factors including patient, hospital, and physician characteristics, the risk of treatment failure among patients given low doses of steroids orally was not significantly different from those treated with high-dose steroids intravenously. Also, patients treated with low doses of steroids administered orally had shorter lengths of hospital stay and lower costs.

"In this large observational study, we found that, in sharp contrast to the recommendations contained in leading clinical guidelines, the vast majority of patients hospitalized for acute exacerbation of COPD were initially treated with high doses of corticosteroids administered intravenously. This practice does not appear to be associated with any measurable clinical benefit and at the same time exposes patients to the risks and inconvenience of an intravenous line, potentially unnecessarily high doses of steroids, greater hospital costs, and longer lengths of stay," the authors write.

"In light of the greater risks and higher costs associated with high-dose intravenous treatment, opportunities may exist to improve care by promoting greater use of low-dose steroids given orally. Given the large numbers of patients hospitalized with COPD each year in the United States, a clinical trial comparing these 2 approaches to management would be valuable."

**More information:** *JAMA*. 2010;303[23]:2359-2367.

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