Brief communication

Tetanus in a rural hospital in Northeast Ethiopia

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Abstract

Tetanus is still a frequent cause of mortality in rural Ethiopia despite the availability of an effective vaccine. An analysis of the medical records of 60 cases of tetanus admitted to Woldiya Hospital (1996 - 2002) indicated a case fatality rate of 36.7%. Over half of the deaths occurred within 3 days of hospitalization. Hospital documentation was poor. No patient received vaccine on discharge. Hospitalization and antenatal visits should be exploited for vaccination purposes.

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Introduction

Tetanus is preventable through vaccination. Nevertheless, it continues to cause illness and death (1,2,3,4). In our hospital practice in Woldiya in rural northeast Ethiopia, we noticed that tetanus was a frequent cause of admissions and carried a high mortality. We report here the results of an audit of the medical records of patients admitted due to tetanus in Woldiya Hospital between January 1996 and August 2002. The poor documentation of hospital records and missed opportunities for vaccination illustrate the dissociation of curative services from preventive care.

Subjects and Methods

Woldiya Hospital is a rural hospital with 31 medical and 12 pediatric beds in addition to others. It is located in North Wollo at 521km from Addis Ababa and serves an area with a total estimated population of about two million inhabitants of whom over 90% depends on subsistence farming for its livelihood.

A list of all cases of tetanus seen over the six and a half year-period was prepared from hospital registration files.

Patient records were collected and corresponding study forms were filled in for each patient by the investigators. Data analysis was done manually. Chi-square test was used to compare proportions. Z and t-tests with $p < 0.05$ were considered statistically significant.

Results

Between January 1996 and August 2002, a total of 7,221 patients were admitted to the medical and pediatric wards for various causes. No final diagnosis was recorded for 724 (10%) of the admissions. There were 60 (39 male and 21 female) new cases of tetanus accounting for 0.9 % of all admissions (Table 1). Only 2/60 were immunized three times with DPT (diphtheria, pertussis and tetanus) six and one year before the disease occurred. Eight denied receiving vaccination. The immunization status of 50/60 of the cases was not known. Among 11 women above age fifteen one had received TT (tetanus toxoid) once during her antenatal care follow up.

Table 1: **Admission and mortality of tetanus patients in a rural hospital in Woldiya, Ethiopia, 1996-2002**

	Year						
	1996	1997	1998	1999	2000	2001	2002*
Total admitted**	812	705	1605	1133	1103	1155	708
Tetanus cases	14	5	8	4	10	11	8
Percent tetanus***	1.7	0.7	0.5	0.3	0.9	0.9	1.1
Died****	3	3	1	1	4	6	4

*January-August 2002 only

**Number of patients admitted to the hospital for various causes

***Percent of patients admitted with tetanus

****Number of tetanus patients who died in hospital

Of the 21 patients who remembered having antecedent wounds, 11(52.4%) had received medical care following the injury in the form of cleaning, suturing and dressing, in addition to antibiotics (penicillin). Only one received antitoxin (TAT) additionally.

The duration of illness prior to hospital admission was recorded in 38/60 cases. The median duration was 15 days.

Twenty-one cases presented with 3 days of illness. Of these 42.8% died. Of 17 who came after 3 days of illness, 29.4% died. The treatment given in hospital was well documented for 51 cases. No patient received tetanus toxoid (TT) on discharge. The average period of stay before death was

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4.3±4.2 days (range 1-20 days). Except for one patient, all deaths occurred within the first week. More than half (55%) of the deaths occurred in the first 3 days of admission.

Table 2: **Characteristics and mortality of tetanus patients admitted to a rural hospital in Woldiya, Ethiopia, 1996-2002**

	Number of Cases (%)	Died (%)
Age group		
<6 yrs	14	6(42.9)
6-15 yrs	12	2(16.7)
16-40 yrs	27	10(37)
>40 yrs	7	4(57.1)
Total	60	22(36.7)
Season		
Sept. – Nov.	11(18.3)	2(18.2)
Dec. – Jan.	19(31.7)	11(57.9)
Mar. – May	10(16.7)	3(30)
Jan. – Aug.	20(33.3)	6(30)
Total	60	22(36.7)
Clinical picture		
Lock jaw, dysphagia	38(74.5)	15(39.5)
Rigidity	18(35.3)	6(33.3)
Spasms	18(35.3)	9(50)
Constitutional symptoms	19(37.2)	7(36.8)
Not recorded	9(17.6)	2(22.2)

Among the 60 case 27 (45%) were in the age group 16-40 yrs. The majority 38 (74.5%) presented Lockjaw, and dysphagia (Table 2).

Discussion

The findings of this study illustrate that tetanus, which is a preventable disease, still kills neonates and adults in rural farming communities in Ethiopia (1,2,5,6,7). Although the TT/DPT vaccination status of most (50/60) of the patients in this study was not known, occurrence of the disease suggests that most of these subjects were not fully immunized against tetanus. It can of course not be excluded that vaccination might have failed in some cases. This calls for further studies on vaccination coverage in childhood and during antenatal visits in this rural area (7). Studies that apply antibody measurement to monitor vaccination success should be encouraged.

A serious limitation of such retrospective reviews based on hospital records is that data are often incomplete, entries not standardized and conclusions potentially misleading because of lack of appropriate denominators for a meaningful interpretation. Nevertheless, in the absence of a well-organized case notification system and communitybased data, hospital admission records could still be useful as a source of information on presence of certain diseases in an area. This could especially be true for diseases where clinical diagnosis does not require laboratory confirmation and prevalence of disease is a measure of the effectiveness of a control effort, as in the case of tetanus.

This study not only provides data on tetanus admission and mortality in a rural hospital, but also gives a case example where the curative service (individual patient management) is dissociated from the disease control effort (documentation, reporting, vaccination, health education). Weaknesses in appropriate documentation of hospital records might indicate limited appreciation of the potential importance of patient records beyond the needs of the hospital (cure of the individual) for a wider use in epidemiological and health service planning.

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