Typhoid Fever

Also called Enteric fever.

Occurrence

With an estimated 16–33 million cases of typhoid fever annually resulting in 216,000 deaths in endemic areas, the World Health Organization identifies typhoid as a serious public health problem. Its incidence is highest in children and young adults between 5 and 19 years old. Typhoid fever is more common in areas of the world where hand washing is less frequent and water is likely to be contaminated with sewage. Endemic: Asia, Africa, Latin America, Caribbean, Oceania. But 80% from Bangladesh, China, India, Indonesia, Laos, Nepal, Pakistan and Vietnam.

Cause

Salmonella typhi from the group D with antigen structure 9,12;Vi;d Salmonella's Vi antigen is a polysaccharide capsule that surrounds the O antigen thus protecting the bacteria from antibody attack on the O antigen. It causes 4 disease states in humans- typhoid fever, the carrier state, sepsis and gastroenteritis. After invading the intestinal epithelial cells, it invades the regional lymph nodes, finally seeding multiple organ systems. During this invasion bacteria are phagocytosed by monocytes and can survive intracellularly hence why Salmonella typhi is a facultative intracellular parasite. Salmonellosis starts 1- 3 weeks after exposure. 3-5% recovering from the disease become chronic carriers – famous example is Typhoid Mary.

Source and spread

- Eating food or drink beverages that have been handled by a person who is shedding Salmonella typhi ;
- If sewage contaminated with Salmonella typhi bacteria gets into water used for drinking or washing food;
- Carrier state harbour S. typhi in their Gallbladder and excrete the bacteria constantly

Symptoms

- Fever;
- Headache;
- Abdominal pain which is diffuse or localized to the RLQ often mimicking appendicitis;
- Spleen may enlarge, patient may develop diarrhoea and rose spots on the abdomen which occur in 40% in the 2nd week.

Complications

- Enterorrhagia;
- Perforation;
- Osteomyelitis;
- Cholecystitis;
- Myocarditis;
- Meningitis;

Diagnosis

Done by culturing the blood, urine or stool or with the Widal test. Salmonella is never considered part of the normal intestinal flora as it is always a pathogen!

Therapy

Ciprofloxacin, Ceftriaxone or Ampicillin and trimethoprim-suflamethoxazole are the frequently prescribed antibiotics. Resistance has been reported in recent years. Untreated, typhoid fever is a grueling illness that may progress to delirium, obtundation, intestinal hemorrhage, bowel perforation, and death within one month of onset. Survivors may be left with long-term or permanent neuropsychiatric complications.

Prevention

- Avoid risky foods and drinks;
- Get vaccinated against typhoid fever. The oral vaccine based on the live, attenuated mutant strain of Salmonella typhi Ty21a (Ty21a vaccine) and the injectable Vi capsular polysaccharide vaccine (ViCPS vaccine) are available to confer protection against Typhoid Fever. A combined typhoid/hepatitis A vaccine is also available in some countries;

- "Boil it, cook it, peel it, or forget it“;
- Proper handwashing after using toilet;
- Surgical removal of the gallbladder of chronic carriers to cure them.

Links

References

Mark Galdwin, Bill Trattler, Clinical Microbiology Made Ridiculously Simple, 3rd edition, Medmaster, 2004