A STUDY OF CHILDHOOD TETANUS IN POST-NEONATAL AGE GROUP IN DELHI

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ABSTRACT

A study was conducted in tetanus in the post-neonatal pediatric age group between January, 1989 and June, 1991. Clinical profile of 55 patients was studied and outcome during this period was compared with previous years (1986-88). Although, an overall decline in total admissions was noted, only a modest decline in mortality was observed. All the patients but one were either unimmunized or incompletely immunized. More than 40% patients were from Delhi. Otorrhea was common (49.1%) in these patients. Primary immunization with booster dose in the community is stressed. Children with aural discharge should be taken as a high-risk group for tetanus and be evaluated for immunization at first visit.

Key words: *Tetanus, Immunization, Ear discharge.*

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Tetanus is a cause of high mortality in developing countries including India and is essentially a preventable disease. It continues to occur in neonates as well as older children after years of launching National Immunization Programme. There is paucity of data regarding outcome of tetanus in post neonatal age. The present study was undertaken to study the clinical profile and outcome of tetanus in children between the age of one month and twelve years, and to see whether the proportion of admissions due to tetanus has shown any change from the preceding years.

Material and Methods

The study was conducted in Kalawati Saran Children's Hospital, New Delhi. All cases of childhood tetanus (post-neontal age group) admitted during the period January, 1989 to June, 1991 were taken up for the study. All patients received injection crystalline penicillin 100,00 IU/kg/day and injection TIG (500 units intrathecal and 500 units intramuscular). Diazepam 2.5 mg 2 hourly orali/parenteral was started, gradually increasing the dose till the spasms were controlled. Chlorpromazine was added to the above regimen if the spasms were not controlled. When other infections were suspected or proved, appropriate antibiotics were added. Tracheostomy was done if recurrent spasms were not controlled by heavy doses of sedatives or if the patient had laryngospasms.

The total number of hospital admissions, and tetanus (both neonatal and post-neonatal age) were taken from the data available in hospital record section. Fischer exact test was applied to find the outcome of study group with various demographic variables.

Results

A modest decline was seen in the total

admissions due to tetanus in both the neonates and older children. However, this was not statistically significant *(Table I).* A total of 55 cases of tetanus were admitted during the study period. Most of the patients were between 1 and 8 years of age *(Table II).* There was a male preponderance. Twenty three patients (41.8%) were residents of Delhi. Only one child was fully immunized. Four children were reported to have received one dose of DPT. One patient had poliomyelitis earlier. The clinical profile of the patients is shown in *Table II.*

Overall mortality was 14.5%. Most of the deaths (75%) were within the first three days of hospital admission. No statistical significance was noted in the outcome with different variables like age, sex, presence of fever, and ear discharge *(Table II).* Mean duration of hospital stay was 13.9 days (range 5 hours to 62 days). Emergency tracheostomy was performed in seven patients of which four recovered. A significant correlation of high mortality during periods of increased admission was found *(Fig. 1).*

Discussion

A declining trend in the hospital admissions due to tetanus was seen in the present study. A steady decline of neonatal tetanus has been observed earlier(l,2). Most of the patients were from the rural areas of adjoining states. Hospital admissions due to referral bias may not reflect the true picture.

Chronic suppurative otitis media as a source of infection has been frequently reported from India(3). Half (49.1%) cases in the present study had a history of chronic ear discharge. The high incidence of otogenic tetanus can be attributed to unhygienic practices of putting unsterile liquids and cotton in the affected ear. Ear discharge should call for immediate attention to immunization status of the patient.

Injury was a predisposing factor in 29.1% cases. Simultaneous passive and active immunization is required to prevent tetanus in previously unimmunized patients. Proper care of the wound also needs to be emphasized.

Mortality rate in this study was 14.5%. It was seen that patients with severe tetanus necessitating tracheostomy are not lost cases. The first three days of hospitalization

TABLE I–*Tetanus (Neonatal and Post-neonatal) Admissions and Mortality in between 1986-91 vs. Total Hospital Admissions*

Year	Total admissions	Neonatal tetanus			Postneonatal tetanus		
		Admissions	Mortality		Admissions	Mortality	
1986	16126	461	317	(68.7)	52	17	(32.6)
1987	19467	293	235	(80.2)	46	14	(30.4)
1988	26198	280	212	(75.7)	45	11	(24.4)
1989	20307	234	121	(51.7)	18	2	(11.1)
1990	23949	275	168	(61.1)	26	5	(19.2)
1991	19803	160	83	(51.9)	22	5	(22.7)

Figures in parantheses indicate percentages.

TABLE II–*Clinical Profile of Tetanus*

Clinical profile	No. of cases	Percentage
Age distribution (yrs)		
<1	1	1.8
1-3	16	29.1
4-6	25	45.45
>6	13	23.63
Sex distribution		
Male	36	65.45
Female	19	34.55
Residence		
Rural	32	58.18
Urban	23	41.81
Immunization status		
Unimmunized	50	90.9
Partial immunization	4	7.2
Full immunization	1	1.8
Predisposing factors		
Ear discharge	27	49.1
Injury	16	29.1
Clinical features		
Trismus	50	90.0
Generalized spasm	34	69.8
Fever	20	36.4
Cephalic tetanus	1	1.8
Complications		
Pneumonia	9	16.3
GI hemorrhage	5	9.1
Sepsis	2	3.6
UTI	1	1.8
Outcome		
Discharged	44	80.0
Expired	8	14.5
Left against medical advice	3	5.5

are most crucial since 75% of deaths were within this period. Other authors(4) have shown that critical care facility during early period of hospital stay reduced the mortality. Since the survivors usually have no sequelae, critical care has a high cost-benefit ratio. Although, the best prognosis has been described in 10-20 year age group(5,6) tetaus in early childhood can be expected to have a similarly favorable outcome. A correlation of higher mortality during the period of higher admission rate was found suggesting a better outcome with better staff-bed ratio.

Active immunization against tetanus is the best way of limiting this entirely preventable disease. Babies who have developed neonatal tetanus after complete immunization of the mother have been reported earlier(7-9). Only one patient in this study was fully immunized. Tetanus toxoid being a potent and cheap vaccine that can be easily stored, immunization coverage

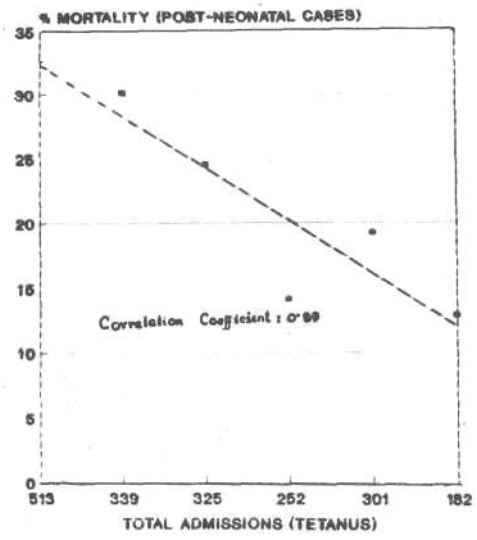

Fig. 1. Total admissions vs post-neonatal mortality rates.

should be increased throughout the country. Reimmunization of the school children to maintain the protective antibody level and health education regarding care of the wound and ear discharge is also needed.

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