



Epidemiological Unit

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Tetanus Fact Sheet

Introduction

Tetanus is a fatal infectious diseases caused by toxigenic strains of *Clostridium tetani*. The disease is an important public health problem especially in tropical under developed countries. Tetanus among neonates (Neo-natal Tetanus) is still a major public health problem in considerable number of developing counties. However, in Sri Lanka both Tetanus and Neo-natal Tetanus has reached elimination levels because of the successful immunization programme.

Clinical manifestations

The disease is characterized by painful muscular contractions, primarily of the masseter and neck muscles, secondarily of trunk muscles. A common first sign suggestive of tetanus in older children and adults is abdominal rigidity, though rigidity is sometimes confined to the region of injury. Typical features of the tetanus spasm are the position of opisthotonus and the facial expression known as “risus sardonius”.

In neonates, inability to suck is the most common presenting sign. Tetanus neonatorum is typified by a new born infant who sucks and cries well for the first few days after birth and subsequently develops progressive difficulty and then inability to feed because of trismus, generalized stiffness with spasms or convulsions and opisthotonus.

Recovery from clinical Tetanus does not result in protection against the diseases in the future.

Mode of transmission

Tetanus

Tetanus spores are usually introduced into the body through a puncture wound contaminated with soil, street dust, animal or human faeces, through lacerations, burns and trivial or unnoticed wounds.

NNT

The disease usually occurs through introduction via the umbilical cord of tetanus spores during delivery by cutting the cord with an unclean instrument or after delivery by “dressing” the umbilical stump with substance contaminated with tetanus spores.

Incubation period

Usually 3 – 21 days.

Tetanus

The average incubation period is usually 3-21 days average about 10 days. It may range from 1 day to several months, depending on the character, extent and location of the wound.

NNT

The average incubation period is about 6 days, with a range from 3 to 28 days. Overall, neonatal tetanus case-fatality rates are very high, exceeding 80% among cases with a short incubation period

Period of communicability

Tetanus and NNT are not directly transmitted from person to person.

Prevention

1) Immunization

1.1) Pre exposure

Tetanus is readily preventable through immunization. The choice of primary schedule as well as the number and timing of boosters could vary and depends on many factors including national epidemiological, programmatic and economic considerations. WHO recommends that ideally an individual should receive a total of 5 doses of tetanus toxoid containing vaccines in childhood; followed by a sixth dose in early childhood which will provide added assurance of protection throughout the adulthood years.

Tetanus monovalent vaccine (TT) or tetanus containing vaccines (TT, DT, aTd) could be used in the active immunization for the prevention of tetanus.

Tetanus containing vaccines (DPT, DT, aTd) are used in the EPI schedule to immunize infants, children and adolescents and the schedule is as follows.

DPT 1st dose on completion of 2 months

DPT 2nd dose on completion of 4 months

DPT 3rd dose on completion of 6 months

DPT 4th dose on completion of 18 months

DT on completion of 5 years

aTd on completion of 12 years (in grade during school medical inspection)

Protection against tetanus is incomplete after a single dose and in a majority of recipients the protective concentration of anti toxins is achieved only after completion of 2 doses. A third dose induces immunity in almost 100% of those immunized.

The antibody concentration and avidity and also the duration of protection depend on a number of factors. These include the age of the vaccine and the number and intervals between vaccine doses. It is considered that three DPT vaccine doses in infancy will give 3-5 years protection. Further dose or a booster (e.g in early childhood) will provide protection in to adolescence. If further one or two more booster doses of tetanus are given it will provide protection in to adolescence. According to the findings of researches done on patients who have received Tetanus vaccines during last 30 years, a 20-30 year protection may be achieved after the last dose.

Therefore with documentary evidence of receipt of 6 or more doses of tetanus containing vaccines (3 doses of tetanus during infancy, DPT at 18 months of age, DT at 5 years and aTd at 12 years) it is not necessary to administer tetanus vaccine again during pregnancy or following trauma. However, if a patient come 10 years after the 6th or the last tetanus containing vaccine dose, it is advisable to immunize the person with another booster dose of tetanus vaccine.

1.2) Immunization for the prevention of Neonatal Tetanus

Maternal anti toxins pass via the placenta to the fetus. If a mother receives two doses of tetanus containing vaccine, six weeks apart, at least two weeks before the delivery, new born is protected against neonatal tetanus. In each subsequent pregnancy, pregnant mothers should be immunized with one dose of tetanus until total doses become five.

If any pregnant mother is having an immunization record to prove that she has received a total of six doses of tetanus toxoid containing vaccines during infancy and childhood and / or following trauma, and the time since the last tetanus vaccination is less than 10 years, such a pregnant mother is already protected against tetanus and need not to be reimmunize with tetanus containing vaccine. If the duration since last tetanus containing vaccine is more that 10 years since 6th /last dose of tetanus containing vaccine such pregnant mothers could be immunized with single dose of tetanus vaccine during the index pregnancy.

Post Exposure immunization

Immunization of previously non immunized adolescents and adults

For previously non immunized adolescents and adults, WHO recommends 2 doses of tetanus toxoid to administer at least 4 weeks apart and a third dose at least 6 months after the second and, subsequent boosters at least one year apart. This group of people will require administration of appropriately spaced 5 doses of tetanus toxoid to obtain long term protection.

Previously immunized adolescents and adults

- For the previously immunized persons with documentary evidence of receipt of 6 or more doses of tetanus toxoid containing vaccines (3 doses of tetanus toxoid during infancy, DPT at 18 months of age, DT at 5 years and aTd at 12 years) it is not necessary to administer tetanus toxoid vaccine again following trauma. However, when there is a contaminated wound the person can be immunized with one dose of tetanus toxoid containing vaccine if the patient has not received tetanus toxoid within the preceding 5 years. If a patient presents 10 years after the 6th tetanus containing vaccine dose, it is advisable to immunize the person with another booster dose of tetanus vaccine.
- For the previously immunized persons with documentary evidence of receipt of 3 doses of tetanus toxoid (with 6 weeks duration between 1st and second dose and 6 months duration between 2nd and 3rd doses) it is not necessary to administer tetanus vaccine again if that person presents within 5 years after the last tetanus toxoid dose. However, if the person presents more than 5 years after the 3rd dose of tetanus it is necessary to administer a booster dose of tetanus toxoid vaccine. If the patient receives two more doses of tetanus he may get long term or probably life long immunity.
- If the wound is major and /or contaminated, the patient may require passive immunization with human TIG.
- For adolescents with documentary evidence of receipt of 5 doses of tetanus containing vaccine (4 doses of DPT and one dose of DT), it is not necessary to administer tetanus vaccine again if the person is less than 12 years of age. But if the patient is around 12 years of age he should be immunized with a booster dose of tetanus or tetanus containing vaccine (aTd).

2) Investigation of contacts and source of infection

All the case of tetanus should be notified to the relevant MOOH and should be investigated by the MOH and his team.