

Original Article

Clinical Presentation and Outcome of Neonatal Tetanus in Hospitalized Patient

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ABSTRACT

Background: Neonatal tetanus can kill neonates. This problem persists in many poor countries. In 2010, NT caused 58,000 deaths worldwide, and in 2013, 49,000. Anaerobic, gram-positive *Clostridium tetani* bacteria cause tetanus. tetanospasmin causes tetanus. Dirty equipment or materials used during or after birth might infect the umbilical stump or cord. In Bangladesh, as in most underdeveloped nations, tetanus is a severe public health problem, causing many illnesses and deaths. Without proper care, newborn tetanus has a significant fatality rate. trismus affects 95.7% of patients, neck stiffness affects 89.3%, body spasms/stiffness affects 73%, and dysphagia affects 38.9%. Neonatal Tetanus is preventable but causes major problems worldwide, especially in developing nations. Inadequate wound care and lack of immunization information contribute to tetanus in poor countries. High-income countries have low tetanus rates due to a robust immunization program. In this study, we focused on Neonatal Tetanus in hospitalized patients. **Objective:** The aim of the study is to evaluate tClinical Presentation and Outcome of Neonatal Tetanus in Hospitalized Patient. **Method:** Prospective observational studies at Hospital records were utilized to acquire newborn tetanus information from April 2017 to January 2018. The study was a hospital-based prospective investigation of Tetanus in BITID newborns. In this study, 10 kids were admitted. **Results:** Patients with newborn tetanus ranged in age from 6-17 days. 6 (60%) of the 10 tetanus patients were male and 4

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(40%) were female, giving a 3:2 male-to-female ratio. 4 (40%) patients were from Chittagong metropolitan city, 3 (30%) from outside the city, and 3 (30%) from Feni district. Trismus (lock jaw) was the most common presenting symptom, occurring in 9 (90%) patients, followed by muscle spasms (8, 80%), reluctance to breastfeed (10, 100%), high body temperature (5, 50%), opisthotonos (2, 20%), and respiratory distress (4, 40%). None of the mothers were tetanus-vaccinated. Seventy percent (70%) patients were discharged following treatment, while three died. Two patients (30%) died within hours after arrival, one from tetanus with septicemia. **Conclusion:** Underdeveloped regions continue to face a tetanus mortality crisis. Low health awareness, a lack of human and financial resources, and a lack of trauma treatment have hampered the global immunization effort to eliminate neonatal, pediatric, and maternal diseases. Hospital-based studies are useful for assessing immunization efforts and acquiring tetanus data. The study emphasizes the need for the vaccine-preventable tetanus is still common in this region. High morbidity and mortality make it difficult to treat. Early diagnosis, public health education, and a hospital ICU would reduce morbidity and mortality.

Keywords: Child, Tetanus, Patient, Disease, Public health, etc.

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INTRODUCTION

Neonatal tetanus, abbreviated as NT, is a disease that can affect newborn babies and has the potential to be fatal. The condition is still prevalent in many underdeveloped nations. It was estimated that over the world there were 58,000 deaths caused by NT in the year 2010, and 49,000 deaths caused by NT in the year 2013 [1,2]. Tetanoplasmin is the neurotoxin that is responsible for causing tetanus, which is caused by anaerobic, spore-forming, gram-positive *Clostridium tetani* bacteria. When unclean devices or materials are used during or after delivery, the umbilical cord or its stump might get contaminated with the organism [2].

Tetanus still remains a major public health problem in Bangladesh like in most other developing countries, with a high morbidity and mortality. In neonatal tetanus mortality rates are

extremely high when appropriate medical care is not available.

The disease NT is one that can be avoided. The major method of prevention is vaccination of pregnant women with tetanus toxoid [3]. Newborn infants obtain "passive immunity" from their mothers, who have been vaccinated. In addition, essential preventative interventions include giving birth in medical facilities, avoiding unsanitary childbirth practices and certain societal taboos, and maybe supplying sterile equipment to moms who choose to give birth at home [3,4]. Clinical evaluation is necessary to diagnose NT. A confirmed case is defined for the purposes of monitoring as any neonate that has a normal ability to suck and cry during the first two days of life but who no longer sucks normally between the ages of 3 and 28 days and becomes stiff or has spasms [5]. The most prominent symptom of tetanus is a

spasm of the muscles; trismus affects 95.7% of patients, neck stiffness affects 89.3% of patients, body spasms/stiffness affects 73% of patients, and dysphagia affects 38.9% of patients[6]. Neonatal Tetanus is an infection that can be avoided but still results in serious difficulties all over the world, particularly in developing countries [7]. It is widely held that inadequate wound care and a lack of information regarding the importance of immunization contribute to the high frequency of tetanus in impoverished nations [8] It has been determined that a thorough immunization program is largely responsible for the low rates of tetanus that are found in high-income countries [9]. In this study we have focused on the clinical presentation and out of the Neonatal Tetanus in the hospitalized patients.

