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Shigellosis With Decreased Susceptibility to Azithromycin

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To the Editors

***S**higella* with decreased susceptibility to azithromycin *(DSA-Shigella)* is emerging in the United States.[1] This is concerning because azithromycin is recommended for treatment of multidrug-resistant shigellosis among children and adults.[2] In the United States, *Shigella* causes approximately 500,000 illnesses annually, mainly in children <10 years of age, and it can cause large school- and childcare-associated outbreaks.[3] Because clinical guidelines for determining susceptibility of *Shigella* to azithromycin do not exist, DSA-*Shigella* isolates are difficult to identify and treatment decisions must be made without azithromycin susceptibility data.

We identified DSA-*Shigella* isolates through the National Antimicrobial Resistance Monitoring System (NARMS), which in 2011 began measuring azithromycin minimum inhibitory concentrations among all *Shigella* isolates submitted from public health laboratories to Centers for Disease Control and Prevention for routine surveillance and outbreak evaluation (∼5% of US *Shigella* isolates). Additional DSA-*Shigella* isolates were identified through NARMS retrospective studies.[1] We defined DSA as azithromycin minimum inhibitory concentration >16 μg/mL using broth microdilution.[1] Macrolide resistance genes *mph*A and *erm*B were detected using polymerase chain reaction.

Among 55 patients infected with DSA-*Shigella* during 2002–2013,[1] 48 (87%) were adults, and 7 (13%) were children. All children were <9 years of age and infected with *Shigella sonnei;* additional information was available for some (Table, Supplemental Digital Content 1, http://links.lww.com/INF/B918). The median duration of illness was 9 days (n = 3), and 2 of 6 children were hospitalized (for 1 and 12 days). Patient 7 had recently traveled to Bangladesh. Patient 6 was an elementary school student who was symptomatic for 9 days. He was prescribed a 5-day course of azithromycin (250 mg/d) and later a 10-day course of cefxime. However, he continued to excrete *Shigella* organisms in 3 convalescent stool specimens cultured up to 38 days after illness onset. Because his home state, similar to many others, requires 2 negative stool cultures before a shigellosis patient may return to school, he was prohibited from attending school during this time. Ultimately, he was allowed to return to school despite continuing to excrete *Shigella*.

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Three pediatric DSA-*Shigella* isolates were resistant to ≥5 classes of antibiotics and 1 was resistant to ciprofoxacin (Table, Supplemental Digital Content 1, http://links.lww.com/INF/B918). The *mph*A gene was detected in all and *erm*B in a single isolate. At least 4 patients had been treated with antibiotics to which NARMS determined the isolates were resistant.

DSA-*Shigella* is circulating among children in the United States, and the numbers we present are certainly an underestimate. Clinicians should obtain stool cultures from patients with suspected shigellosis and antimicrobial susceptibility profiles of isolates. Although antibiotics can slightly shorten the duration of illness,[4] shigellosis is usually self-limited, and antibiotics should be avoided when possible. When treatment is necessary, ceftriaxone or fluoroquinolones have been suggested as alternatives for multidrug-resistant strains.[2] Emergence of DSA-shigellosis in children is concerning because shigellosis outbreaks in childcare centers and schools typically spread to the community and could result in many infections that are difficult to treat, along with excess school and parental work absenteeism associated with shigellosis treatment failures. Clinical guidelines for azithromycin susceptibility testing among *Enterobacteriaceae* are urgently needed to identify DSA-*Shigella* infections and guide interventions.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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