

June 2010

Cyclosporiasis: A clinical practice guideline

Background

Cyclospora cayetanensis is a coccidian parasite originally identified in Peru and a causative agent of infectious diarrhea. It belongs to the family of single-cell coccidian parasites including *Cryptosporidium* and *Isospora*.

Epidemiology

Cyclosporiasis occurs through fecal-oral transmission as well as ingestion of food or water contaminated with infective oocysts. Oocysts shed in the feces of infected persons have to sporulate outside the host in order to infect a second host. The process of sporulation can take from days to weeks. Direct person-to-person transmission of *Cyclospora* is therefore less likely. Indirect transmission may occur when an infected individual contaminates the environment. Hygiene is important in the eradication of transmission cycles. The incubation period can range from two to 14 days (mean seven days).

Outbreaks in North America have been related to the importation of fresh produce. In 1996, a total of 1,465 cases of cyclosporiasis were reported by 20 states, the District of Columbia, and two provinces in Canada associated with the importation of Guatemalan raspberries. Several outbreaks linked to raspberries recurred in the period 1997 to 1999 in Ontario. In 2001, an outbreak of *Cyclospora* gastroenteritis was identified in British Columbia, Canada, with 17 reported cases associated with importation of Thai basil via the United States.

Clinical presentation

All age groups are at risk of severe infection. Infection occurs in the small intestine resulting in a watery diarrhea. Other symptoms include loss of appetite, weight loss, abdominal cramping, increased flatus, nausea, and prolonged malaise. Disease is self-limiting within a few days to weeks but relapses due to insufficient parasite clearance and autoinfection can occur especially in patients whose immune system is compromised (e.g. HIV-infected persons).

Diagnosis

Preserved stool should be sent to the clinical microbiology laboratory for detection by ova and parasite examination with a specific request to rule out *Cyclospora*. Implicated food specimens (such as leafy vegetables, herbs and berries) can also be tested for contamination with oocysts by direct exam and molecular testing. Stains coupled to microscopy are used to identify cysts in preserved stool specimens. Molecular detection of *C. cayetanensis* from stool is also possible.

Treatment

Trimethoprim (TMP)-sulfamethoxazole (SMX) (adult dosing: TMP 160 mg plus SMX 800 mg or one double-strength tablet, orally, twice a day for 7-10 days; pediatric dosing: TMP 10 mg/kg/SMX 50 mg/kg/d PO in two doses for 7-10 days, not to exceed the adult

dose) is the drug of choice and should result in alleviation of symptoms in 1-3 days. Up to 40 per cent of patients may relapse between one to three months post-treatment. Secondary prophylaxis may be required to circumvent relapse. Immunocompromised patients may need higher doses and longer treatment.

For patients with sulfa allergy, ciprofloxacin (adult dosing: 500 mg PO twice daily for seven days followed by 500mg three times per week for two weeks) has been used with modest efficacy (70 per cent parasitological clearance at day seven) as a second line agent. Another alternative treatment regimen for sulfa-allergic patients is nitazoxanide (adult dosing: 500mg PO every 12 hours for seven days).

This document was developed by the Ontario Agency for Health Protection and Promotion (OAHPP). OAHPP provides scientific and technical advice to Ontario's government, public health organizations and health care providers. OAHPP's work is guided by the best available evidence. This best practice document has been peer reviewed and reflects the consensus of experts advising OAHPP.

This document is intended to assist physicians in clinical decision-making by describing a range of generally acceptable approaches for diagnosis and management. This document should not be considered inclusive of all proper methods of care or exclusive of other methods of care reasonably directed at obtaining the same results. The ultimate judgment regarding care of a particular patient must be made by the physician in light of the individual circumstances presented by the patient. OAHPP is not responsible for the results of the use by anyone of this document.