OBJECTIVE

- Clinical Presentation and Outcome of Neonatal Tetanus in Hospitalized Patient

METHODS & MATERIALS

This prospective observational study was conducted at BITID through emergency Neonatal tetanus cases were attended from April 2017 to January 2018 and all the data were collected from hospital records. The study was part of a hospital-based prospective study carried out to determine the clinical presentation and outcome of Tetanus among neonates admitted into the BITID hospital. Ten children were admitted in this study period and we have included them as our study population.

Data collection and analysis

A data collecting sheet was utilized in the process of extracting data from the medical records of patients. We gathered clinical and demographic information such as age, gender, immunization status, and outcome, among other things. Using the statistical software tool for the social sciences known as SPSS, version 20, all of the data were entered, cleaned, and analyzed. In order to show the data, descriptive statistics were utilized.

RESULTS

Patients with newborn tetanus had a mean age of 10.2 days, with a range of 6-17 days. (Table-1).

Table 1: Age distribution of the tetanus patient

Age in days	Frequency	Percentage	Mean (Days)
1-6	1	10%	10.2
7-12	8	80%	
13-18	1	10%	
Total	10	100%	

There were 10 tetanus cases total, with 6 (60%) being male and 4 (40%) being female, for a male to female ratio of 3: 2. (Figure 1)

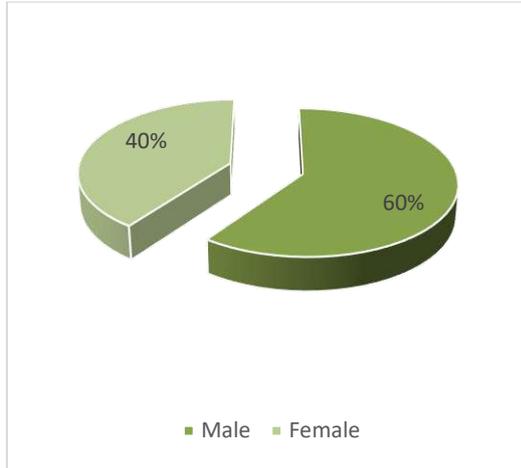


Figure 1: Gender distribution of the neonatal tetanus patients

Among 10 cases, 4(40%) patients were coming from Chittagong metropolitan city & 3(30%) were coming from outside the metropolitan city and 3(30%) from Feni district. (Table-2)

Table 2: Residence of the neonatal tetanus patient

Residence	Frequency	Percentage
Chittagong Metropolitan City	4	40%
Outside Metropolitan City	3	30%
Feni	3	30%
Total	10	100%

Trismus (lock jaw) was the most prevalent presenting symptom, occurring in 9 (90%) of patients, followed by muscle spasms (8, 80%), reluctance to breast feed (10, 100%), high body temperature (5, 50%),

opisthotonos (2, 20%), and respiratory distress (4, 40%). (Figure-2)

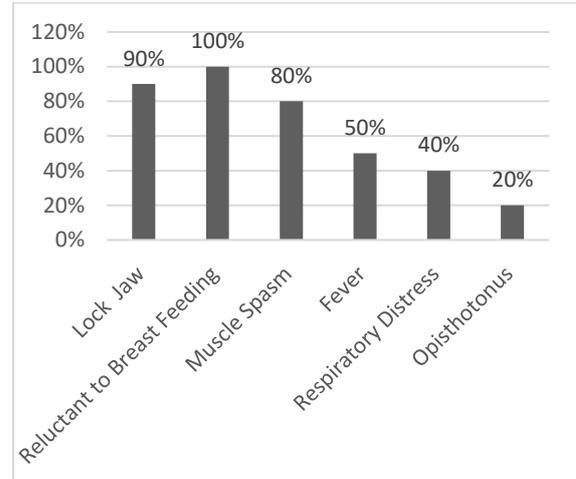


Figure 2: Clinical presentation of the neonatal tetanus patients

A tetanus vaccination was not present in the mothers of any of the patients. (Table 3)

Table 3: Immunization status of mother of the patients

Immunization Status	Frequency	Percentage
Immunized	0	0%
Non-Immunized	10	100%
Total	10	100%

There were seventy (70%) patients were discharged after being entirely treated, whereas three (30%) patients died. One patient died from tetanus with septicemia, while two others died within hours after admission. (Figure 3)

