AUDIT OF CHILDHOOD TETANUS PATIENTS ADMITTED IN TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Childhood tetanus has high mortality and is preventable. **Objective:** To enlist the risk factors of childhood tetanus among patients admitted in a tertiary care hospital. **Methodology:** Study design: Cross sectional study. Place and duration of study: Children ward, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan from 1st September 2012 to 28th February 2015. In this study 97 patients were included. Their parents were interviewed according to the given performa. The data was entered and analyzed by using SPSS version 19. **Results:** Out of 97 patients, the fathers of 68(64%) patients and mothers of 84 (86%) patients were either illiterate or primary education only. Most 57 (58%) of the patients belonged to a low socioeconomic family having the monthly income of less than PKR 10,000. The fathers of 37(38%) patients were Sindhi. 57(58.76%) patients were from rural areas. Most 69 (71%) of the affected patients were boys, age range of 5 to 10 years, was found 39 (40%) of patients were boys, age range of 5 to 10 years, was found in 39 (40%) of patients. **Conclusion:** The various factors which are responsible for the development of childhood tetanus were; poor educational status of the parents, Sindhi, ethnicity, low socioeconomic status and rural area residence.

Key words: Audit, Tetanus, Childhood, Risk factors

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INTRODUCTION

Tetanus is characterized by an acute onset of painful muscular contractions of the jaw (trismus) and neck and generalized muscle spasms, categorized as: Generalized tetanus, Localized tetanus, Cephalic tetanus and Neonatal tetanus.[1] With the progression of the disease, patients develop generalized muscle rigidity with intermittent reflex spasms in response to stimuli (e.g; noise, sparking lights).[2]

Neonatal tetanus (tetanus neonatorum) is a major cause of infant mortality in underdeveloped countries. Infection results from umbilical cord contamination during unsanitary delivery, a lack of maternal immunization or circumcision in an unhygienic condition.[2] Clostridium tetani is an obligate, anaerobic, motile, gram-positive bacillus.[3] They are found in soil, house dust, animal intestines, and human feces. Spores can persist in normal tissue for months to years. Rural dwellers and people engaged in agricultural occupations have a higher rate of intestinal, skin, and oral carriage of the organism than city dwellers do.[2] To germinate, the spores require specific anaerobic conditions, such as wounds with low oxidation-reduction potential. Under these conditions, upon germination, they may release their toxin. Once the toxin becomes fixed to neurons, it cannot be neutralized with antitoxin. For recovery it requires sprouting of new nerve terminals and formation of new synapses.[3]

C tetani is found worldwide in soil, on inanimate objects, in animal feces, and, occasionally, in human feces. Tetanus predominantly occurs in underdeveloped countries. Among the burden of vaccine preventable diseases world over, tetanus ranks fourth with 13% disease burden.[4,5] Tetanus is a target disease of the World Health Organization (WHO) Expanded Program on Immunization. Overall, the annual incidence of tetanus is 0.5-1 million cases. WHO estimated that in 2002, there were 213,000 tetanus deaths, 198,000 of them in children younger than 5 years. In patients who have shorter duration of onset of symptoms after sustaining injury they usually present with higher grades of tetanus at presentation.[6] This study was conducted to enlist the risk factors of childhood tetanus among patients admitted in a tertiary care hospital.

METHODOLOGY

This cross sectional study was conducted to enlist demographic risk factors of childhood tetanus in a tertiary care hospital. This study, conducted on 97 children having tetanus and admitted in children ward, of Sheikh Zayed Medial College/Hospital, Rahim Yar Khan, from 1st September 2012 to 28th February 2015.

Sample Technique: The consecutive patients of childhood tetanus were taken from indoor and

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outdoor of the Paediatric Department. Their parents were interviewed according to the given Performa. Inclusion criteria: Children beyond the neonatal age i.e more than one month and less than 15 years. Children with clinical manifestations of tetanus with the exclusion of other causes of spasm/fits. Exclusion criteria: Neonatal tetanus, Children with causes of spasm/fits e.g; meningitis, enceplitis, head injury etc. The variables included in this study were parents education, parents occupation, fathers' ethnicity, living (rural / urban), age, sex and monthly Income. The data was entered and analyzed by using SPSS version 19.

