



The outcome of tetanus patients in BITID from July 2016 to September 2017

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Abstract

Background: Tetanus is a serious bacterial infection caused by the *Clostridium tetani* bacterium. It is commonly found in soil, saliva, dust.

Methods: The hospital medical records of patients of BITID from July 2016 to September 2017 were collected & 41 cases of tetanus patient were admitted in BITID. Patients were categorized into 4 (four) groups having age range of 0-28 days, 1 month to 12 years, 13 years to 18 years, 19 years to 60 years above respectively.

Results: Among 41 cases, 29 (70.73%) were male & 12 (29.26%) were female with a ratio of 2.3:1. Male were found mostly affected in tetanus. There were 9 (26.8%) were neonatal tetanus, 11 (26.8%) were childhood tetanus (1 month-12 years), 4 (9.7%) were 13- 18 years & 17 (41.4%) were adult tetanus. Age group IV (41.4%) was the most vulnerable group followed by group II (26.8%), I (21.95%) & III (9.7%). 3 (7.3%) patients were immunized & 38 (92.68%) patient were non-immunized. In case of neonatal tetanus there were 100% of mothers were non-immunized against tetanus. 31 (75.6%) patients were coming from rural & 10 (24.39%) urban area. Among 41 patients, 25 patients were discharged, 14 patients were died & 2 patients referred to IDH, Mohakhali Dhaka 1/1 for ICU support.

Conclusion: Unlike many infectious diseases tetanus patients does not acquired natural immunity against tetanus. So, Tetanus can be prevented by only routine vaccination with tetanus toxoid.

Keywords: Tetanus, neonatal tetanus, immunization.

Introduction

Tetanus is an acute infectious disease caused by the bacterium, *Clostridium tetani* (C. tetani), as

defined by the WHO,¹ which generates a neurologic toxin² Because of the high mortality rate, tetanus is still a significant issue worldwide,

especially in developing countries.^{3,4} In developed countries, tetanus has a low incidence; specifically, there were 43 cases per year between 1998 and 2000.⁵ In addition to the disease process, a lack of experience in diagnosing tetanus contributes to the high mortality rate. ⁶Tetanus often leads to death, with a reported 213,000–293,000 deaths worldwide.⁷ The incidence of tetanus is about 1 case per 10,000,000 in the US.⁸ There are no guidelines with respect to tetanus immunization for adults in China; however, in 2012, China was validated to have eliminated maternal and neonatal tetanus.⁹ The tetanus bacillus generates tetanospasmin and tetanolysin; the former toxin causes local inflammation by acting on gangliosides within local nerve terminals, resulting in the clinical syndrome.^{5,10} Muscle spasm is the main characteristic of tetanus; trismus affects 95.7%, neck stiffness affects 89.3%, body spasms/stiffness affect 73%, and dysphagia affects 38.9% of the patients.¹¹ In this study our main goal is to evaluate the outcome of tetanus patients in BITID, Bangladesh.

Objective

To assess the incidence and outcome of tetanus patients admitted in hospital.

Methodology

Type of study

This is an observational prospective clinical study.

Place and period of study

The hospital medical records of patients of BITID from July 2016 to September 2017 were collected.

Study Population

41 cases of tetanus patient were admitted in BITID were included in the study. Patients were categorized into 4(four) groups having age range of 0-28 days, 1 month to 12 years, 13 years to 18 years, 19 years to 60 years above respectively.

Method

In this study, detailed history, clinical examination and laboratory investigations were done in all cases and analyzed.

Data Analysis

After collection, data were entered into a personal computer and were edited, analyzed, plotted in graphs and tables.

Results

In table-1 shows age distribution of the patients where 9 (26.8%) were neonatal tetanus, 11 (26.8%) were childhood tetanus (1 month-12 years), 4(9.7%) were 13- 18 years&17 (41.4%) were adult tetanus. Age group IV (41.4%) was the most vulnerable group followed by group II (26.8%),1 (21.95%) & III (9.7%). The following table is given below in detail:

Table-1: Age distribution of the patients

Age group	n	%
Group-I (0 days to 28 Days)	9	21.95
Group -II (1 month to 12 years)	11	26.8
Group-III (13 years to 18 years)	4	9.7
Group-IV (19years to 60 years)	17	41.4

In figure-1 shows sex distribution of the patients where most of the patients where male, 70.73% who were infected by tetanus. The following figure is given below in detail:

