DEM Journal Club

Article Appraisal

Article: "Adjust Prednisone therapy for patients with community-aquired pneumonia: a multicentre, double-blind, randomized, placebo –controlled trial" Blum et al. April 2015. The Lancet. 285 (9977):1511-1518

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Resident Reviewer Name(s) and Residency Affiliation: Dr. Rahim Manji, MD CCFP-EM

Faculty Methodology/Bio-statistics Resource Person: Dr. Corinne Hohl

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Background and Study Objective(s):

There has been conflicting evidence regarding the use of steroids in the treatment of community acquired pneumonia. This study assessed if an adjunct course of corticosteroids reduced the time to clinical stability in patients admitted from the ED with community acquired pneumonia.

Study Design:

This RCT was conducted in 7 Swiss tertiary care hospitals. 802 patients were randomized to receive either 7 days of prednisone or placebo. Antibiotics and other management of the disease was at the discretion of the treating physician.

Inclusion Criteria:

- 18 years or older
- Radiographic infiltrate consistent with pneumonia
- One other clinical symptom (new cough, fever, sputum, leukocytosis etc)

Exclusion:

Inability to provide informed consent, IVDU, Acute Burn injury, Gi Bleed in the past 3 months, Adrenal Insufficiency, A condition requiring chronic steroids at a prednisone equivalent dose of 0.5 mg/kg/day or greater, pregnancy or breastfeeding, severe immunosuppression, active tuberculosis.

2911 patients were screened. 802 were randomized into 2 arms..

Primary Outcome: Time to clinical stability. Defined as stable vital signs for 24hrs

Secondary Outcomes: Mortality, length of stay, recurrence of pneumonia, readmission, ICU admission, duration of

antibiotic therapy. disease activity scores, pneumonia related complications, side effects of corticosteroids (hyperglycemia, hypertension, delirium, nosocomial infections, weight gain).

Results:

Baseline characteristics of the 2 arms were similar. In an intention to treat analysis, median time to clinical stability was shorther in the prednisone group than in the placebo group. 3.0 days vs 4.4 days, 95% CI $p<0.0001$. Per protocol analysis yielded similar results. Time of hospital discharge was also shorter in the prednisone group (6 vs 7 days $p<0.012$). Pneumonia related complications were similar between groups. The prednisone group did have more adverse events and this was largely driven by an increase in in-hospital hyperglycemia. The number of patients in either group requiring a new insulin start following discharge was small and not significantly different. There was a non statistically significant trend towards an increase in mortality in the prednisone group.

Validity of Results:

The primary outcome was of questionable clinical significance. It was also felt that the definition of 'clinical stability' was arbitrary. The incidence of smoking in the groups was not collected so the impact of undiagnosed COPD may skew the results.

Generalizability of Results:

Few ICU patients were included so it is difficult to apply the findings to this subset of patients. Patients with existing indications for steroids, IVDU or any form of immunosuppression were also excluded.

The Bottom Line:

No Journal club attendees would change their practice based on this study. Prednisone did seem to reduce the time to clinical stability and length of stay in admitted CAP patients but participants questioned whether the primary outcome was clinically relavent. The study was also not adequately powered to assess mortality and in the prednisone group the small, non statistically significant trend towards higher mortality was concerning.