

The IT IT Study (The Incubation Time in Tetanus Study)

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ABSTRACT

Objective: To determine the effect of incubation time on morbidity and mortality in patients with tetanus.

Study Design: Cross Sectional Descriptive Study

Place and Duration of Study: This study was carried out in the Medicine Department of Saidu Hospital from Jan 2009 to Dec 2012.

Patients and Methods: A total of 30 patients both males and females were included. These tetanus Patients were classified in two Groups. Group I (Short incubation period i.e. less than 7 Days) and Group II (Long incubation period i.e. seven or more than 7days). The association of short and long incubation time with mortality and morbidity was assessed.

Results: There was no mortality in this study. While morbidity was assessed in terms of hospital stay, whether stay was more than 10 days or less than 10 days. In Group I, 17 (85%) patients had a hospital stay of more than 10 days while in Group II Only 3(30%) had a hospital stay of more than 10 days. The results were analyzed using the chi square test of independence. The p value was 0.003.

Conclusion: We conclude that short incubation period has definitely association with morbidity which in this study was hospital stay of more than 10 days.

Key Words: Tetanus, Incubation Time, Morbidity.

INTRODUCTION

Tetanus is one of the oldest disease in human history.¹ It occurs worldwide² but is more common in the underdeveloped countries. In western world and America the incidence has decreased because of effective vaccination and better health care facilities³ The disease pattern and incidence is not much changed in the underdeveloped world⁴. It has got different clinical variants. Generalized tetanus is the commonest way of presentation. There are different bad prognostic factors like age more than 60years, short onset time, previous vaccination status and short incubation time.

The incubation period is defined as the period from the time of entry of the clostridium tetani in the body to the development of lock jaw, while onset period is the time between lock jaw and the development of spasm⁵. The organism produce potent toxins like tetanospasmin and tetanolysin. The former is responsible for the spasms. The purpose of this study was to determine the effect of short and long incubation time on morbidity and mortality.

MATERIALS AND METHODS

This descriptive study was carried out in the medicine department of Saidu hospital over a period of four years from Jan2009 to Dec 2012. A total of thirty patients suffering from tetanus were included. Both male and female patients were included; the age was ranging from 15 year to 60 years. Informed consent was taken from the patient for including the clinical information for research purpose. The incubation time, hospital stay

in days and different complications were recorded. Patients were classified in two groups. Group I: Patients with incubation period of less than seven days. Group II: Patients having incubation period of seven or more than seven days. Hospital stay in days was variable and we operationalized this variable by dividing it in two categories: (I) Hospital Stay of less than 10days and (II) Hospital stay of 10 Days or more than 10days. Morbidity was defined as hospital stay of more than 10 days, mainly because of failure of relief of spasms.

According to "Standard Grading System"⁶ fits were classified as (I to IV). Grade I and II are minor spasms (fits) while Grade III, IV are major fits or spasms and persist for more than 30 seconds, and spontaneous. The results were analyzed using the chi square test ($\chi^2=9.08$, $df=1$).

RESULTS

Out of 30 patients 20(80%) were males and 10(20%) were females. The age was ranging from 15 years to 60 years. The nature of injury was variable and majority of the wounds were of trivial nature. Most of the wounds were situated on the lower extremities. Patients belonged to both rural and urban areas. Lock jaw and abdominal rigidity were the main presenting features. 20 (80%) patients were in Group I while 10 (20%) patients were in Group II. All patients were provided equal standard of care.

In Group I, 17(85%) patients had a hospital stay of more than 10days. While in Group II only 3(30%) patients had a hospital stay of more than 10 days. There

is difference between the groups in terms of hospital stay.

Using the chi square test the p value was calculated as 0.003 showing statistically significant association between prolonged hospital stay and short incubation period.

Table No.1: The association of hospital stay and incubation period

Incubation time	Groups	N (%)	Hospital Stay > 10days N (%)	Hospital Stay < 10days N (%)
Short (< 7days)	Group I	20(80%)	17(85%)	3(15%)
Long (7 days or > 7days)	Group II	10(20%)	3(10%)	7(70%)
	Total	30	20	10

Table No.2: Table showing the observed and expected values based on the chi square test.

Incubation time	Groups	No (%)	Hospital stay >10days	Hospital Stay <10 days
			Observed (Expected)	Observed (Expected)
Short (<7 days)	Group I	20(80%)	17(13.3)	3(6.67)
Long (>7 days)	Group II	10(20%)	3(6.67)	7(3.33)
	Total	30	20	10

DISCUSSION

We studied 30 patients both males and females. Males were dominating. This is because of more exposure and the nature of injuries they are exposed to. we studied thirty patients over a period of 04 years in a tertiary care hospital. If we compare with the statistical data from America, It is clear that there is a huge burden of the disease in our society e.g. in USA about 50 patients were reported to CDC In 1997 from the whole of America⁷. Tetanus is more common in males this has been shown in other studies, carried out in Ethiopia⁸, as well as in Pakistan⁹. Majority of our patients presented with lock jaw and abdominal rigidity. It was observed in other studies as well^{10,11}. There was no Intra venous drug abuser in this study, which is a common route of acquiring tetanus in certain countries¹². In this study there is clear association between incubation period and morbidity (which is hospital stay in this study). This is comparable with other studies¹³. Although a mortality of 28.5% has been reported with short incubation period¹⁴. There was no mortality in this study. The reason may be small sample size; however mortality can be reduced by effective supportive measures¹⁵. The disease can be effectively prevented by active immunization but the knowledge and awareness level is low. One study has shown that

inadequate knowledge is about 81.3%, incorrect knowledge is 12.5% and no knowledge about vaccination is 6.3%.¹⁶

Another study has shown the majority of the tetanus cases are from backward and faraway areas where health facilities are lacking.¹⁷ if the wounds are not properly managed and patient develops autonomic instability and intensive care management is required then the mortality can go up to 50%.¹⁸

CONCLUSION

Short incubation period is associated with increased morbidity (prolonged hospital stay in this study)

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