Azithromycin: Short Course with Long Duration

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Royer and colleagues[1] have performed a meta-analysis comparing shorter versus longer courses of antibiotics for treating infections in hospitalized patients. They conclude that shorter courses are safe. However, the authors do not address a flaw in the analysis; they included studies in which treatment with azithromycin was considered a short antibiotic course relative to treatment with another antibiotic. Azithromycin is a macrolide antibiotic that has a relatively long terminal serum half-life, which has been reported to be 35-96 hours.[2-4] Moreover, the half-life of azithromycin in lung tissue can be as long as 132 hours,[4] which is important because tissue concentrations are thought to be more indicative of the clinical efficacy of macrolides.[5] In 4 of 19 studies in the meta-analysis,[1] azithromycin was used as a short course for the treatment of pneumonia and compared with longer courses of antibiotics with a much shorter half-life. This implies that in these studies, the duration of the effective antibiotic tissue concentration in the short arms was probably not shorter than in the comparator arms. It could even be longer due to azithromycin's favorable pharmacokinetics. In our view, these studies have unfairly contributed to the clinical efficacy of short courses, thereby threatening the validity of the overall conclusions. We think that effective antibiotic blood/tissue levels determine the clinical outcome, not just shorter or longer antibiotic courses.

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