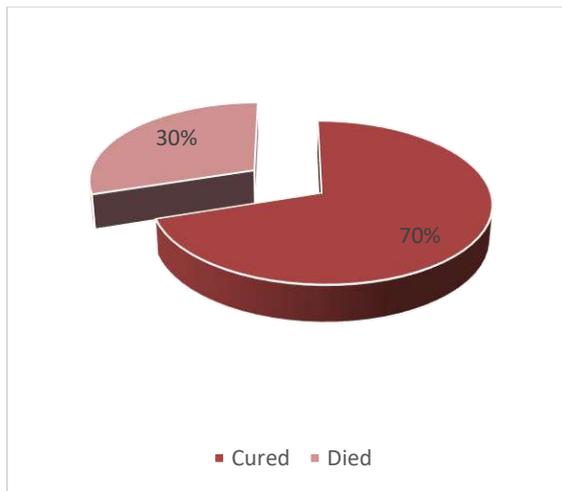


Figure 3: Outcome of the neonatal tetanus

DISCUSSION

Mortality rates from tetanus continue to be a major issue for public health in underdeveloped regions. Low health knowledge, a lack of human and financial resources, and a lack of health seeking behavior for trauma have all presented obstacles to the global vaccine effort to eliminate neonatal, pediatric, and maternal diseases. Hospital-based studies are useful for assessing the efficacy of immunization programs and gathering epidemiologic data on neonatal and childhood tetanus [10-12]. Reduction or eradication of neonatal Tetanus toxoid (NT) is a severe problem for public health. Elimination has a rate of NT that is significantly lower than one per the yearly breakdown on the district level. Increased protection against tetanus toxoid in high-risk populations and among pregnant women as a whole among women of reproductive age, and it's become a lot better the availability of sanitary shipping options in order to get to the end result [13]. Even though

the situation depicted in enhancements made to a study first published 22 years ago even though it has been proven to be harmful, many parents still take their newborn babies to see alternative doctors for the treatment of spasms or fits. Multiple infants born with Some people who are sick might not get to the hospitals in time. Those NT deaths are not recorded by surveillance events that happen at home and patients who need medical attention at No attempts were made to locate a medical facility for treatment [14-16]. Are susceptible to underreporting. Death rates from tetanus in poor nations are unknown. As many infants and mothers perish in the comfort of their own homes as neither the birth nor the death is recorded [17,18].

In this study, neonatal aged 6-17 days were found to be highly affected with a male predominance. In other studies, some authors have guys may be more susceptible to tetanus than females, males than females when exposed to a toxic dose [18,19]. Even so, the prevailing cases in our analysis could be indicative of a likely to provide more attention for a sick male neonates. A Chinese study confirmed Male youngsters were more likely to go to the doctor than female ones. doctor when they're sick than boys their age, and more than half of all of girls under the age of 18 days access to health care within the first 24 hours of the commencement of disease to the final 24 hours of life [19]. Vaccination against tetanus is the only surefire way to avoid contracting this deadly disease using tetanus toxoid as a preventative measure. One can find tetanus spore in

the surroundings, and there is no way to avoid being exposed to it. The most straightforward strategy for preventing tetanus in newborns is to vaccinate the mom in order to protect the unborn child antibody [20]. In our study it is observed that 100% of the neonatal mother did not received any kind of immunization with TT. According to the another study by Ehsan in 2015 showed that 83% of neonatal's mother were not immunized with TT [21]. According to the 2011 National Demographic Health Survey, 32% of the pregnant women did not undergo any form of ultrasound of the pregnant woman before the baby is born. Getting the TT vaccine is, thus, possible, but not likely, for those ladies [22] The EPI data sheet indicated a 6% of the expecting mothers did not get their vaccinations [23] Although relatively low, the number grow very big (there are many of people) and Every last pregnant one of them, or brand new baby, is still at a the possibility of tetanus is very high. Multiple investigations have found that Identical results for lack of maternal immunization. Research from Khyber Pakhtunkhwa (KPK) in urban areas, 65 percent of women in the Punjab province of Pakistan poor vaccination rates were mentioned as reasons only 17 percent of children barriers to immunization in KPK were a lack of public inadequate education, limited access, and misunderstandings in regards to vaccinations. In addition, these circumstances significantly linked to low socioeconomic status province's current situation [24,25]. Neonatal tetanus is the most under reported notifiable diseases. It is totally

preventable through immunization of mother and hygienic delivery and umbilical cord care practices.

CONCLUSION

Though tetanus is a vaccine preventable illness, its prevalence is still high in this part of the country. It still remains a difficult disease to treat, with high morbidity and mortality an early diagnosis, health education programs to create awareness among the public and establishing an ICU facility in the hospital would definitely decrease the morbidity and the mortality.

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