

BC Provincial Antimicrobial Clinical Expert Committee (PACE) *Shigellosis – Increasing resistance to 1st Line Antibiotic Treatment*

The Message

- Shigellosis, a diarrheal illness caused by the Gram-negative bacteria, *Shigella spp.*, exhibits increasing resistance to the first-line antibiotics ciprofloxacin, azithromycin and trimethoprim-sulfamethoxazole
- When antibiotic treatment is indicated, increasing resistance to first line antibiotics may necessitate treatment with ceftriaxone or in the case of ceftriaxone resistance, a carbapenem. Consider local resistance patterns when prescribing treatment.

Quick Facts

- In BC, *Shigella flexnerii* and *S. sonnei* commonly exhibit resistance to the first line antibiotics, ciprofloxacin, azithromycin and trimethoprim-sulfamethoxazole. XDR strains are emerging with resistance to 3rd generation cephalosporins.

Rationale

- Shigellosis is transmitted by the fecal-oral route: through sexual oral-anal contact, particularly in men who have sex with men (MSM); between those with poor hygiene or incontinence such as young children, long-term care residents, the unhoused or areas of crowding; and / or from ingesting contaminated food or water. In BC, shigellosis is most concentrated in MSM and unhoused populations.
- Symptoms include watery and/or bloody diarrhea, dysentery, nausea and vomiting. Fever, abdominal pain and tenesmus can accompany dysentery. Bacteremia occurs less than 10% of those infected especially in malnourished children, in adults greater than 65 with multiple comorbidities or in the immunocompromised.
- Treatment consists of hydration and electrolyte replacement and antibiotics for those with severe disease, hospitalized, bacteremic, septic, or immunocompromised. In BC, MDR *Shigella spp.* commonly exhibit resistance to the first line antibiotics, ciprofloxacin, azithromycin and trimethoprim-sulfamethoxazole. Infections with extensively drug-resistant (XDR) *Shigella spp.* exhibiting resistance to 3rd generation cephalosporins have been reported.
- Options for MDR and XDR shigellosis are limited. Ceftriaxone is suggested for treatment of MDR with older studies demonstrating cefixime inferiority to comparators. For XDR shigellosis, treatment with carbapenems and possibly oral fosfomycin is suggested. Another option, pivmecillinam is not yet commercially available in Canada

The Solution

- When antibiotic treatment is indicated treat MDR shigellosis with ceftriaxone 1 g IM/IV Q24H in adults and 50-100 mg/kg IM Q24H in children and XDR shigellosis with ertapenem 1 g IM/IV Q24H in adults and 15 mg/kg IM/IV Q12H in children 3 months to 12 years of age. Treat for 3-5 days, lengthening treatment to 7 days in bacteremic patients. Consider microbiology or infectious diseases consultation in severe disease, bacteremia, immunocompromise, treatment failure or suspected MDR/XDR infection. For inpatients, substitute meropenem for ertapenem.

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