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A Case of Neonatal Tetanus and of Missed Opportunities: Has the Achievement of Elimination Goal Reached All in India?

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Abstract

Neonatal tetanus is a rare disease in developed world but remains common in developing world. India recently achieved elimination from Maternal and Neonatal tetanus (MNT) but its occurrence is still high in babies born to women from underserved and disadvantageous sections because of inadequate tetanus toxoid immunization and inappropriate postnatal care. We hereby present a case of neonatal tetanus who presented with complaints of difficult feeding and muscle rigidity on day seven of life. This case describes the some of the important public health challenges like incomplete immunization, home delivery, poor hygiene practices during delivery and poor cord care practices prevalent in the underserved and marginalized communities which are needed to be addressed on priority to make India totally free from neonatal tetanus.

Keywords: Home delivery; Neonatal tetanus; Public health

Introduction

Neonatal tetanus (NT) is a serious, frequently fatal disease caused by the toxin of Clostridium tetani, a ubiquitous sporeforming bacterium found in high concentrations in the soil and animal excrements[1,2]. It usually occurs in a neonate between 3-28 days of life, and is sometimes referred as disease of the seventh day [2,3]. NT is considered as a failure of Public health system[4].In 2000, when the World Health Organization (WHO) initiated the Maternal and Neonatal Tetanus (MNT) elimination initiative,> 500,000 babies died annually due to NT, most of them occurring in developing countries[5].Neonatal tetanus is now rare in developed countries but it still persists as a public health problem in some of the countries of Asia and Africa [1,6]. Neonatal tetanus is usually associated with non-sterile delivery and poor care of umbilical stump postnatally [6-9]. Risk factors for development of neonatal tetanus are prenatal (lack of antenatal care for the pregnant women, failure of immunization with tetanus toxoid), perinatal (delivery at home, births followed by untrained persons, failure of simple measures such as hand washing, cleaning of the cord cutting tool, use of multiple cord ties, the vaginal use of coconut oil, etc.) and neonatal factors (unhygienic new born and cord care, infant's weight less than 2.5 kg) [10,11]. Case fatality

rates may vary (range: 10-100%), depending on treatment, age and general health of the patient.6 The purpose of this work is to describe a case of neonatal tetanus(NT) in a marginalized section of the community and public health issues associated with it.

Case presentation

On 7thMarch 2015, a seven-day-old female preterm baby was admitted to the New Born Unit of Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh with fever, excessive crying, progressive difficulty in feeding, decreased urinary frequency with hypertonicity of both upper and lower limbs for three days. The neonate was eupnoeic, weighing 1900 g and had a history of non-sterile home delivery. Neonatal tetanus was diagnosed based on the clinical characteristics and history. The course of the disease was classified as 'very severe'.

This baby, delivered at home, was the third child from the third pregnancy with no history of abortion in the mother. Mother never visited any health facility for antenatal care (ANC) and was never immunized with tetanus (TT) vaccine during pregnancy. The whole pregnancy was uneventful.

Birth endured about half an hour, relieved by a local Dai, a type of untrained traditional birth attendant a type of untrained female delivery. The Dai cut the umbilical cord with a blade and

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tied it with a knitting string. The new born did not start crying immediately and had a delayed cry. Breast feeding was initiated 2-3 hours afterwards. Mustard Oil was applied on the umbilical stump by mother from day one and was continued till sixth day of life. Baby remained asymptomatic for three days of life and normally sucked the breast when he started having complaints of poor sucking and excessive crying along with fever and decreased urinary frequency and increased tone of upper and lower limbs.

The parents of the baby were migrant labourers, had never received formal education and worked at a poultry farm in the state of Haryana, North India. They have migrated to current place of work one year back in search of good earning. The mother, a 22-year-old woman, had never been vaccinated with tetanus toxoid. The other two live issues were home deliveries too. The other two children, both males, aged 3 and 4 years, were immunized till nine months of age at their native place as reported by the mother but no immunization card or any other records were available. A very low income family, they were living in a single room accommodation within the premises of poultry farm provided by the owner of the farm. They lived without a supply network; they were supplied with drinking water from a public tap.

Discussion

According to the Child Health Epidemiology Reference Group (CHERG) (2008), an estimated 60,000 newborns die of the disease each year[12-14]. The World Health Organization(WHO) aimed to achieve worldwide neonatal tetanus elimination by 2005, which was defined as the reduction of neonatal tetanus cases to less than 1 case per 1,000 live births in each district of every country[15].In India, neonatal tetanus(NT) was still a public health problem till May 2015 when WHO declared India free from both maternal and neonatal tetanus(MNT) with Nagaland in the North east India being last state reported to have eliminated neonatal tetanus through a validation survey[16].

NT cases are clustered in poor, remote and disenfranchised communities where unhygienic obstetric and postnatal practices prevail and access to maternal tetanus toxoid immunization is poor[7].In very high-mortality settings (neonatal mortality rate > 45 per 1,000 live births), almost 50% of deaths are due to severe infection, tetanus and diarrhea. Tetanus accounts for 5-7% of worldwide neonatal mortality[17].Globally only 11,762 cases of NT were reported in 2002, of which 1,718 cases occurred in India. While WHO estimates that about 218,000 cases of NT occurred worldwide that year, of which approximately 180,000 resulted in death, given that surveillance for NT is poor in most developing countries [7,18]. It is estimated that < 10% of NT cases and deaths are actually reported (out of total disease burden) [19]. The South East Asia region(SEAR) contributed to an estimated 81,500 cases of NT in that year.18In newborns, the common nidus of infection is the umbilical cord, especially a septic umbilicus or any superficial wound; in many cases, it may not be detectable [20,21].