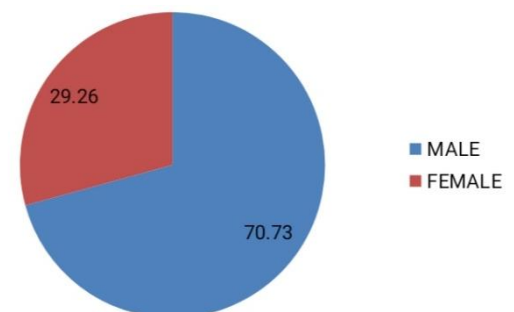


Figure-1: Sex distribution of the patients

In figure-3 shows area distribution where 31(75.6%) patients were coming from rural and 10(24.39%) were coming from rural. The following figure is given below in detail:

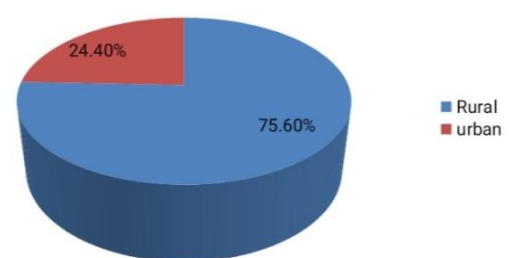


Figure-3 Area distribution

In table-2 shows distribution of the patients according to immunization where 3 (7.3%) patients were immunized & 38 (92.68%) patient were non-immunized. In case of neonatal tetanus there were 100% of mothers were non-immunized against tetanus. The following table is given below in detail:

Table-2: Distribution of the patients according to immunization

Immunization	n	%
Yes	3	7.3
No	38	92.68

In figure-4 shows outcome of the treatment where among 41 patients, 25 patients were discharged, 14 patients were died and 2 patients referred to IDH. The following figure is given below in detail:

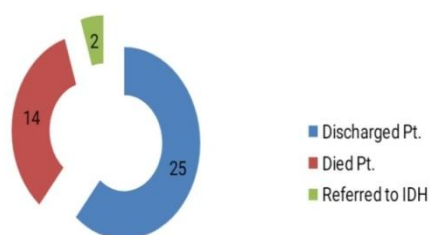


Figure-4: Outcome of the treatment

In figure-5 shows distribution of gender according to past years where in all past year's male were mostly infected due to tetanus. The following table is given below in detail:

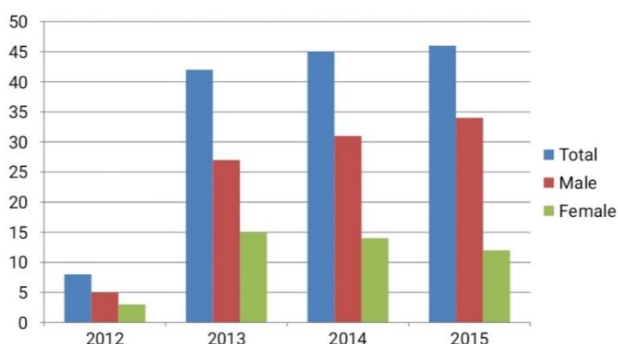


Figure-5: Distribution of gender according to past years

Discussion

In the one research, the percentage of males (70.6%) was greater than the percentage of females (29.4%), which is similar with our study.¹¹ Another study reported 85.7% males and 14.3% females.¹² Males often do outdoor jobs, such as farming or skilled jobs, that have an increased probability of injuries. In one study reported that patient occupation is an important risk factor for tetanus. Farmers have a tetanus incidence of 47.0% in the present tetanus cases, while the retired and homebound have an incidence of 23.5% in the present tetanus cases.¹³

. In the USA, the Centers for Disease Control and Prevention advise people to receive a dose of tetanus vaccine every 10 years to remain immunized.¹⁰

Neutralizing toxins can be achieved with equine/human tetanus immunoglobulin by passive immunization. The suggested dose of adults is 3,000–6,000 IU. Where as in our study 3 (7.3%) patients were immunized & 38 (92.68%) patient were non-immunized. In case of neonatal tetanus there were 100% of mothers were non-immunized against tetanus and after treatment most patients enrolled in the study recovered. Which was consistent to other study.¹⁴

Conclusion

Unlike many infectious diseases tetanus patients does not acquired natural immunity against tetanus. So, Tetanus can be prevented by only routine vaccination with tetanus toxoid.

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