RAMA UNIVERSITY

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FACULTY OF NURSING

EPIDEMIOLOGY OF TYPHOID

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TYPHOID

- **Typhoid fever is due to systemic infection mainly by Salmonella typhi**

- **Salmonella typhi infection is found only in men**

- **The term “ENTERIC FEVER” includes both typhoid and para typhoid fevers**

- **The disease may occur sporadically, epidemically or endemically**

EPIDEMIOLOGICAL DETERMINANTS

- **AGENT:**

1. **Salmonella typhi is the major cause of entric fever**
2. **S.para A & S.para B are relatively infrequent**

- **RESERVOIR OF INFECTION: Man is the only known reservoir of infection (via cases & carriers)**
- **CASES: A case is infectious as long as bacilli appears in stools or urine**

- **CARRIERS: The carriers may be temporary (incubatory, convalescent) or chronic**
- **Convalescent carriers excrete bacilli for 6-8 weeks (after which their numbers diminish rapidly by the end of three months)**

- **Persons who excrete bacilli for more than one year are after clinical attack are called chronic carriers**

SOURCE OF INFECTION

- **The primary sources of infection are faeces and urine of cases or carriers**

- **The secondary sources include contaminated water, food, fingers and flies**

HOST FACTORS

- **AGE: Typhoid fever may occur at any age**

- **GENDER: Males are more affected than females**

- **IMMUNITY: All ages are susceptible to infection**

- **The host factors that contributes to resistance to the bacilli are gastric acidity & local intestinal immunity**

ENVIRONMENTAL & SOCIAL FACTORS

- Enteric fevers are observed all throughout the year
- The peak incidence is reported during July-September

INCUBATION PERIOD

- **Usually 10-14 days**
- **But the it can be as short as 3 days or as long as 3 weeks, depending on the dose of bacilli ingested**

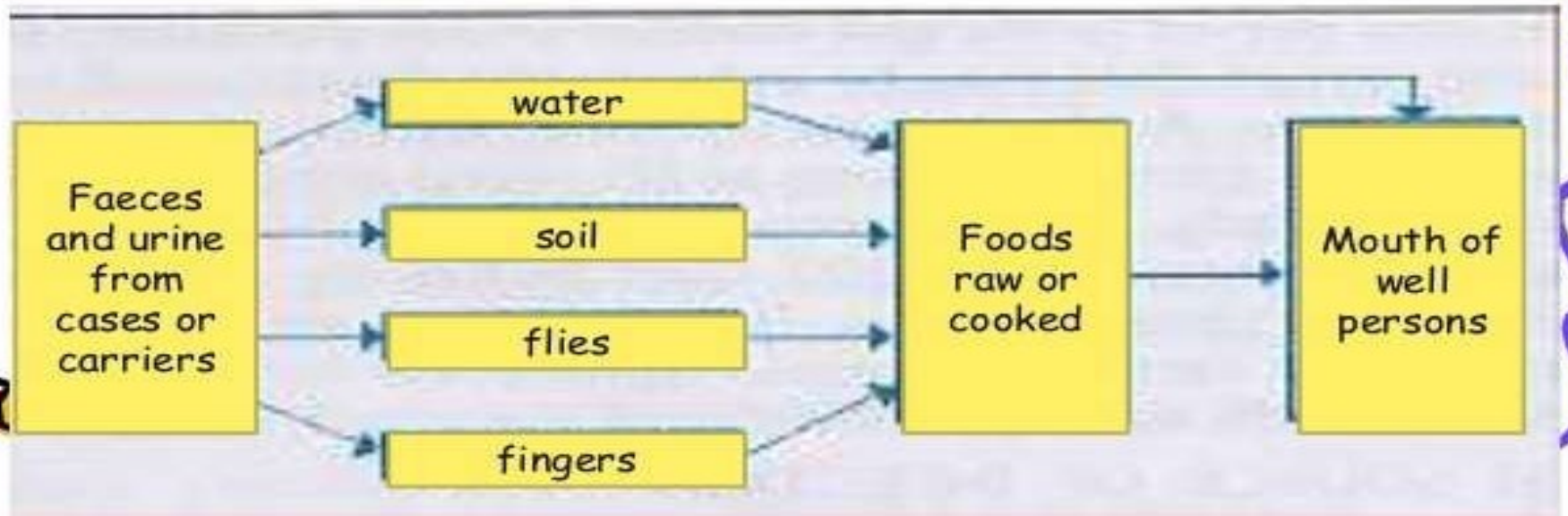
MODE OF TRANSMISSION

- **Typhoid fever is transmitted via the faecal-oral route or urine- oral routes**

DYNAMICS OF

5- MODE OF TRANSMISSION

The disease is transmitted by "faeco-oral route" or "urine-oral routes" either directly through hands soiled with faeces or urine of cases or carriers or indirectly by ingestion of contaminated water, milk, food, or through flies. Contaminated ice, ice-creams, and milk products are a rich source of infection.