RESULTS

Out of 97 patients, the fathers of 68(64%) patients and mothers of 84 (86%) patients were either illiterate or had their primary education only. Most 57 (58%) of the patients belonged to a low socioeconomic family having the monthly income of less than PKR 10,000. The fathers of 37(38%) patients were Sindhi. 57(58.76%) patients were from rural areas. Most 69 (71%) of the affected patients were boys, age range of 5 to 10 years, was found 39 (40%) of patients. (Table I).

Table I: Demographic factors of childhood tetanus

Characteristic	Number (%)
Fathers' education	
Illiterate	41(42.26%)
Primary	27(21.83%)
Matric	22(27.83%)
Inter and above	7(7.21%)
Mother education	
Illiterate	53(54.64%)
Primary	31(31.95%)
Matric	11(11.34%)
Inter and above	02(2.06%)
Fathers' occupation	
Unskilled labor	29(29.89%)
Government service	04(4.10%)
Private Service	07(7.21%)
Business	13(13.40%)
Skilled labor	15(15.46%)
Unemployed	12(12.37%)
Farming	29(29.89%)
Fathers' ethnicity	
Punjabi	05(5.15%)
Saraiki	11(11.34%)
Urdu speakers	02(2.06%)
Balochi	33(34.02%)
Sindhi	37(38.14%)
Pathan	09(9.27%)
Mothers' occupation	
Housewives	71(73.19%)
Unskilled labor	17(17.52%)
Skilled labor	09(9.27%)
Rural / Urban	
Rural	57(58.76%)
Urban	40(41.23%)
Age	
1 to 5 years	23(23.71%)
6 to 10 years	39(40.20%)
11 to 15 years	35(36.08%)
Sex	
Male	69(71.13%)
Female	28(28.86%)
Family Income (PKR/Month)	
$\leq$ 10,000	57(58.76%)
10,000 to 20,000	29(29.89%)
> 20,000	11(11.34%)

DISCUSSION

Tetanus is characterized by an acute onset of painful muscular contractions of the jaw and neck and generalized muscle spasms. Tetanus predominantly occurs in underdeveloped countries. Among the burden of vaccine preventable diseases world over, tetanus ranks fourth with 13% disease burden. The incidence is high in tropical countries with humid climate. More cases are reported from rural than urban areas. Despite the availability of an effective active vaccination, tetanus remains a major health problem in resource limited countries and is still encountered in resource rich countries. In their study, Adebola E Orimadegun et al found a significantly increasing trend in the risk of non-protective immunity was observed with decreasing level of mothers' education.[7] Comparable to current study where 54% mothers were illiterate. Donsa, Lucius Darby et al found statistically insignificant associations of education, religion, age of mother, ownership of a radio and a television with the tetanus and its vaccination.[8] Lau LG et al found that most of the patients were from low socioeconomic status,[9] this comparable to our study where 59% of the

families were having <10,000 PKR monthly income.

In their study, Joshi S et al found that patient coming from the rural areas are having more complications and poor prognosis of tetanus.[10] In their study, Matthews Z et al found significant factors related to immunization were the child's age, place of residence, maternal education, father's occupation, region, and type of prenatal care,[11] this is comparable to our study, Collins S et al found that 50% of the patients of tetanus were male,[12] as compared to our current study where more than two third were male. At the Masafa hospital, the chart reviewed by Nanteza B et al revealed a total of 25 tetanus cases and all were males.[13]

Mustapha AF et al found that approximately 60% of the patients were male.[14] In their study, Khalique N et al found that in infancy mortality in females was higher than males.[15] The study done by Choudhury P et al, revealed that 60% of the admissions in 1984-87 were for tetanus and most of them belong to low socioeconomic families,[16] comparable to our study. In the study by Oyedeji GA found that only 68.7% of the patients were in the custody of their two parents.[17] In a study, 27% of the fathers and 34.6% of the mothers had no formal education.65% of parents were in the lower socioeconomic class,[17] this is similar to our study. Satish C et al found that majority of tetanus patients belong to low socioeconomic families.[18] Among the demographic and socioeconomic risk factors maternal age, maternal and paternal education, occupation of head of house and caste are very important factors for tuberculosis.[19]

It is indicated that mothers education and occupation, husband education and occupation, received tetanus's injection and medical checkup during pregnancy and watches TV have significant effects on infant, child and under-five mortality.[20]

CONCLUSION

In our study, most common risk factors of childhood tetnaus were low family income, illiteracy, Sindhi ethnicity, male sex and rural residence. With the strong implementation of immunization by EPI programme, we can overcome the high incidence of childhood tetanus.

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