Opportunistic Infections

Bacterial Diarrhea (Salmonellosis, Campylobacteriosis, and Shigellosis)

Three of the most common bacterial causes of diarrhea in HIV-positive people are organisms belonging to the Salmonella, Campylobacter, and Shigella families.

Salmonellosis is the name of the disease caused by Salmonella infection. Studies have demonstrated that HIV-positive people are at a higher risk for salmonellosis, between 20 to 100 times more so than HIV-negative people. Salmonella can enter the body by eating or drinking contaminated food or water or by contact with infected people or animals. The most common sources of Salmonella include contaminated raw poultry, eggs, and unpasteurized milk and cheese products. Other sources of exposure include contact with infected animals, especially turtles, iguanas, other reptiles, chickens, cattle and poultry.

Campylobacteriosis is caused by the Campylobacter organism, most notably Campylobacter jejuni. It has been documented in cattle (beef), chickens, birds, and flies. It is sometimes present in non-chlorinated water sources, such as streams and ponds. Oral-anal sex is believed to be another route of Campylobacter transmission. According to the U.S. Food and Drug Administration, Campylobacter jejuni is the leading cause of bacterial diarrhea in the United States. HIV-positive people, particularly men who have sex with men, are 40 times more likely to be infected with Campylobacter jejuni than HIV-negative people.

Shigellosis is caused by the Shigella organism. There are several kinds of Shigella bacteria. Shigella sonnei, also known as “Group D” Shigella, accounts for over two-thirds of the shigellosis in the United States. A second type, Shigella flexneri, or “Group B” Shigella, accounts for almost all of the rest. Shigella is most commonly spread from one person to another, through direct contact with feces. Shigella infection is more common among HIV-positive people, and can lead to either mild or severe cases of shigellosis.

In HIV-positive people with suppressed immune systems, salmonellosis, campylobacteriosis, and shigellosis can lead to severe diarrhea. These infections, especially salmonellosis, can also spread from the intestines to the blood stream and then to other body sites. This can cause death unless the person is treated quickly.

What are the symptoms and how is it diagnosed?

Symptoms can include severe diarrhea (including bloody diarrhea), fever, chills, abdominal pain,
and occasionally vomiting. The symptoms generally appear one to three days after exposure.

Your doctor can check for any of these three infections in a sample of stool or blood. A laboratory will attempt to “grow out” the bacteria in a test tube and will notify your doctor if Salmonella, Campylobacter, or Shigella is found in the samples.

How is it treated?

People who do not have suppressed immune systems usually recover on their own without medication, although drinking extra amounts of fluid is often necessary to prevent dehydration.

For HIV-positive people with mildly suppressed immune systems, medications are sometimes necessary to help treat the infection. In most cases, a short course (seven to 14 days) of antibiotic treatment is all that is necessary. However, for people with extremely suppressed immune systems, four to six weeks of antibiotic therapy might be necessary.

Salmonellosis: The most effective treatment for salmonellosis is ciprofloxacin (Cipro). This antibiotic is a tablet and must be taken twice a day for the first two to four weeks. After that, the drug is sometimes continued once a day for several months, depending on how suppressed the immune system is. Alternative antibiotics include levofloxacin (Levaquin), moxifloxacin (Avelox), cefotaxime (Claforan), ceftriaxone (Rocephin), or TMP-SMX (Bactrim; Septra). Severe cases of salmonellosis that involve infection in the blood (bacteremia), IV antibiotics may be necessary. Salmonellosis can often recur in people with suppressed immune systems, so treatment with antibiotics may extend to six months. Longer use of antibiotics to prevent recurrence of salmonellosis is not recommended.

Campylobacteriosis: The treatment of mild-to-moderate campylobacteriosis usually involves azithromycin (Zithromax) or ciprofloxacin (Cipro) for seven days. For more severe cases of campylobacteriosis, adding a second antibiotic, such as vancomycin (Vancocin), may be necessary.

Shigellosis: Shigellosis is usually treated with one of these antibiotics: ciprofloxacin (Cipro), levofloxacin (Levaquin) or moxifloxacin (Avelox). Alternative options may include either azithromycin (Zithromax) or TMP-SMX (Bactrim; Septra). Treatment time may range from three to 14 days depending on how badly the immune system has been suppressed.

It might also be useful to consider other treatments that can help control diarrhea. Click here to read about the things you and your doctor can do to help manage your diarrhea.

Can it be prevented?

Many HIV-positive people with suppressed immune systems take TMP-SMX (Bactrim, Septra) to prevent Pneumocystis pneumonia (PCP) if their CD4-cell counts are below 200. Fortunately, TMP-SMX can also help prevent salmonellosis and shigellosis, thus people who are already taking this drug are much less likely to become sick if they are exposed to Salmonella or Shigella.
There are also some simple tips that can help prevent being exposed to bacteria that can cause diarrhea. These include:

- Washing your hands with soap and warm water before and after handling foods, after using the bathroom or changing a baby’s diaper, and after contact with animals.
- Make sure children, particularly those who handle pets, wash their hands properly.
- Purchase only inspected eggs, animal food products and pasteurized milk.
- Wrap fresh meats in plastic bags at the market to prevent blood from dripping onto other foods.
- Refrigerate foods promptly.
- Defrost meats in the refrigerator—do not defrost them at room temperature.
- Wash cutting boards and counters used for meat or poultry preparation immediately after use to avoid cross contaminating other foods.
- Avoid eating raw or undercooked meats and eggs, particularly when using a microwave oven.
- Never prepare food for other people if you have diarrhea.
- Do not swim in pools or lakes if you have diarrhea.
- Practice safer oral-anal sex. If a dental dam is used properly during oral-anal sex, there is a significantly lower risk for contracting Campylobacter or Shigella from someone with these infections. A dental dam is a piece of plastic or latex that is laid over the anus prior to oral-anal contact. Ordinary plastic wrap can be used as a dental dam, as long as it is not the microwavable kind, which is porous.
- HIV-positive people who travel to economically developing countries should be cautious with food, beverages and tap water. It is best to avoid raw fruits and vegetables, undercooked meat, unpasteurized dairy products, and foods and beverages from street vendors. Also avoid drinking tap water and ice made with tap water.

Are there any experimental treatments?

If you would like to find out if you are eligible for any clinical trials that include new therapies for the treatment or prevention of bacterial diarrhea, visit ClinicalTrials.gov, a site run by the U.S. National Institutes of Health. The site has information about all HIV-related clinical studies in the United States. For more info, you can call their toll-free number at 1-800-HIV-0440 (1-800-448-0440) or email contactus@aidsinfo.nih.gov.