



Cryptosporidium parvum

PIC QUESTION OF THE WEEK: 1/30/12

Q: What is cryptosporidiosis and how is it treated?

A: The genus *Cryptosporidium* contains twenty recognized species that inhabit all regions of the world with the exception of Antarctica. The majority of infections seen in humans are due to either *C. hominis* or *C. parvum*. Infection by these *protozoan parasites* occurs following ingestion of oocysts found in contaminated water or feces. Day care centers, households, and medical centers are the most common settings for person-to-person transmission of cryptosporidium. The oocysts subsequently release sporozoites that replicate in epithelial cells and produce the signs and symptoms of cryptosporidiosis. Oocysts can be detected in the feces after 4 to 9 days of infection and are essential to diagnosis. Cryptosporidia are typically localized to the small intestine, but may be found in the large bowel, pharynx, stomach, and respiratory tract. In undeveloped regions of the world, the organism most commonly affects children under five years of age; however, in developed countries, the incidence of infection is greater in adults. While asymptomatic infection does occur, most individuals experience symptoms after a one-week incubation period. In immunocompetent patients, manifestations consist of watery diarrhea that may be accompanied by abdominal cramps, nausea, fever, or weight loss. Symptoms are typically self-limiting and resolve after 5 to 14 days. Infection in immunocompromised hosts, particularly those with AIDS, is much more severe and characterized by chronic, persistent diarrhea leading to significant electrolyte and fluid loss. Involvement of the respiratory and biliary systems may result in dyspnea and severe abdominal pain. Prolonged infection with further complications may be fatal. Nitazoxanide (Alinia) is currently the only FDA-approved medication for the treatment of cryptosporidiosis. Oral dosage is 500 mg every twelve hours for three days. Resolution of symptoms is generally observed within 4 to 5 days in immunocompetent patients. Because of the high cost of nitazoxanide (AWP ~ \$24 per 500mg tablet!), other antimicrobial agents such as paromomycin, rifamycin, and azithromycin have been evaluated for efficacy in cryptosporidiosis. Although these drugs appear to possess some activity, it is premature to recommend them as alternatives to nitazoxanide. The efficacy of nitazoxanide in patients with AIDS has not been established. Supportive therapy for the management of cryptosporidiosis has consisted of anti-diarrheal agents and replacement of fluids and electrolytes.

References:

- Cabada MM, White Jr. AC. Treatment of cryptosporidiosis: do we know what we think we know? *Curr Opin Infect Dis.* 2010;23:494-9.
- Collinet-Adler A, Ward HD. Cryptosporidiosis: environment, therapeutic, and preventive challenges. *Eur J Clin Microbiol Infect Dis.* 2010;29:927-35.

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