**Steroids Relieve Pneumonia and Inflammation in Clinical Trial**

Corticosteroids reduced treatment failure rates in patients with severe inflammatory pneumonia in a randomized clinical trial

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February 25, 2015 – Patients with severe community-acquired pneumonia and high levels of C-reactive protein (CRP), indicative of a robust inflammatory response, responded well to corticosteroid treatment in a randomized controlled trial.

Antoni Torres, MD, of the Servei de Pneumologia, Institut Clínic del Torax in Barcelona, Spain, and colleagues reported their findings in the February 17, 2015, issue of the *Journal of the American Medical Association*.

Corticosteroids prevent many cytokines from exerting pro-inflammatory effects within the context of pneumonia. Despite the obvious benefit corticosteroids would appear to present, the authors report that previous studies failed to clearly demonstrate their efficacy in patients. Thus, the “use of corticosteroids for patients with community-acquired pneumonia remains controversial.”

Indeed, previous studies were mixed, with some demonstrating a benefit to corticosteroid administration in disease outcome, and others showing no such effect. However, as the authors of the present study suggest, previous studies did not specifically evaluate severe cases of pneumonia in patients also demonstrating a robust inflammatory response.

In this controlled trial, 120 patients with severe pneumonia and high inflammation were randomized into two groups: One group of 61 patients received 0.5 mg/kg per 12 hours methylprednisolone, while another group of 59 patients received placebo. Treatments began within 36 hours of hospitalization and were maintained for up to 5 days.

The primary outcome assessed in the study was treatment failure, which has been established as a “surrogate parameter for mortality.” Patients who received the corticosteroid treatment experienced less treatment failure (8 patients, or 13%) than those who received placebo (18 patients, or 31%, *P =* .02). This difference represented a significantly reduced risk of treatment failure (odds ratio 0.34 [95% CI, 0.14 to 0.87]).

Adverse effects encountered during the study included hyperglycemia, which occurred in 11 of the patients receiving corticosteroids (18%) and 7 of the patients receiving placebo (12%, *P =* .34). Other adverse events reported among those patients who received corticosteroids included acute kidney injury (8 patients [13%] vs. 8 patients [14%] for placebo), superinfection, delirium, and acute hepatic failure (1 patient each).

As described by the authors, the strength and chief importance of this study was the “inclusion of patients with severe community-acquired pneumonia and a high systemic inflammatory response.” However, because the study focused on a relatively narrow subset of patients, the authors report that the results cannot be interpreted to apply to all patients with pneumonia.

The study also did not evaluate adrenal function, which is affected by corticosteroid administration. Therefore, additional stratification of data according to adrenal function may be appropriate for future studies.

Taken together, should the results prove to be repeatable, the authors suggest “these findings would support the use of corticosteroids as adjunctive treatment in this clinical population.”

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