Most cases follow an acute injury, such as a puncture wound, a laceration or an abrasion. Delivery at health facility, mother's education level, a cleaned cutting tool, the application of antibiotics at delivery, and hand washing by the delivery attendant remained protective [10,13]. In this case, the umbilical cord was cut by an untrained traditional birth attendant with an unsterile razor and umbilical stump was tied with knitting string. The umbilical stump of the baby was very poorly treated and unhygienic practice of applying mustard oil by mother was noted too. In the newborn, the nidus of infection was probably a septic umbilicus or any superficial wound (micro-abrasion) around the stump, as was observed in other reports [10, 22,23].

The Advisory Committee of Immunization Practices recommended giving a booster dose of Td to previously vaccinated pregnant women who had not received a Td vaccination within the preceding 10 years, and completion of the primary series of three doses of Td in unvaccinated or partially vaccinated pregnant women[24]. Neonatal Tetanus prevention relies on the avoidance of unsafe delivery, abortion and umbilical cord care practices and promotion of maternal tetanus immunization. Hygiene of the puerperal and umbilical stump has a significant impact on prevention of NT, as is evident from the history of developed countries before the availability of TT (e.g., during the first half of the 20th century, NT in Denmark and the US steadily decreased to 0.05 and 0.02 cases per 1,000 live births, respectively). Even in rural regions of the developing world where home deliveries are common, concerted efforts to educate health workers and pregnant women about safe deliveries and care of neonates can result in substantial reduction in neonatal tetanus[7]. In elimination of this serious disease, it is very important that vaccination strategies are effectively implemented.

Conclusion

Although India has been declared free from neonatal tetanus in May 2015, its incidence among underserved and migrant population is still a major public health challenge. This case clearly demonstrates the various gaps in healthcare delivery which needs to be thoughtfully seen and addressed in order to further eradicate the disease from the country and from the world.

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References

- 1. https://www.who.int/immunization/en/
- 2. Brook I (2004) Tetanus in children. Pediatr Emerg Care 20: 48-51.
- 3. https://www.who.int/immunization/diseases/MNTE_initiative/en/
- Alhaji MA, Abdulhafiz U, Atuanya CI, Bukar FL (2011) Cephalic Tetanus: A Cas Report. Case Reports in Infectious Diseases vol. 2011: 780209.
- Vandelaer J, Birmingham M, Gasse F, Kurian M, Shaw C, et al. (2003) Tetanus in developing countries: an update on the maternal and neonatal tetanus elimination initiative. Vaccine 21: 3442-344.
- World Health Organization (2006) Tetanus vaccine. Wkly Epidemiol Rec 81: 198-208.
- 7. Roper MH, Vandelaer JH, Gasse FL (2007) 370: 1947-1959.
- Stanfield JP and Galazka A (1984) Neonatal tetanus in the world today. Bull World Health Organ 62: 647-669.

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- Bennett J, Schooley M, Traverso H, Bano Agha S, Boring J (1996) Bundling, a newly identified risk factor for neonatal tetanus: implications for global control. Int J Epidemiol 25: 879-884.
- Parashar UD, Bennett JV, Boringa JR, Hladyd WG (1998) Topical antimicrobials applied to the umbilical cord stump: a new intervention against neonatal tetanus. Int J Epidemiol 27: 904-908.
- Hlady WG, Bennett JV, Samadi AR, Begum J, Hafez A, et al. (1992) Neonatal tetanus in rural Bangladesh: risk factors and toxoid efficacy. Am J Public Health 82: 1365-1369.
- 12. Leroy O and Garenne M (1991) Risk factors of neonatal tetanus in Senegal. Int J Epidemiol 20: 521-526.
- Raza SA, Akhtar S, Avan BI, Hamza H, Rahbar MH (2004) A matched case-control study of risk factors for neonatal tetanus in Karachi, Pakistan. J Postgrad Med 50: 247-251.
- Black RE, Cousens S, Johnsons HL, Lawn JE, Rudan I, et al. (2010) Global, regional and national causes of child mortality in 2008: systematic analysis. The Lancet 375: 1969-1987.
- http://www.unfpa.org/upload/lib_pub_file/155_filename_matetanuseng.pdf
- Sophie C (2015) India is declared free of maternal and neonatal tetanus. BMJ 350: h2975.
- Lawn JE, Cousens S, Zupan (2005) 4 million neonatal deaths: when? Where? Why? Lancet 365: 891-900.

- World Health Organization (2003) Validation of neonatal tetanus elimination in Andhra Pradesh, India. Wkly Epidemiol Rec 79: 289-300.
- Afshar M, Raju M, Ansell D, Bleck TP (2011) Narrative review: tetanus-a health threat after natural disasters in developing countries. Ann Intern Med 154: 329-335.
- Davies-Adetugbo AA, Torimiro SE, Ako-Nai KA (1998) Prognostic factors in neonatal tetanus. Trop Med Int Health 3: 9-13.
- 21. Centers for Disease Control and Prevention (1987) Tetanus- United States, 1985-6. MMWR Morb Mortal Wkly Rep 36: 477-481.
- Mullany LC, Darmstadt GL, Katz J, Khatry SK, LeClerq SC, et al. (2007) Risk factors for umbilical cord infection among newborns of southern Nepal. Am J Epidemiol 165: 203-211.
- Bjerregaard P, Steinglass R, Mutie DM, Kimani G, Mjomba M, et al. (1993) Neonatal tetanus mortality in coastal Kenya: a community survey. Int J Epidemiol 22: 163-169.
- Murphy TV, Slade BA, Broder KR, Kretsinger K, Tiwari T, et al.(2008) Prevention of Pertussis, Tetanus, and Diphtheria among Pregnant and Postpartum Women and their Infants. Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Recomm Rep 57: 1-47.

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