CLINICAL FEATURES

- **The onset is insidious, but in children may be abrupt with chills and high fever**

- **During the prodromal stage , there is malaise, headache, cough and sore throat often with abdominal pain and constipation**

- **The fever ascends in step ladder fashion**

- **After about 7-10 days, the fever reaches a plateau and the patient looks toxic appearing exhausted and often prostrated**
- **There may be marked constipation, especially in the early stages or "pea soup diarrhoea"**

- **There is marked abdominal distension**

- **There is leukopenia and blood, urine and stool culture is positive for salmonella**

- **If there are no complications the patient's condition improves over 7-10 days**

- **However relapse may occur for up to 2 weeks after termination of therapy**

- **During early phase, physical findings are few**

- **Later splenomegaly, abdominal distension and tenderness, relative bradycardia, dicrotic pulse and ocassionaly meningsmus appear**

- **The rash (rose spots)commonly appear during the second week of the disease**

- **The individual spot , found principally on the trunk, is a pink papule 2-3 mm in diameter that fades on pressure. It disappears in in 3-4 days**

ROSE SPOTS

LABORATORY DIAGNOSIS

- **MICROBIOLOGICAL PROCEDURES**

  The definitive diagnosis of typhoid fever depends on the isolation of the bacilli from blood, bone marrow and stools. Blood culture is the mainstay of diagnosis of this disease

SEROLOGICAL PROCEDURE

- **Felix-Widal test measures agglutinating antibody levels against O & H antigens**
- **Usually "O" antibodies appear on day 6-8 and "H" antibodies on day 10-12 after the onset of disease**

- **The test is usually performed on an acute serum (at first contact with the patient)**

- **The test has moderate sensitivity and specificity**

CONTROL OF TYPHOID FEVER

- **The control or elimination of the typhoid fever is well within the scope of modern public health**

- **There are generally three lines of defence against typhoid fever:**

- **1. Control of reservoir**
- **2. Control of sanitation**
- **3. Immunization**

CONTROL OF RESERVOIR

- **The usual methods of control of reservoir are their identification, isolation, treatment & disinfection**

- **CASES: EARLY DIAGNOSIS**
  –This is of vital importance as the early symptoms are non-specific
- **Culture of blood and stools are important investigations in the diagnosis of cases**

NOTIFICATION:

Notification must be done in area where it is mandatory

ISOLATION:

Since typhoid is an infectiou disease the cases are to be transferred to hospital

- **As a rule cases should be isolated till three bacteriologically negative stools and urine reports are obtained on three separate days**

TREATME

Antibiotic	Dose and Duration	
Uncomplicated typhoid		
Ciprofloxacin	Oral 500mg BD OR IV 400mg BD for 5-7 days	Oral 5-10 mg/kg BD OR IV 4-7 mg/kg BD
Offloxacin	Oral/ IV 400mg BD for 5-7 days	
Ceftriaxone	IV 2-3mg OD for 7-14 days	IV 25-50 mg/kg OD
Azithromycin	Oral 1g D1 than 500mg OD for 7-14d OR 1g OD for 5-7 days	Day 1: 12 mg/kg Day 2-5: 6 mg/kg
Chlromphenicol	Oral 2-3g (in 4 divided dose) for 14-21 days	
Severe Typhoid		
Ciprofloxacin	IV 400mg BD for 10-14 days	Oral 5-10 mg/kg BD OR IV 4-7 mg/kg BD
Ceftriaxone	IV 2-3g (60mg/kg) daily for 10-14d	IV 50 mg/kg OD
Cefotaxime	IV 2g TDS for 10-14 days	IV 25-50 mg/kg OD

- **They are relatively inexpensive and well tolerated and more reliably and effectively than chloremphenicol, ampicillin, amoxicillin, and trimethoprim & sulphamethoxazole**

- **Patients seriously ill and profoundly toxic should be given Inj of hydrocortisone 100 mg daily for 3-4 days**
- **DISINFECTION: stools and urine are the sole sources f infection. They should be received in in closed containers and disinfected with 5% cresol for at least 2**

FOLLOW UP

- **Examination of stools and urine should be should be done for S.typhi 3-4 months after discharge and again 12 months to prevent development of carrier state**

- **SURVEILLANCE:** **The carriers should be kept under surveillance. They should be prevented from handling food, milk or water for others**

HEALTH EDUCATION

- **Health education regarding washing of hands with soap after defecations or urination and before preparing food is an essential element**

CONTROL OF SANITATION

- **Protection and purification of drinking water supplies, improvement of basic sanitation and promotion of food hygiene are essential measures to interrupt transmission of typhoid fever**

IMMUNIZATION

- **Immunization is a complimentary approach in the prevention of typhoid**
- **It can be given at any age upwards 2 years**

THANK YOU