Focus on Typhoid fever
January 2014

KEY FACTS

- Typhoid fever is a bacterial disease caused by Salmonella typhi.
- Infection causes symptoms 1-3 weeks after exposure.
- It is recognized by persistent sudden onset of high fever (>7 days), severe headache, nausea and loss of appetite. It is sometimes accompanied by constipation or diarrhea.
- Transmission occurs via ingestion of urine- or feces-contaminated food or drink.
- Typhoid fever is common in less-industrialized countries, especially where there is unsafe drinking water due to inadequate sewage disposal and flooding.
- Typhoid fever can be treated with antibiotics, although resistance to common antibiotics is widespread.
- Healthy carriers should not handle food.

EPIDEMIOLOGY AND BURDEN OF TYPHOID FEVER

- Typhoid fever is an infection caused by Salmonella enterica, serovar typhi bacteria, commonly referred to as Salmonella typhi.
  - Salmonella paratyphi causes a less severe febrile illness, and other species of Salmonella bacteria cause other, usually less severe infections.
- The annual incidence of typhoid is estimated to be about 17 million cases worldwide, and is highest in those between the ages of 5 and 12 years. In Southeast Asia, the incidence of typhoid fever varies widely between sentinel sites (annual incidence: 24/100 000 person years in Vietnam, 180/100 000 person years in Indonesia, 494/100 000 person years in India).
- Approximately 420 000 deaths occur annually in Asia due to typhoid fever. Without treatment, case-fatality rates of infection are 10%. With appropriate antibiotic therapy, case-fatality rates can be reduced to below 1%.
  - Between 1 January and 13 November 2013, 28 224 cases of suspected or clinically diagnosed typhoid fever were recorded in the Philippines. Two of these cases resulted in death, yielding a case-fatality rate of 0.27%
  - During the same time period in Regions 6, 7, and 8 and the National Capital Region, there were 5 637 suspected or clinically diagnosed cases and 60 laboratory-confirmed cases (Table 1).
- Although the infection is treatable with antibiotics, treatment is complicated by growing resistance to widely available oral antibiotics in several areas of the world, including Southeast Asia.
- People can transmit the disease as long as the bacteria remain in their system; most people are infectious prior to and during the first week of convalescence. About 10% of untreated patients will discharge bacteria for up to three months; 2 to 5% of untreated patients will become permanent carriers.

TRANSMISSION

- Salmonella typhi is passed in the feces or urine of infected people.
- People become infected by ingesting food or drink that has either been handled by an infected person or contaminated by sewage containing the bacteria.
- In less industrialized countries, transmission commonly occurs where there is inadequate sewage disposal and flooding, or otherwise unsafe drinking water.
- Where water quality is high, transmission is more likely to occur via food contaminated by healthy carriers of Salmonella typhi.

SIGNs AND SYMPTOMs

- Typhoid fever typically presents as a febrile illness that affects infants, young children and adults.
- The onset of symptoms takes place 1-3 weeks after exposure.
- Patients should be suspected of typhoid fever if they present with persistent high fever (>7 days), abdominal manifestations (abdominal pain, vomiting, bloating, constipation, soft stools) and any of the following: weakness, poor appetite, enlarged liver and spleen, rose spots on the chest/abdomen, and a relatively slow heart rate.
  - Older children and adults may experience constipation, while younger children may have diarrhea.
- Severe forms of disease may involve delirium, shock, and intestinal perforation or hemorrhage. Immunocompromised people are at increased risk for severe disease.

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<th>Region</th>
<th>Typhoid Fever (suspected or clinically diagnosed)</th>
<th>Typhoid Fever (laboratory confirmed)</th>
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<tr>
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DIAGNOSIS AND TREATMENT

- Typhoid fever may be difficult to distinguish from other endemic diseases, including malaria, dengue fever, and bacterial sepsis. In 25% of cases, a “rose spot” rash may be present on the torso on day 7-10 of the illness.
- In the early days of infection, blood culture sensitivity for Salmonella typhi is 50-70%, and the Typhidot™ rapid test has relatively low sensitivity and specificity.
- Treatment for patients suspected of having typhoid fever should include antibiotic therapy, fever-lowering agents such as paracetamol, and management of fluid status.
- Drug resistance should be suspected.

IMMUNIZATION

- Routine use of vaccine is not recommended, however immunization for typhoid fever is recommended for international travelers to endemic areas.
- Two types of typhoid vaccines are licensed and widely used globally. One is given orally, and one is given through injection.

PREVENTION AND CONTROL

- Public health interventions to prevent typhoid fever include:
  - Health education about personal hygiene, especially regarding hand-washing after toilet use and before food preparation;
  - Provision of a safe water supply;
  - Proper sanitation systems;
  - Excluding disease carriers from food handling.

DISASTER IMPLICATIONS

- With disruption of the usual water supply and sewage disposal, and of the elimination or reduction of controls on food and water, transmission of typhoid fever may occur if there are active cases or carriers. Efforts to restore safe drinking water supplies and sanitary disposal facilities are essential. Selective immunization of groups such as schoolchildren, prisoners and utility, municipal or hospital personnel can be helpful.

EPIDEMIC MEASURES

- An intensive search should be conducted for the case or carrier who is the source of the infection and for the means (water or food) by which the infection was transmitted. Routine use of vaccine is not recommended. Samples of blood can be taken immediately for confirmation, and testing for antibiotic sensitivity; samples of stool or urine may be taken after one week of onset for effective confirmation. Food and water samples should be taken from suspected sources of the outbreak for laboratory testing. It is also recommended to organize temporary water purification and sanitation facilities until longer term measures can be implemented. The Philippine Integrated Disease Surveillance and Response (PIDS) mandate health facilities to report all suspected typhoid fever cases every Friday to the next higher level using the Case Report Form (CRF).

More information at: http://www.who.int/topics/typhoid_fever/en/