Typhoid Fever is an acute often severe illness caused by bacteria called Salmonella typhi, and is found in developing countries where there is inadequate water sanitation. Typhoid fever is considered endemic (common) in Central and South America, Africa, Near East, Middle East, Southwest Asia, and the Indian Subcontinent. There are some cases in the United States yearly. The early symptoms of this disease include chills, fever, headache, fatigue, loss of appetite, abdominal pain, body aches, and possibly a rash on the chest and abdomen. There is a 50% chance of diarrhea, but constipation also occurs. The usual case fatality rate of 10% can be reduced to less than 1% with prompt antibiotic therapy. Infection of the gall bladder can lead to a non-symptomatic carrier state (2-4%). This occurs more frequently with advanced age and in women. The bacteria are shed in the feces 6 weeks-3 months after infection. Skin lesions known as rose spots, may be present.

Typhoid is transmitted by food and water, especially raw vegetables and salads, water contaminated by feces or urine of an infected person, or by contact with a carrier. The incubation period ranges from 5-30 days (usually 7-14).

Typhoid Vaccine

Typhoid vaccine is recommended for travelers going to areas where there are recurrent typhoid epidemics, or to smaller cities, villages, or rural areas where they may have a prolonged exposure to contaminated food and water. The oral typhoid vaccine is prepared from an attenuated strain of live S.typhi bacteria which must be stored in the refrigerator at all times. It is essential that all four doses of vaccine be taken with cold water or lukewarm drinks, not to exceed body temperature, on alternate days, with no more than 48 hours between doses to ensure a maximum protective immune response. It must be taken on an empty stomach – i.e., 1 hour before a meal. Oral typhoid vaccine should be completed at least 1 week prior to travel to areas of possible exposure. It has been estimated that the typhoid vaccine is 50-80% effective depending on the degree of exposure; therefore, even vaccinated travelers should use precautions with food and water. Oral typhoid vaccine should be given every five years for those who still need protection.

Never break open capsules to mix with food or drink. This will inactivate the bacteria. Also, capsules must not be exposed to direct sunlight.

Possible Side Effects of vaccination

Side effects are infrequent, transient, and may resolve of their own accord. Nausea, abdominal cramps, headache, fever, diarrhea, vomiting, rash, and hives may occur in some instances.

Contraindications to vaccination

- Children under six years old should not receive this vaccine.
- Anyone who has had a severe systemic or allergic reaction to a previous dose of oral typhoid.
- Anyone who has an acute gastrointestinal illness.
- Anyone with a moderate or severe illness, with or without fever.
- Anyone taking sulfa medications or antibiotics, because these medications may alter immune response.
- Any immunocompromised person.
- Pregnancy and nursing mothers. (There is no data available on the safety of this vaccine with nursing mothers).
**Precautions**

No data exists on immunogenicity of Ty21a when administered concurrently within 30 days of viral vaccines.

**Information to Patients:**

Vaccine should be stored in refrigerator between 2° and 8° C (35.6° - 46.4° F). Vaccine should be swallowed one hour before a meal with a cold or lukewarm drink. Do not chew the capsule; swallow as soon as capsule is placed in the mouth. Inspect the foil seal to be sure it is intact before taking medicine. Mefloquine and Chloroquine can be administered together with the Vivotif Berna vaccine.

Not all recipients of this vaccine will be fully protected. Oral Polio and Yellow Fever vaccine do not suppress the immune response. There is no data regarding simultaneous administration of other parenteral vaccines or immunoglobulins with the Vivotif Berna vaccine.

For questions or side effect reporting: Call Olin Health Center Travel Clinic at 353-3161. You may visit the Center for Disease Control (CDC) website at www.cdc.gov/travel, or the Olin Travel Clinic website at www.msu.edu/~travel.

CDC Health Information for International Travel 2001-2002.
Traveler and Routine Immunizations 2001


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