Epidemiologic Report

Neonatal tetanus
Historic Series 2010 – 2022

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DOI: https://doi.org/10.57148/bepa.2022.v.19.37867
VOL. 20 • **Nº** 219 • **YEAR** 2023 • **ISSN** 1806-4272

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BRIEF HISTORY OF INJURY/DISEASE

Neonatal tetanus is a very serious and potentially fatal disease. It has been known since antiquity and is related to inadequate forms of treatment of the umbilical stump. Murahovschi described how this disease was controlled in São Paulo.[1] He reports that from the first half of the 20th century until the 1970s, neonatal tetanus was a serious public health problem, especially in rural areas and the periphery of cities.

There were doubts, however, about the etiology of the "seven-day disease", as the disease was known until 1949. The doubts were resolved by Gomes de Mattos and Lacaz through experimental research carried out in guinea pigs. The same Gomes de Mattos, inspired by a 1950 World Health Organization (WHO) opinion, which suggested that vaccination of pregnant women should be studied to prevent neonatal tetanus, carried out an experiment in which he vaccinated this population and collected serology from the newborns, demonstrating that children of immunized mothers had a protective level of antibodies.

In 1960, the vaccination of pregnant women had not yet been implemented, and at the time, health professionals argued that the ideal control measure would be aseptic treatment of the cord. This recommendation, however, ended up being insufficient to control the disease, and in 1953 there were still 1,043 cases in the state of São Paulo (SSP). Vaccination of pregnant women was included in the WHO's expanded immunization program shortly after 1974. In 1989, the institution adopted a resolution to eliminate neonatal and maternal tetanus, in 1995, through vaccination of pregnant women and clean delivery. Not achieved, the target was postponed to 2007, when it was not achieved either.

In 2017, the Pan American Health Organization (PAHO) declared the elimination of maternal and neonatal tetanus in the Americas.[2] Brazil had eliminated maternal and neonatal tetanus as a public health problem in 2003. According to WHO data, in 2015 the disease killed about 34,000 newborns worldwide, a 96% reduction compared to 1998 (when 787,000 children died from neonatal tetanus). The last death from this disease in Brazilian territory occurred in 2012.

ETIOLOGICAL AGENT

Clostridium tetani, an anaerobic Gram-negative bacillus, is responsible for the disease, being introduced by the unhealed umbilical cord, when treated improperly, without asepsis conditions.

TRANSMISSION MODE

Tetanus is not transmissible from person to person. Transmission occurs through contamination of the newborn's umbilical stump by *C. tetani* spores, which may be present in the soil or other materials infected by animal feces. If the mother is not vaccinated against tetanus, the newborn will not have antibodies capable of protecting them in the event of contamination of the umbilical stump and they will develop the disease, which is extremely serious and potentially fatal.

If delivery is performed under aseptic conditions, as well as cutting and dressing the umbilical cord, there will be no contamination and the newborn will not develop the disease, even if the mother has not transmitted antibodies. However, it is not always possible to guarantee delivery in ideal conditions, so it is recommended to vaccinate all pregnant women.

EPIDEMIOLOGICAL SITUATION

There have been no confirmed cases of neonatal tetanus in the SSP since 2000. The last suspected case reported was in 2014, but it was maple syrup disease, a metabolic disease that has unfortunately been confused with neonatal tetanus, delaying the introduction of adequate treatment. Remembering that, in the SSP, from 1979 to 2009, a total of 139 cases were recorded, of which 89 resulted in death.

What managed to control the disease in São Paulo was the tetanus vaccination of all pregnant women (complete vaccination or reinforcement dose). This also collaborated to further accentuate the difference in the incidence of tetanus between men and women. Currently, the number of cases of the disease among women of childbearing age is practically non-existent.

It is important to remember that there is no herd immunity with the tetanus vaccine, that is, there is no percentage of vaccinated people from which the rest of the population would be protected. Susceptibility is universal and vaccine protection is individual. Therefore, if the vaccination of pregnant women is interrupted, especially with the increase in home births, neonatal tetanus may recur.

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Publication
May 2023

Open access

How to cite

Spinola RMF, Leite RM. Epidemiological report of the surveillance of neonatal tetanus. Bepa [Internet]. 2023 Feb 1 ;19:1-4.
Available in: https://periodicos.saude.sp.gov.br/BEPA182/article/view/37867