

Increasing Incidence of Toxic Shock Syndrome in the 1970s

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Abstract: To determine if there was a true increase in the incidence of toxic shock syndrome (TSS) or just increasing recognition of an old problem, we reviewed 2,145 charts of patients between the ages of 10 and 30 years with discharge diagnoses compatible with signs and symptoms of TSS. No cases were identified in 1970 and 1975, but eight cases were found in 1979 and 1980. The data suggest that an increase of TSS in this age group occurred in the late 1970s. (*Am J Public Health* 1986; 76:566-567.)

Introduction

The recognition in 1980 by Davis and colleagues¹ of the toxic shock syndrome (TSS) occurring in menstruating women led to a series of epidemiologic studies by various state health departments and the Centers for Disease Control (CDC) of the US Public Health Service.² The rapid accumulation of cases by these studies created an epidemic curve suggesting a major outbreak of the disease. The question was raised as to whether or not this represented a new disease process, or just recognition of an old problem. Clinical descriptions of illnesses compatible with TSS exist in the older medical literature, indicating that it is probably not a new disease.³ The question remains as to whether or not there was an increase in incidence during recent years or just increased awareness.

In 1982, the Committee on Toxic Shock Syndrome of the Institute of Medicine recommended that retrospective chart review studies should be done in various parts of the United States to "provide objective data regarding incidence rates for toxic shock syndrome before and after its recognition as a distinct clinical entity."⁴ This study reports a chart review designed to answer that question.

Methods

All charts with disease codes that represented signs or symptoms of TSS or of any staphylococcal infection were reviewed in two Cincinnati, Ohio hospitals, including the only pediatric hospital and a private general hospital providing a full range of services to older children and adults (a list of codes used in this survey is available on request from the authors). The code systems used during the years selected for study included the following: Standard Nomenclature of Diseases and Operations, 5th Ed, 1961; the Hospital-International Classifications of Disease, adapted 1968, and 2nd Ed, 1973; and the International Classifications of Diseases, 9th rev, Clinical Modification, 1978. The study was limited to patients between the ages of 10 to 30 years. This age range was selected to include those at the highest risk of TSS.^{1,2} Cases were required to meet the strict CDC definition, including fever (38.9°C), characteristic rash, hypoten-

sion and involvement of three or more organ systems, but not including desquamation since this would have occurred after most patients had been discharged.⁵ The initial review of charts was performed by epidemiology personnel, and the final review of all suspected cases by a physician.

Four years were included in the chart review: 1970, 1975, 1979, and 1980. The first two years were selected to determine if TSS was occurring prior to the recognition of the syndrome. The last two years were selected to determine if there was a change in the number of cases after the initial report of TSS in 1978, and the apparent epidemic in menstruating women in 1980.^{1,2,6} Beginning in 1981, surveillance was maintained for TSS cases occurring in the Cincinnati area. Physicians were encouraged to report cases by offering to test staphylococcal isolates from suspected cases for a TSS marker, staphylococcal enterotoxin F, and to test all patients for antibody to this marker.

Results

A total of 2,145 charts were reviewed at the two hospitals, representing 93 per cent of the charts with the selected disease codes (Table 1). The percentage of selected charts reviewed was 90 per cent or higher for every year, except for 1980 at the pediatric hospital; only 70 per cent of the charts for that year were available for study and so the results for that year may be underestimated.

No TSS cases were identified in 1970 or 1975 (Table 1 and Figure 1). In 1979, cases were recognized at the pediatric hospital, and in 1980 at both hospitals. Seven cases were identified at the pediatric hospital in 1979 and 1980, representing 28.9 and 22/100,000 discharges, respectively. One case was found at the adult hospital in 1980, representing 3.6/100,000 discharges.

All of the cases occurred in teenagers ranging from 12 to 19 years of age, and all but one of these were females. Six of the seven females developed symptoms during or just after a menstrual period. Admitting diagnoses included pharyngitis, fever of unknown origin, viral syndrome, Rocky Mountain spotted fever, gastroenteritis, vaginitis, and sepsis.

