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Emergence of Fluoroquinolone Only–Resistant *Escherichia coli* in a Community Hospital

To the Editor—We report the emergence in a community hospital of *Escherichia coli* isolates, obtained from urine samples, that are resistant only to fluoroquinolones and were identified retrospectively beginning in 2001. In 2005, 2 healthy, immunocompetent patients received diagnoses of uncomplicated urinary tract infection and were treated empirically with levofloxacin pending culture results. Neither of the patients responded to treatment with levofloxacin. Identification and susceptibility tests performed with the Vitek (bioMérieux) system on samples obtained before the administration of antibiotics identified *E. coli* that were resistant to levofloxacin and ciprofloxacin but were susceptible to all other antibiotics tested, including trimethoprim-sulfamethoxazole. Each patient's therapy was promptly switched to an antibiotic to which the organism was susceptible, with subsequent resolution of symptoms. Because *E. coli* isolates that are resistant only to fluoroquinolone antibiotics—specifically, levofloxacin and ciprofloxacin—are considered to be uncommon [1], an effort was made to retrospectively determine the frequency and prevalence of fluoroquinolone only–resistant *E. coli* (FORE) identified in our laboratory using the Vitek Data Trac software program (bioMérieux). Including only unique patient isolates, the percentage of isolates reported in our laboratory that were identified as FORE for each year from 1998 to 2006 was 0%, 0%, 0%, 0.10% (1 isolate), 0.21% (2 isolates), 0%, 0.27% (3 isolates), 0.88% (10 isolates), and 1.36% (16 isolates), respectively. Because none of the isolates with the FORE phenotype obtained before 2005 were available for testing, we sent the first 6 isolates recovered after the trend was identified to an external reference laboratory for confirmatory susceptibility testing. This laboratory confirmed our initial results using the same method (Vitek) and using the microbroth dilution method. PFGE testing of 11 of the isolates obtained in 2006 by the Massachusetts Department of Public Health revealed that the banding patterns for these 11 isolates were different, suggesting that clonal spread of this phenotype is not occurring at present and that this is a heterogeneous phenomenon.

When reported, resistance to fluroquinolones in *E. coli* is usually observed in conjunction with resistance to other antibiotic classes [1–3]. Therefore, our observation of the emergence and increased frequency of FORE is unusual and somewhat perplexing. From an epidemiological standpoint, our concern is that we have identified the emergence of an *E. coli* phenotype that, once established, may persist and increase in frequency, particularly in the face of selection pressure. Of note, as a contrast to our findings, data from large antibiotic-resistance surveillance studies in the United States suggest that the frequency of FORE is not increasing (Tracking Resistance in the United States Today study from Ortho-McNeil Pharmaceuticals, unpublished data).

From a clinical standpoint, our concern is that physicians currently assume, as they should, that a fluoroquinolone has greater empirical value than older agents, such as ampicillin, for treating uncomplicated *E. coli* infection. Empirically, it is counter intuitive to think that a fluoroquinolone-resistant *E. coli* isolate would be susceptible to all other antibiotics tested, including ampicillin and cefazolin, which are not typically considered to be first- or second-line agents against gram-negative infection. Our experiences suggest that clinicians need to become aware of the FORE phenotype in their area, especially in situations with little room for therapeutic error.

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