Guidelines on immunization against tetanus

Introduction

Tetanus is a fatal infectious disease caused by toxigenic strains of Clostridium Tetani. Tetanus and neo-natal tetanus is still a major public health problem in a considerable number of developing countries. However, both tetanus and neo-natal tetanus have reached elimination levels in Sri Lanka as a result of the successful immunization programme.

Protection against tetanus could be achieved either through active immunization (by giving tetanus toxoid containing vaccine) or by passive immunization (by giving tetanus specific immunoglobulin). Neonatal tetanus is prevented by immunizing the pregnant mothers with tetanus toxoid vaccine.

Tetanus vaccines are based on tetanus toxoid which is a chemically inactivated tetanus toxin which could induce production of antibodies against tetanus toxin. Tetanus toxoid is available as monovalent tetanus toxoid (TT), combined diphtheria, pertussis, tetanus, hepatitis B and Hib vaccine (pentavalent vaccine), combined diphtheria and pertussis, tetanus vaccine (DPT), combined diphtheria, tetanus vaccine (DT) or as adult diphtheria tetanus vaccine (aTd).

The goal of tetanus immunization in the Expanded Programme of Immunization (EPI) programme is to eliminate tetanus and neonatal tetanus from Sri Lanka. With the emergence of new knowledge on immunological response of patients after receiving tetanus toxoid, the following recommendations have been made regarding immunization with tetanus containing vaccines.
(1) Pre exposure immunization against tetanus

1.1) Immunization from infancy up to adolescence

<table>
<thead>
<tr>
<th>Dose</th>
<th>Age (on completion of)</th>
<th>Vaccine</th>
<th>Duration to be kept between different doses of tetanus containing vaccine when tetanus toxoid containing vaccines have not been received according to the scheduled age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>2 months</td>
<td>Pentavalent or DPT</td>
<td>6-8 weeks between 1) 1st and the 2nd dose 2) 2nd and the 3rd dose</td>
</tr>
<tr>
<td>2nd</td>
<td>4 months</td>
<td>DPT</td>
<td>12 months between 3rd and 4th doses</td>
</tr>
<tr>
<td>3rd</td>
<td>6 months</td>
<td>DT</td>
<td>3 years between 4th and 5th doses</td>
</tr>
<tr>
<td>4th</td>
<td>18 months</td>
<td>DT</td>
<td>7 years between 5th and 6th doses</td>
</tr>
<tr>
<td>5th</td>
<td>5 years</td>
<td>DT</td>
<td></td>
</tr>
<tr>
<td>6th</td>
<td>12 years (in grade 7, during school medical inspection)</td>
<td>aTd</td>
<td></td>
</tr>
</tbody>
</table>

1.2) Immunization during pregnancy

The number of doses required and timing of boosters during pregnancy will depend on the past immunization history of the pregnant mother with tetanus containing vaccines.

1.2.1) Immunization of pregnant mothers who have not received tetanus containing vaccines in infancy and childhood as per the EPI schedule

Pregnant mothers who have not received tetanus containing vaccine according to the EPI schedule during infancy and childhood should be immunized according to the following schedule.

<table>
<thead>
<tr>
<th>Dose</th>
<th>Time of immunization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>During 1st pregnancy after 12 weeks of gestation</td>
</tr>
<tr>
<td>2nd</td>
<td>During 1st pregnancy (6-8 weeks after the first dose, two weeks before delivery)</td>
</tr>
<tr>
<td>3rd</td>
<td>During 2nd pregnancy after 12 weeks of gestation</td>
</tr>
<tr>
<td>4th</td>
<td>During 3rd pregnancy after 12 weeks of gestation</td>
</tr>
<tr>
<td>5th</td>
<td>During 4th pregnancy after 12 weeks of gestation</td>
</tr>
</tbody>
</table>
Pregnant mothers who have received 5 doses of tetanus toxoid during previous pregnancies as mentioned above do not need further booster doses of tetanus toxoid during subsequent pregnancies.

1.2.2) **Immunization of pregnant mothers who have documented evidence of receipt of six doses of tetanus containing vaccines as per the national EPI schedule (3 doses of DPT/penta in infancy + DPT at 18 months + DT at 5 years + aTd at 12 years)**

<table>
<thead>
<tr>
<th>Dose</th>
<th>Time of immunization</th>
</tr>
</thead>
<tbody>
<tr>
<td>One booster dose (TT)</td>
<td>If the gap between the 6th dose or any subsequent tetanus containing vaccine and the current pregnancy is more than 10 years</td>
</tr>
</tbody>
</table>

Pregnant mothers who belong to the following categories do not need to be immunized with tetanus toxoid during the pregnancy.

i. If the gap between the 6th dose of tetanus containing vaccine and the current pregnancy is less than 10 years

ii. If the gap between the subsequent dose of tetanus containing vaccine received after the 6th dose and the current pregnancy is less than 10 years

(2) **Post exposure vaccination against tetanus**

Decision on post exposure vaccination should be taken after considering the nature of the injury and the previous history of immunization with tetanus containing vaccine.

2.1) **Immunization of persons who have been immunized with tetanus containing vaccine during infancy and childhood**

If a person has documented evidence of receipt of six doses of tetanus containing vaccine (with 4 doses of DPT/penta valent, DT, aTd) he/she does not need to be immunized with tetanus toxoid up to 10 years after the 6th dose of tetanus containing vaccine. If a patient presents 10 years after the 6th dose of tetanus containing vaccine immunity could be boosted up with a dose of tetanus containing vaccine.

However, if a patient presents within 10 years with a severely contaminated wound a booster dose of tetanus toxoid could be given even though the gap between the 6th dose of tetanus and the injury is less than 10 years.
2.2) Immunization of persons who have not been immunized with tetanus containing vaccine according to the EPI schedule

Any person who has not been immunized with tetanus containing vaccine during infancy and adolescence according to the national EPI schedule, he/she should be given a dose of tetanus toxoid (1st dose) if there is a risk of developing tetanus. Second dose of tetanus toxoid should be given 4 weeks after the 1st dose and the third dose 6 months after the second dose. A booster dose (4th dose) of tetanus could be given 5 years after the 3rd dose. Fifth dose given 10 years after the 4th dose will produce a long lasting, probably a life long immunity.

(3) Development of immunity after immunization with tetanus containing vaccines

If there is documentary evidence to show that any infant, child or an adult has been immunized as per EPI schedule, it is not necessary to immunize them in between the routine doses again whenever they present with trauma as they are protected against tetanus infection in between the doses. However, if an infant, child or an adult presents with a severely contaminated wound, a dose of tetanus could be given to boost up the immunity even in between the recommended routine doses.

(4) Storage and administration of tetanus containing vaccines

Tetanus containing vaccines should be stored and transported between +2°C and +8°C and should not be exposed to freezing as it can reduce the potency of these vaccines. Opened tetanus containing vaccine vials should be stored between +2°C and +8°C and could be reused in subsequent immunization sessions within 4 weeks of opening. Tetanus containing vaccines should be given intra muscularly.

Please be kind enough to bring the contents of this circular to the notice of all concerned in institutions under your purview.

Thank You

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