POEMs

Beta-Lactam Not as Effective as Beta-Lactam Plus Macrolide for Treating CAP in the Hospital

Clinical Question

Is a beta-lactam antibiotic alone as effective as the combination of a beta-lactam and a macrolide for treating patients hospitalized with community-acquired pneumonia (CAP)?

Bottom Line

In this noninferiority trial, monotherapy with a beta-lactam was not as effective as combination therapy with a beta-lactam and a macrolide for achieving clinical stability in seven days for hospitalized patients with moderately severe CAP. (Level of Evidence = 1b)

Synopsis

Using concealed allocation, these authors randomized 580 hospitalized, immunocompetent patients with CAP to receive monotherapy with a beta-lactam or a beta-lactam in combination with a macrolide. The beta-lactams used were cefuroxime (Zinacef) or amoxicillin/clavulanic acid (Augmentin), and the macrolide used was clarithromycin (Biaxin). Patients with severe pneumonia (for example, those in risk class V on the pneumonia severity index [PSI]) were excluded. The two groups were balanced at baseline: the mean age was 76 years and almost 75% of the patients were PSI class III or IV. The median duration of antibiotic therapy in both groups was 10 days.

The primary outcome was clinical stability at seven days, defined as stable vital signs including an oxygen saturation by pulse oximetry of greater than 90% on room air. Compared with the combination therapy group, a greater proportion of patients in the monotherapy group did not reach clinical stability at seven days (41.2% vs. 33.6%). For the absolute difference between the two groups, the upper limit of the 90% confidence interval was 13%, which exceeded the predefined boundary of a difference of 8% that was required to demonstrate noninferiority. In other words, monotherapy was not as effective as combination therapy. Additionally, although there were no significant differences in intensive care unit admissions, lengths of stay, or mortality between the two groups, patients in the monotherapy group were more likely to be readmitted within 30 days than were those in the combination group (8% vs. 3%; $P = .01$). Finally, a subgroup analysis showed that patients with identified atypical pathogens were less likely to reach clinical stability with monotherapy (hazard ratio = 0.33; 95% confidence interval, 0.13 to 0.85).

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