

# Are intravenous steroids better than oral steroids in treating COPD exacerbations in hospitalized patients? A systematic review and meta-analysis

Rabbia Siddiqi, MD<sup>1\*</sup>, Nasir Shivani, MD<sup>2</sup>, Nezam Altorok, MD<sup>3</sup>,

<sup>1</sup>Division of Internal Medicine, Department of Medicine, The University of Toledo,

Toledo, OH 43614

<sup>2</sup>Junior Clinical Fellow, Bedford Hospital, National Health System Trust, Bedford,

England, United Kingdom

<sup>3</sup>Division of Rheumatology, Department of Medicine, The University of Toledo,

Toledo, OH 43614

\*Corresponding author: [rabbia.siddiqi@utoledo.edu](mailto:rabbia.siddiqi@utoledo.edu)

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**Introduction:** Systemic steroids are routinely used in the inpatient management of chronic obstructive pulmonary disease (COPD exacerbations and may be administered orally (PO or intravenously (IV. IV steroids are often pursued as a more aggressive approach although there is no clear evidence of their superiority over PO route, and may increase the risk of hyperglycemic events. Here we compare the effectiveness of IV versus PO steroids in COPD exacerbations.

**Methods:** PubMed/MEDLINE, EMBASE, and Cochrane databases were searched for randomized controlled trials (RCTs comparing IV versus PO administration of steroids in patients admitted for COPD exacerbation. Primary outcome was mortality during the study follow-up period. Secondary outcomes included: mean change in forced expiratory volume in 1 second (FEV1 from baseline to end of steroid course; length of hospital stay; treatment failure; and readmission rate. Effect estimates were pooled using a random-effects model and reported as mean differences (MD or relative risks (RR with the corresponding 95% confidence interval (CI.

**Results:** A total of 3 RCTs were included, comprising 296 patients (IV group=150, PO group=146. Study treatment duration varied between 7-10 days, and median follow-up was 1-3 months. Our meta-analysis showed no statistically significant difference between the two groups in risk of death (RR 1.45 [0.34-6.29]) by the end of the study follow-up. Both groups (IV versus PO) had a similar mean change in FEV1 from baseline (MD -0.06 liters [-0.19-0.07]) and similar length of hospital stay (MD 1UTJMS 2023 December 14; 11(3):e1-e2.88 days

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[-3.07-6.83]). There was no statistical difference in treatment failure rate (RR 0.96 [0.55-1.66]) or readmission rate (RR 0.93 [0.54-1.61]).

**Conclusion:** Our study showed that IV steroids have no benefit over PO steroids in patients admitted with COPD exacerbations. This suggests that IV steroids and their associated risks may be unnecessary and can be avoided in many patients.