Typhoid and Paratyphoid fever

ICD-10 A01.0: Typhoid Fever

ICD-10 A01.1-A01.4: Paratyphoid Fever

Identification

A systemic bacterial disease with insidious onset of sustained fever, severe headache, malaise, anorexia, relative bradycardia, nonproductive cough in early stage of illness, rose spots on the trunk and constipation more often than diarrhea in adults. Intestinal hemorrhage or perforation can occur in 1% of cases. Case fatality rate is 10%-20% without antibiotic therapy and 1% with antibiotic use. Relapse may occur in 15%-20% of patients, but with milder form.

Paratyphoid fever presents a similar clinical picture, but tends to be milder, and the case-fatality rate is much lower.

Case classification:

• Suspected case: Any case having the following features: sustained, non-sweating fever of 38 oC or more, for 3 days or more, abdominal discomfort (abdominal pain, diarrhea or constipation). With 2 or more of the following symptoms: dry non-productive cough, relative bradycardia, anorexia, severe headache.

• Confirmed Case: A suspect or probable case with detection of S. typhi or S. paratyphi through positive culture of blood, stool, urine or bone marrow (laboratory investigation: culture of blood early in the disease; stool and urine after the first week; or bone marrow culture which provide the best bacteriologic confirmation (90%-95% recovery) even in patients who have already received antimicrobials. Because of its limited sensitivity and specificity, serologic tests (widal test) are generally of little diagnostic value.)

• Carrier: any person discharging bacilli in stool or urine for more than a year following infection.

Infectious agent

• For typhoid fever: Salmonella typhi

• For paratyphoid fever: Salmonella paratyphi A

Occurrence

Worldwide, mostly endemic in many developing countries, especially in the Middle East.

It occurs throughout the year with seasonal increase in summer months.

Reservoir

Humans, rarely domestic animals for paratyphoid.

Mode of transmission

Ingestion of food and water contaminated by feces and urine of patients and carriers.

Incubation period

Depends on inoculum size and host factors; from 3 days to over 60 days (range 8-14 days). For paratyphoid is 1-10 days.

Period of communicability

As long as bacilli appear in excreta, from first week throughout convalescence (1-2 weeks for paratyphoid).

Susceptibility and resistance

General and is increased in individuals with gastric achlorhydria and possibly in those who are HIV- positive. Relative specific immunity follows recovery from clinical disease, inapparent infection and active immunization. In endemic areas, typhoid fever is most common in preschool children and children ages 5-19 years old.

Methods of control

a Preventive measures

1) Educate the community about the importance of hand washing.

2) Dispose human feces in a sanitary manner.

3) Protect, purify and chlorinate public water supply.

4) Control fly by screening, spraying with insecticides; control fly breeding by frequent collection and disposal of garbage.

5) Clean preparation and handling of food.

6) Pasteurize or boil all milk and dairy products.

7) Good personal hygiene of patient, convalescent and carriers.

8) Encourage breast-feeding throughout infancy; boil all milk and water used for infant feeding.

9) Periodic examination of the food handlers and exclusion of chronic carriers from work until three consecutive negative stool cultures are obtained (and urine at areas endemic with schistosomiasis) at least one month apart (for acute cases 24 hour apart).

10) Immunization of the high risk group.

b Control measures

1) Suspected cases should be reported from all health care facilities to higher level.

2) Confirmed cases should be investigated using case investigation form; enteric precautions for acute cases and should be supervised until 3 consecutive negative cultures of feces (and urine in patients with schistosomiasis) at least 24 hours apart and at least 48 hours after any antimicrobials, and not earlier than 1 month after onset. If any of these is positive, repeat cultures at monthly intervals during the 12 months following onset until at least 3 consecutive negative cultures are obtained.

3) Search for unreported cases, carriers or contaminated food, water, milk or shellfish.

4) Household and close contacts should not be employed in sensitive occupations (food handlers) until at least 2 negative feces and urine cultures, taken at least 24 hours apart, have been obtained.

c Epidemic measures

Search for source of infection (case or carrier) and for the vehicle (water or food) through which infection was transmitted. Elimination of suspected contaminated food. Water supplies should be chlorinated. Vaccination before or during an outbreak give protective efficacy of 72%.

d Disaster implications

Restoration of safe drinking-water supplies and excreta disposal facilities. Selective immunization of stabilized groups such as school children, prisoners, and municipal or hospital personnel may be helpful.

e International measures

Immunization is not required for entry to any country. Immunization is advised for international travellers to endemic areas, especially if exposed to unsafe food and water, or close contact in rural areas to indigenous populations.

Management of the disease

Suspected cases of typhoid should be treated with broad-spectrum empiric antibiotics immediately. Treatment should not be delayed for confirmatory tests since prompt treatment drastically reduces the risk of complications and fatalities. Antibiotic therapy should be narrowed once more information is available.

Compliant patients with uncomplicated disease may be treated on an outpatient basis. They must be advised to use strict hand washing techniques and to avoid preparing food for others during the illness course. Hospitalized patients should be placed in contact isolation during the acute phase of the infection. Feces and urine must be disposed of safely.