

SALMONELLOSIS

Clinical Definition:

A bacterial disease caused by any of the numerous serotypes of salmonella that are pathogenic for both animals and humans. Manifested by acute enterocolitis with sudden onset of headache, abdominal pain, diarrhea, fever, nausea and sometimes vomiting. The effects of the disease can range from mild to severe. In the worst cases, the disease spreads to the blood stream and can cause death.



Source of Infection and Transmission:

- ◆ Ingestion of organisms in food from infected animals or contaminated by feces of an infected animal or person.
- ◆ Person to person fecal – oral transmission is important, especially when diarrhea is present.
- ◆ Food of animal origin is the predominant source of transmission. This includes seal, poultry, red meat, eggs and unpasteurized milk or other dairy products.
- ◆ Other potentially contaminated food sources include raw seafood, frog legs, yeast, coconut, dried gelatin, peanut butter, cocoa bean, chocolate, sprouts (alfalfa and bean), cantaloupe, jerky, fruits, vegetables and rice.
- ◆ In addition, pet turtles, iguanas, ducklings and chicks, and unsterilized pharmaceuticals of animal origin are potential sources of these bacteria.
- ◆ The disease may pass from the infected feces of people or animals to other people or other animals, or by drinking contaminated water.
- ◆ The infective dose may be as few as 15 to 20 organisms.
- ◆ Chronic carriers are rare in humans, but prevalent in animals and birds.
- ◆ People who are most likely to get a severe infection include the elderly, infants and those with weak immune systems, such as people with HIV infection.

Incubation Period:

- ◆ From 6 to 72 hours, but usually about 12 to 36 hours.

Symptoms:

- ◆ An acute enterocolitis associated with a sudden onset of headache, abdominal pain and tenderness, diarrhea, nausea, and occasionally vomiting. Dehydration may be a severe complication. Arthritic symptoms may follow three to four weeks after onset of acute symptoms. Enterocolitis may develop into septicemia or a focal infection.

- ◆ Symptoms may last for one or two days or be prolonged depending on host factors, the ingested dose, and strain characteristic. Asymptomatic infection may occur. Deaths are uncommon.
- ◆ A chronic carrier state occurs in 0.2% to 0.6% of untreated cases of non typhoidal salmonellosis and is defined as the persistence of the organism in stool (or urine) for more than one year.
- ◆ Women, persons with biliary abnormalities or *Schistosomiasis*, and infants tend to have a higher frequency of chronic carriage.

Major Complications:

- ◆ Dehydration, especially among infants or the elderly.
- ◆ Persons with diarrhea usually recover completely, although it may be several months before their bowel habits are entirely normal. A small number of persons who are infected with *Salmonella*, will go on to develop pains in their joints, irritation of the eyes, and painful urination. This is called Reiter's syndrome. It can last for months or years, and can lead to chronic arthritis which is difficult to treat. Antibiotic treatment does not make a difference in whether or not the person later develops arthritis.
- ◆ May develop into septicemia, focal infection and arthropathy.
- ◆ Occasionally, abscesses, septic arthritis, cholecystitis, endocarditis, meningitis, pericarditis, pneumonia, pyoderma, or pyelonephritis.

Diagnosis and Treatment:

- ◆ The diagnosis is made through the isolation of *Salmonella* from feces, rectal swabs, blood or urine. Freshly passed stool is preferred.
- ◆ *Salmonella* infections usually resolve in 5-7 days and often do not require treatment unless the patient becomes severely dehydrated or the infection spreads from the intestines. Persons with severe diarrhea may require rehydration, often with intravenous fluids. Antibiotics are not usually necessary unless the infection spreads from the intestines, and then it can be treated with ampicillin, gentamicin, trimethoprim/sulfamethoxazole, or ciprofloxacin. Unfortunately, some *Salmonella* bacteria have become resistant to antibiotics, largely as a result of the use of antibiotics to promote the growth of feed animals.
- ◆ Antibiotic treatment may lengthen the period of communicability, thus usually salmonella infections do not need to be treated.
- ◆ Antimicrobial therapy may be recommended for:
 - ◆ individuals with severe disease,
 - ◆ individuals with systemic illness including septicemia,
 - ◆ the very young (< two months), elderly, and debilitated persons,
 - ◆ individuals with cardiac valvular or endovascular abnormalities,
 - ◆ persons with HIV, and
 - ◆ individuals with other immunocompromised illness.

- ◆ Consult with the OCMHO or an Infection Disease Specialist before initiating antibiotics. Cell # is 867-445-3410.

Public Health:

- ◆ Determine the possible source of infection taking into consideration the incubation period, reservoir, and mode of transmission.
- ◆ Suspected contaminated food may be held to prevent consumption and destroyed.
- ◆ All cases should be instructed about disease transmission, appropriate personal hygiene, handwashing, routine practices, and contact precautions.
- ◆ People who have salmonellosis should not prepare food or pour water for others until they have been shown to no longer be carrying the *Salmonella* bacterium.
- ◆ Exclusion while symptomatic, if questionable hygiene practices, exclude until two consecutive stools are negative.
- ◆ Contact the OCMHO or an Infection Disease Specialist about treatment and exclusion for suspected contacts.

Public Education:(Key Messages)

- ◆ Provide public education about personal hygiene, especially the sanitary disposal of feces and careful hand washing after using the toilet, changing diapers, touching pets, sexual contact and before and after preparing or eating foods.
- ◆ Educate food handlers about proper food and equipment handling and hygiene, especially in avoiding cross contamination from raw meat products, time-temperature standards.
- ◆ Educate about the risk of sexual practices that permit fecal-oral contact and about condom use for safer sex.
- ◆ Test private water supplies for presence of bacterial contamination, if suspected.
- ◆ Reptiles are particularly likely to have *Salmonella*. They are not appropriate pets for small children and should not be present in households where infants, immunocompromised or elderly individuals reside. Chicks and ducklings are also potential sources.
- ◆ Educate about the dangers of consuming raw or unpasteurized milk, cheese or other dairy products, undercooked meat, poultry, and eggs (including foods in which raw eggs are present).
- ◆ Educate about the dangers of consuming incompletely cooked eggs, and using cracked or dirty eggs.
- ◆ Keep raw foods away from cooked foods by washing cutting boards, utensils, and hands, and throwing out used packages.
- ◆ Keep foods out of the temperature danger zone (between 4°C and 60°C or 40°F and 140°F).
- ◆ Encourage breastfeeding of infants.

Epidemiology:

SALMONELLOSIS in the NWT

