

Treatment for severe community-acquired pneumonia and high inflammatory response

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Among patients with severe community-acquired pneumonia and high initial inflammatory response, the use of the corticosteroid methylprednisolone decreased treatment failure, compared with placebo, according to a study in the February 17 issue of *JAMA*.

Community-acquired pneumonia is the leading infectious cause of death in developed countries, and despite advances in antibiotic treatment, mortality among hospitalized patients is still high, especially in those with severe pneumonia and in those who experience treatment failure (observed in 10-20 percent of patients). Treatment failure is associated with excessive [inflammatory response](#) and worse outcomes. Corticosteroids decrease the expression and action of many cytokines (various proteins secreted by cells of the immune system that serve to regulate the immune system) involved in the inflammatory response associated with pneumonia, but the benefit of using corticosteroids for these patients is uncertain, according to background information in the article.

Antoni Torres, M.D., Ph.D., of the Hospital Clinic, Barcelona, Spain, and colleagues randomly assigned patients at three Spanish teaching hospitals with severe community-acquired pneumonia and a high inflammatory response (defined as blood test for C-reactive protein of greater than 150 mg/L at admission) to receive intravenously the corticosteroid methylprednisolone (n = 61) or placebo (n = 59) for 5 days started within 36 hours of hospital admission.

The researchers found that there was less treatment failure (defined using outcomes such as development of shock (abnormally low blood pressure), need for invasive mechanical ventilation, and death within 72 hours of treatment) among patients from the methylprednisolone group (13 percent compared with 31 percent in the placebo group). Patients who received

corticosteroid treatment had a 66 percent lower odds of treatment failure.

In-hospital deaths did not differ between groups (10 percent in the methylprednisolone group vs 15 percent in the placebo group). Hyperglycemia (abnormally high blood sugars) occurred in 11 patients (18 percent) in the methylprednisolone group and in 7 patients (12 percent) in the placebo group.

"Among patients with severe community-acquired pneumonia and high initial inflammatory response, the acute use of methylprednisolone compared with placebo decreased [treatment failure](#). If replicated, these findings would support the use of corticosteroids as adjunctive treatment in this clinical population," the authors write.

Richard G. Wunderink, M.D., of the Northwestern University Feinberg School of Medicine, Chicago, comments on the findings of this study in an accompanying editorial.

"A more important question is what exactly are steroids preventing? Because radiographic progression during the period between 72 hours and 5 days was the primary driver of treatment differences, understanding what this clinical finding represents is key to acceptance of the findings. The 2 logical explanations for radiographic progression are uncontrolled pneumonia and development of acute respiratory distress syndrome. Although the latter is supported by a body of literature, a beneficial effect on uncontrolled [pneumonia](#) is less logical. A more intriguing possibility is that corticosteroids block a Jarisch-Herxheimer-like reaction to initiation of antibiotics in [patients](#) with high genomic bacterial load."

More information: *JAMA*, [DOI: 10.1001/jama.2015.88](#)
JAMA, [DOI: 10.1001/jama.2015.115](#)

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