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Five-Day Steroid Treatment Effective for Acute COPD Exacerbation

Clinical Question

Is a five-day course of systemic glucocorticoids effective in the treatment of adults with acute exacerbations of chronic obstructive pulmonary disease (COPD)?

Bottom Line

A five-day course of systemic glucocorticoids is at least as effective as a 14-day course in the treatment of adults with acute exacerbations of COPD. (Level of Evidence = 1b)

Synopsis

Glucocorticoid therapy reduces the length of hospital stay in adults with acute exacerbations of COPD, but the optimal dose and duration of treatment are unknown. These investigators identified adults ($n = 314$) who presented to one of five emergency departments in Switzerland and who met standard clinical criteria for acute exacerbations of COPD. Eligible patients randomly received (concealed allocation assignment) five or 14 days of systemic glucocorticoids, beginning with 40 mg of intravenous methylprednisolone (Solu-Medrol) on day 1, followed by 40 mg of oral prednisone daily for days 2 through 5, and then 40 mg of oral prednisone daily or matched placebo for days 6 through 14. Individuals assessing outcomes remained masked to treatment group assignment.

All patients received antibiotic therapy for seven days and an inhaled, nebulized, short-acting bronchodilator as clinically indicated during hospitalization. Additional standard treatments included inhaled glucocorticoids, beta agonists, and tiotropium (Spiriva) given throughout the study duration. Approximately 8% of patients in each treatment group were discharged directly from the emergency department; the remaining patients were hospitalized. Complete follow-up occurred for 99% of patients at six months.

Using intention-to-treat analysis, there were no significant differences in recurrent COPD exacerbations between the short-term and conventional treatment groups: 35.9% vs. 36.8%, respectively, met the primary end point of no exacerbations within 180 days. The median time to exacerbation was 43.5 days in the short-term treatment group and 29 days in the conventional group. In subgroup analyses, the authors found no differences in results by differing severities of COPD. There were also no treatment group differences in the need for mechanical ventilation, quality-of-life assessments, hypertension or hyperglycemia worsening, infection rates, gastrointestinal bleeding, or all-cause mortality.

Study design: Randomized controlled trial (double-blinded)

Funding source: Government

Allocation: Concealed

Setting: Inpatient (any location)

Reference: Leuppi JD, Schuetz P, Bingisser R, et al. *Short-term vs. conventional glucocorticoid therapy in acute exacerbations of chronic obstructive pulmonary disease: the REDUCE randomized clinical trial*. JAMA. 2013;309(21):2223-2231.

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