

Corticosteroid Therapy for Severe Community-Acquired Pneumonia: A Meta-Analysis

To the Editor:

I have read with interest the original article entitled “Corticosteroid Therapy for Severe Community-Acquired Pneumonia: A Meta-Analysis” by Cheng et al.¹ The authors decided to use the fixed-effects model despite the heterogeneity of the studies included in the meta-analysis (populations, doses, and antibiotics were different in each study). If the random-effects model had been used, which seems more appropriate in this case, the conclusion would have been different (Fig. 1). Another choice that seems inadequate was the decision to use the Peto odds ratio. The Peto odds ratio method usually works well in cases in which the odds ratio is close to 1.² This is not what happened in 2 studies. Thus, if the odds ratio had been used, even if using the fixed-effects model, there would have been no difference between the corticosteroid and placebo groups (Fig. 2).

Thus, I believe that this meta-analysis should be interpreted with caution.

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The author has disclosed no conflicts of interest.

REFERENCES

1. Cheng M, Pan ZY, Yang J, Gao YD. Corticosteroid therapy for severe community-acquired pneumonia: a meta-analysis. *Respir Care* 2014;59(4):557-563.
2. Higgins JP, Green S, editors. *Cochrane handbook for systematic reviews of interventions* version 5.1.0. Updated March 2011. The Cochrane Collaboration, 2011. www.cochrane-handbook.org. Accessed June 6, 2014.

Corticosteroid Therapy for Severe Community-Acquired Pneumonia: A Meta-Analysis–Reply

In Reply:

We thank Dr Gusmao-Flores for the interest in our recent article “Corticosteroid therapy for severe community-acquired pneumonia: a meta-analysis.”¹ We appreciate the opportunity to respond to the concerns raised with regard to our article.

According to Cochrane recommendations, the chi-square test measures the heterogeneity of observed effect sizes from an underlying overall effect. This test has low power in detecting true heterogeneity when studies have a small sample size or are few in number.^{2,3} Hence, we used a *P* value of .10 to determine statistical significance. When *P* was > .10, a fixed-effects model was used.

The Peto odds ratio (OR) method works well when intervention effects are small, events are rare, and the studies have similar numbers in 2 groups.^{2,4} Bradburn et al⁴ found that the Mantel-Haenszel OR method using

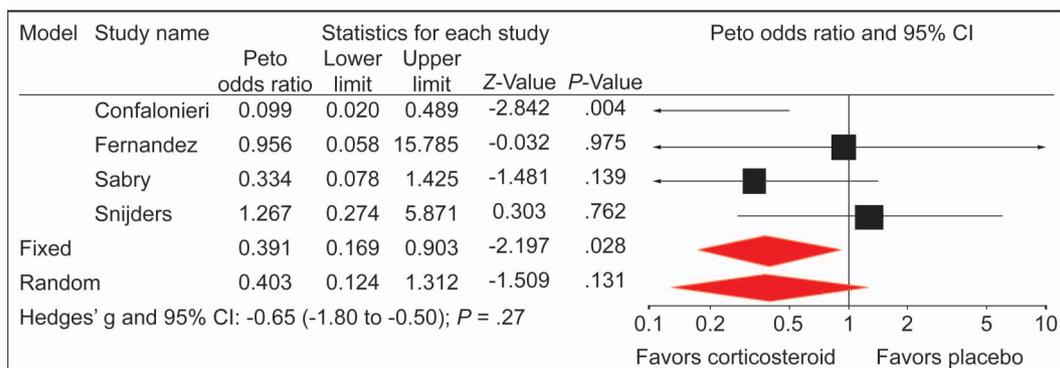


Fig. 1. Correlation between mortality and corticosteroid treatment using the random-effects model.

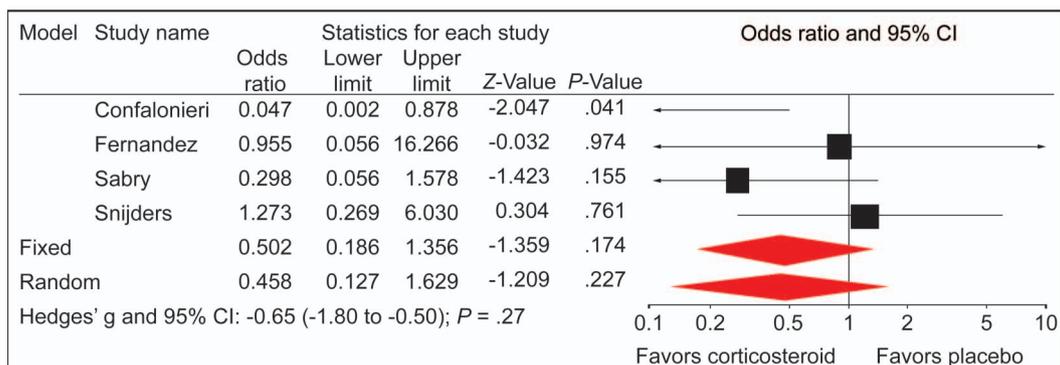


Fig. 2. Correlation between mortality and corticosteroid treatment using the odds ratio.