

CLINICAL FINDINGS OF PEDIATRIC PATIENTS DURING AN OUTBREAK OF TYPHOID FEVER IN ANKARA*

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Typhoid fever is an endemic disease in Turkey, but at times epidemics break out¹. A recent one, which took place in November and December of 1981 and affected the area in and around Haskoy on the outskirts of Ankara, was particularly severe.

A considerable number of inpatients were treated for typhoid fever in the Hacettepe Children's Hospital as well as in other hospitals in Ankara. The aim of this study has been to screen the clinical findings of these cases so as to compare them with the classical findings. Hematological data of the same cases have been published elsewhere².

Material and Methods

The clinical findings of 24 pediatric inpatients of the Hacettepe Children's Hospital during the typhoid fever epidemic in Ankara at the end of 1981 are discussed. Fourteen children (58%) were from Haskoy, the rest were from districts in the vicinity. Nine patients (37%) were girls, 15 (63%) were boys. The age range was from 3.5 - 17 years. The mean age was 8.6 years. Eight patients (33%) were ten years or older, fourteen (58%) were between 5 - 9 years, two (8%) were under five years of age.

The diagnosis of typhoid fever was confirmed by a positive blood culture in eight (33%) patients, by a positive stool culture in another eight (33%) patients, by

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positive blood and stool cultures in seven (29%) patients and by a high Gruber-Widal titer in one patient (4%) in whom both the blood and the stool cultures came out negative.

Student's t test was used for statistical analysis.

Results

Laboratory findings showed that the majority of the patients' families (83%) and/or their neighbours also had typhoid fever, or were carriers of the disease. The history of the patients revealed that 10 (42%) had been vaccinated at regular intervals and another 10 (42%) erratically; four (17%) had received no vaccination.

There was serious malnutrition in most cases, the majority, 63%, had body weights under the 25th percentile, and 50% were under the 10th percentile. Malnutrition was more severe in patients under 10 years of age, 10 of these or 63% being under the 10th percentile.

On admission to the hospital the temperature in all cases was above 37.5°C (axillary), and in 14 (58%) it was above 38°C. In 20 patients (83%) there was tachycardia (Table I). Disproportion between temperature (high) and pulse rate (low) was not seen in our patients.

TABLE I
Temperature-Pulse Correlation in Children with Typhoid Fever

Age group	Temperature	Pulse Rate		
		Under 100/minute	100/minute or over	Total
Under 10	<38°C	0	5 (31%)	5 (31%)
	≥38°C	1 (6%)	10 (69%)	11 (69%)
Total		1 (6%)	15 (94%)	16 (P > 0.05)
10 or over	<38°C	2 (25%)	3 (38%)	5 (63%)
	≥38°C	1 (13%)	2 (25%)	3 (38%)
Total		3 (38%)	5 (63%)	8 (P > 0.05)
Total	<38°C	2 (8%)	8 (33%)	10 (42%)
	≥38°C	2 (8%)	12 (50%)	14 (58%)
Total		4 (17%)	20 (83%)	24 (P > 0.05)

The symptoms most commonly encountered were weakness (75%), abdominal pain (71%), headaches (54%), diarrhea (54%), drowsiness (46%) and coughing (29%). There was constipation in 13% of the patients (Table II).

TABLE II
Symptoms of Children with Typhoid Fever

Symptoms	Age Group		Total
	Under 10 years	10 years or older	
Fever (Prior to and after admission)	16 (100%)	8 (100%)	24 (100%) (P > 0.05)
Weakness	13 (18%)	5 (63%)	18 (75%) (P > 0.05)
Abdominal Pain	11 (69%)	6 (75%)	17 (71%) (P > 0.05)
Headache	7 (44%)	6 (75%)	13 (54%) (P > 0.05)
Diarrhea	9 (56%)	4 (50%)	13 (54%) (P > 0.05)
Drowsiness	8 (50%)	3 (38%)	11 (46%) (P > 0.05)
Coughing	4 (25%)	3 (38%)	7 (29%) (P > 0.05)
Constipation	2 (13%)	1 (13%)	3 (13%) (P > 0.05)
Vomiting	6 (38%)	—	6 (25%)
Bloody Diarrhea	—	2 (25%)	2 (8%)
Jaundice	1 (6%)	—	1 (4%)
Arthralgia	—	2 (25%)	2 (8%)
Convulsions	—	—	—

Physical examination revealed hepatomegaly (58%), splenomegaly (38%), abdominal distention (29%), encephalopathy (17%) and dehydration (13%). Rose spots were seen in two (8%) patients (Table III).

Fourteen patients (58%) received chloramphenicol treatment, 10 (42%) were treated with trimethoprim-sulfamethoxazole (Bactrim®), and the efficiency of these antibiotic agents was compared. In both groups of patients the fever came down

TABLE III
Physical Findings in Children with Typhoid Fever

Findings	Age Group		Total
	Under 10 years	10 years or over	
Hepatomegaly	11 (69%)	3 (38%)	14 (58%) (P > 0.05)
Splenomegaly	8 (50%)	1 (13%)	9 (38%) (P > 0.05)
Abdominal distention	4 (25%)	3 (38%)	7 (29%) (P > 0.05)
Encephalopathy	2 (13%)	2 (25%)	4 (17%) (P > 0.05)
Dehydration	2 (13%)	1 (13%)	3 (13%) (P > 0.05)
Rose spots	2 (13%)	—	2 (8%) (P > 0.05)

after the third day and the symptoms started to disappear (Table IV). Symptoms, findings and response to treatment were constant in all age groups (P > 0.05).

TABLE IV
Antibiotic Treatment

Antibiotic		Age Groups		Total
		Under 10 years	10 years or older	
Chloramphenicol	No. of Cases	9	5	14
	Response*	3.1 days	2.6 days	2.9 days
Trimethoprim + sulfamethoxazole	No. of Cases	7	3	10
	Response	2.9 days	2.7 days	2.8 days

* The mean duration for the temperature to return to normal and for an improvement in the clinical findings was shortened after the introduction of antibacterial treatment.

The main complications observed in our cases were reactive hepatitis in three patients (13%) and pneumonia in one (4%). A 13-year-old girl died as a result of massive gastrointestinal bleeding due to multiple ileal ulcers. Other patients recovered after appropriate treatment.

Discussion

Malnutrition among children with typhoid fever is an expected entity^{3,4}. There was no correlation between parenteral salmonella vaccination and immunity to the disease. With the exception of the discordance, the low pulse-rate against the high temperature, our patients with typhoid fever presented the classical picture as did the adult patients at Ankara University Hospital during the same epidemic⁵⁻¹¹.

Response to chloramphenicol and trimethoprim-sulfamethoxazole was very good. Moreover an accelerated response as early as the third day was observed in the pediatric patient group, though not among the adult patients¹¹.

Summary

The clinical findings of 24 pediatric inpatients at Hacettepe Children's Hospital during the 1981 typhoid fever epidemic in Ankara, are discussed. Except for the discordance between low pulse-rate and high temperature, all the patients presented the classical picture. Response to chloramphenicol and trimethoprim-sulfamethoxazole was very good.

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