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Letter to the Editor

Microbiological Efficacy of Levofloxacin for Treatment of Community-Acquired Pneumonia Due to *Chlamydia pneumoniae*

Although quinolones have been recommended for treatment of pneumonia due to *Chlamydia pneumoniae* (1), data on the use of these antibiotics for this indication are limited. Previously published treatment studies of quinolones for community-acquired pneumonia have used serology for the diagnosis of *C. pneumoniae* infection; thus, microbiological efficacy could not be assessed (1, 4, 5). We obtained nasopharyngeal specimens for culture of *C. pneumoniae* from patients, 18 years of age or older, with community-acquired pneumonia who were enrolled in an open, noncomparative, multicenter study evaluating 500 mg of levofloxacin given intravenously or orally once a day for 7 to 14 days. Cultures were obtained at baseline and 5 to 7 days and 21 to 28 days after treatment. Susceptibility testing of *C. pneumoniae* was performed in cell culture using HEp-2 cells as previously described (6). Cultures for *C. pneumoniae* were obtained from 646 patients; 47 (7.3%) were positive at one or more study visits. *C. pneumoniae* was eradicated from the nasopharynx in 16 (80%) of the 20 evaluable culture-positive patients after treatment. In vitro susceptibility testing for levofloxacin was performed on eight isolates of *C. pneumoniae* from these patients. The MICs and minimal bactericidal concentrations (MBCs) for these isolates ranged from 0.125 to 0.5 μg/ml and were the same at baseline and after therapy (Table 1).

These results are comparable to our previous experience with macrolides for the treatment of *C. pneumoniae* pneumonia in adults and children: microbiological efficacy of 79% for clarithromycin, 70 and 83% for azithromycin, and 86% for erythromycin (2, 6). File et al. (4) reported a clinical cure rate of 98% among patients who were treated with levofloxacin compared to 93% of those treated with ceftriaxone and/or cefuroxime axitil. Erythromycin or doxycycline could also be added. The response rate of those with serologic evidence of *C. pneumoniae* infection did not differ between those patients who had erythromycin or doxycycline added to their treatment regimen. There was also no difference in the response rate among those patients who had definite infection, i.e., a fourfold rise in microfluorescence immunoglobulin G (IgG) or IgM, compared to those who had probable infection, i.e., a single IgG $\geq$ 512 or IgM $\geq$ 32. The apparent success of the cephalosporin regimens, which have no or poor activity against *Chlamydia*, should raise questions about the specificity of the serologic criteria. Other investigators have claimed eradication based entirely on the results of serology (5).

Persistence of the organism after therapy did not appear to be due to the development of resistance. We previously demonstrated a fourfold in increase in MICs of azithromycin in two or seven persistently culture-positive patients after therapy, but the MICs were still in the range considered to indicate susceptibility (6). Resistance to ofloxacin and sparfloxacin has been described with *C. trachomatis* in vitro after four passages in subinhibitory concentrations of these drugs (3). Unless cultures are done and microbiological efficiacy is assessed, we may never be able to survey for, or document, the emergence of resistance.

TABLE 1. In vitro susceptibilities to levofloxacin of *C. pneumoniae* isolates from four persistently positive patients with pneumonia

Patient and date (mo/day/yr)	MIC (μg/ml)	MBC (μg/ml)
01016		
12/5/96	0.25	0.25
12/26/96	0.25	0.25
07015		
1/24/97	0.125	0.125
2/26/97	0.125	0.125
16005		
9/17/97	0.25	0.25
10/27/97	0.25	0.25
57002		
5/8/97	0.5	0.5
6/13/97	0.5	0.5

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