Patients who had some of the signs of TSS but failed to meet the strict definition of toxic shock syndrome as developed by the CDC were also evaluated. Those with combinations of major signs of fever, rash, and hypotension showed a progressive increase over the 1970s, with six cases in 1970, nine in 1975, 30 in 1979, and 34 in 1980. The most common reason these cases did not meet the definition of toxic shock syndrome was the lack of evidence of involvement of at least three organ systems.

Active surveillance for cases of TSS in these two hospitals in 1981 and 1982, after the years included in the chart review, identified eight additional cases (Figure 1).

Discussion

Our data confirm the impression that the incidence of TSS increased in the late 1970s. Applying a standard defini-

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TABLE 1—Retrospective Chart Review Study of Toxic Shock Syndrome at Two Hospitals in Cincinnati, Ohio, from 1970 to 1980

Year	Charts with Selected Codes	Charts Reviewed	% Selected Charts Reviewed	TSS	Total Discharges	Cases/100,000 Discharges
A. Pediatric Hospital						
1970	335	321	95.8	0	10,025	0
1975	279	269	96.4	0	12,935	0
1979	421	408	96.9	4	13,850	28.9
1980	375	262	69.9	3	13,620	22.0
TOTAL	1410	1260	89.4	7	50,430	13.9
B. Adult Hospital						
1970	261	257	98.5	0	22,955	0
1975	202	197	97.5	0	23,423	0
1979	211	209	99.1	0	25,541	0
1980	225	222	98.8	1	27,539	3.6
TOTAL	899	885	98.4	1	99,458	1.0

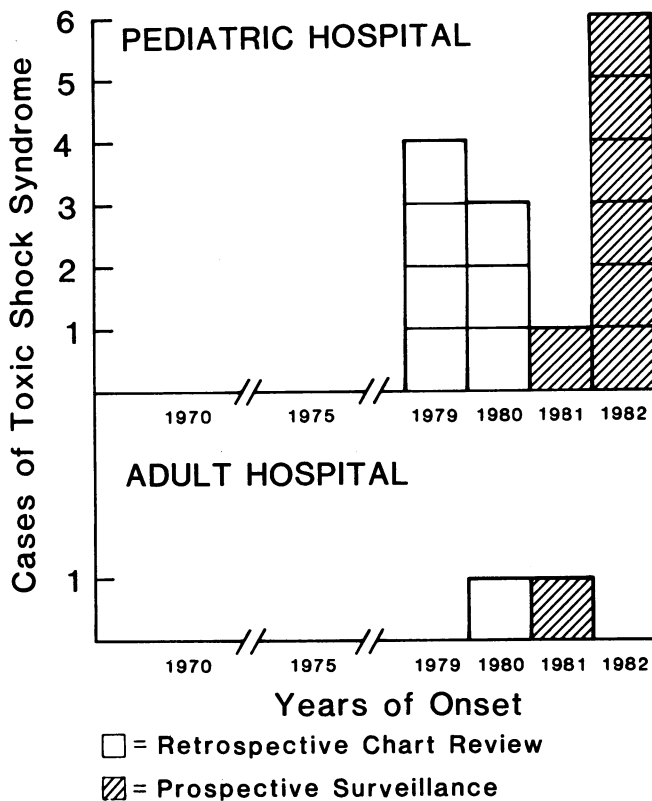


FIGURE 1—Cases of toxic shock syndrome identified by a retrospective chart review at two hospitals in Cincinnati, Ohio, for the years 1970, 1975, 1979 and 1980. Results of prospective surveillance in the same hospitals during 1981 and 1982 are also shown.

tion to charts from representative years throughout the decade showed an increase in the disease in 1979, one year after Todd and colleagues described TSS in children⁶ and before the recognition of the syndrome in menstruating females in 1980.¹ This pattern contrasts with the early 1970s when no cases were documented. Cases which did not meet the complete CDC definition for TSS, but had major signs of TSS, showed a parallel increase over the decade. A similar study in Colorado, which has been reported in abstract form,⁷ also found the incidence of TSS increasing at the end of the 1970s.

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