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ORIGINAL ARTICLE

To Study the Clinico-Epidemiological Factors of Tetanus Cases Admitted In a Tertiary Care Hospital for the Last 10 Years

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ABSTRACT

Aim

To study the epidemiological factors of tetanus cases admitted in a tertiary care hospital

Objectives

1. To Study the Sociodemographical factors of Tetanus.
2. To study the clinical types of tetanus and the mortality associated with tetanus

Study Design

Retrospective cross sectional study.

Participants

Cases of tetanus admitted for a period of last 10 years at GOVT MEDICAL COLLEGE Hospital Dhule, MAHARASTRA, INDIA.

Results

There were 440 cases of Tetanus admitted in the hospital for treatment, out of which 262 were males and 178 were females. 344 (78%) cases were from rural areas and 96 (22%) cases were from urban areas. It was also observed that Traumatic tetanus is the most common type of tetanus. Out of the 440 cases of tetanus, 151 died. Out of these deaths, 134 (89%) were reported from rural areas and 17 (11%) were reported from urban areas. The case fatality rate of neonatal tetanus was the highest (60%) amongst all types of tetanus.

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Introduction

Tetanus is an acute disease caused by a toxin produced by *Clostridium Tetani*. It is a frequently fatal disease which is usually characterized by -- progressive muscular rigidity and convulsive spasms of the skeletal muscles [1].

As per global and national strategies, the control of tetanus has been a general

strategy within the goals of routine immunization programmes. A goal has never been established for its eradication.

The occurrence of tetanus in the United States has decreased dramatically from 560 cases in 1947 to a record low of 48 reported cases in 1987 [2]. The decline has resulted from the widespread use of tetanus toxoid and improved wound management, including the use of tetanus prophylaxis in emergency rooms [3].

Tetanus in the United States is primarily a disease of older adults. Of 99 tetanus patients with complete information reported to CDC, 68% were greater than or equal to 50 years of age, while only six were less than 20 years of age [4]. No cases of

neonatal tetanus were reported. Overall, the case-fatality rate was 21% [4] Serosurveys undertaken since 1977 indicate that 6%-11% of adults between 18-39 years of age and 49%-66% of those greater than or equal to 60 years of age may lack protective levels of circulating tetanus antitoxin [2].

Aim of the Study

To study the epidemiological factors of Tetanus cases admitted in a general hospital at Dhule.

Objectives

1. To study the sociodemographical factors of Tetanus
2. To study the clinical types of tetanus and its mortality

Study (Participants)

Population

Cases of Tetanus admitted in SBH Govt. Medical College and General Hospital, Dhule during the period from 1st January 1997 to 31st December 2006 (10 yrs)

Materials and Methodology

Retrospective Cross-sectional study where the data was collected from the indoor case papers of cases of tetanus. The data was analysed and presented in the form of percentages and statistical test like chi-square test was applied wherever required.

Inclusion Criteria

The data was collected from the case papers of all patients admitted during the period from 1st January 1997 to 31st December 2006 (10 yrs)

Results

(Table/Fig 1) Age-wise distribution of participants

Age group (yrs)	Number	%
0-10	241	54.8
11-20	69	15.7
21-40	39	8.9
41-50	31	7
>50	60	13.6
Total	440	100

(Table/Fig 2) Precipitating Factors

Precipitating factor	Number	%
External Injury	249	56.6
Ear Discharge	136	30.9
Infection	32	7.3
Postnatal Care	20	4.5
Ulcer	3	0.7
Total	440	100

(Table/Fig 3) Gender-wise Cross-tabulation of outcome of Treatment

Sex	Outcome of treatment			Total
	Death	Cured and discharged	DAMA	
Male	44	8	210	262
Female	107	65	6	178
Total	151	73	216	440

Pearson Chi-square value <0.001 d.f. = 2
Inference : Strongly significant

(DAMA-discharged against medical advice)

(Table/Fig 4) Place-wise Cross-tabulation of outcome of treatment

Place	Outcome of treatment			Total
	Death	Cured and discharged	DAMA	
Rural	132	51	161	344
Urban	19	22	55	96
Total	151	73	216	440

Pearson Chi-square value =0.002 d.f. = 2
Inference : Strongly significant

1. 54.8% (241) of the subjects were below 10 yrs age.
2. 78.2% (344) cases were from rural areas.
3. 56.6% (249) cases were caused by external injury.
4. 70% (107) deaths were of females.
5. 87.4% (132) deaths were from rural areas.
6. Traumatic tetanus was the most common type found.

7. Maximum mortality amongst children aged less than 1 year
8. Highest case fatality rate (60%) was of *Neonatal tetanus*.

Discussion

The present study results show that tetanus affects children below 10 years age most commonly and also children from rural areas. The reason behind such preponderance may be reflected in the fact given by the **NFHS – 3 report, India factsheet of Vaccination coverage** which states that less than half of the children aged 12-23 months are fully vaccinated against the 6 major childhood illnesses: tuberculosis, diphtheria, pertussis, tetanus, polio and measles. However, most of the children were only partially vaccinated and 5% had received no vaccinations at all [5].

Traumatic tetanus type was found to be the most common type (56.6%) in the present study. A similar finding of post traumatic tetanus of 60.5% was found in the study done by A B Pawar AP Kumawat and RK Bansal [6].

The highest case fatality rate (60%) was seen in *Neonatal tetanus* cases in the present study. In neonatal tetanus cases, even with treatment, the case fatality rate can be 80-90% [6].

Conclusions

Tetanus and diphtheria are still prevalent among children. Most of the six fatal childhood diseases have noticeable prevalence despite the much-hyped national vaccination campaigns for more than two decades, with government leaders claiming near-total coverage.

Deadly infectious diseases have been brought under the Expanded Programme of Immunisation. The EPI campaign, launched in 1984 with supports from the World Health Organisation and some other global agencies including UNICEF, aims to vaccinate children under-two years of age against poliomyelitis (polio), diphtheria,

whooping cough, tetanus, measles and tuberculosis.

But the fight for eliminating these diseases looks set to continue, as hospitals are still receiving children with such diseases, reflecting some shortcomings in the system despite tremendous success in taming polio — believed to be the worst of the six diseases.

Recommendations

1. Surveillance should be done to check inadequate immunization, if at all it is there.
2. IEC activity should be strengthened
3. A strategy has to be prepared for effective control and prevention.
4. It should fit in the cultural context.
5. Routine immunization should be strengthened in rural areas.

Limitations of the Study

This study was conducted as a retrospective study with the help of indoor case paper records. So, the evaluation of the knowledge and practices in the families of the affected patients was out of the scope of this study.

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