

Clinical profile of children diagnosed with typhoid fever from tertiary care hospital

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Abstract

Background: Typhoid fever is a preventable infectious disease caused by gram negative bacteria *Salmonella typhi* and is still a major public health problem in India. The present study is done to find out the clinical profile in pediatric patients with typhoid fever admitted in a tertiary care hospital. **Methods:** A retrospective case record analysis of 164 hospitalized patients in the age group of 1 to 14 years who were discharged with the diagnosis of typhoid fever was done in a tertiary care hospital during the years 2018-2020. **Results:** out of 164 patients, 93 (78.3%) were males and 71 (21.7%) were females. most of the patients were between 6 and 10 years of age. the most common clinical features were fever in 100%, followed by diarrhea in 65%, vomiting in 62%, hepatomegaly in 52%, weakness in 50%, coated tongue in 48%, splenomegaly in 42%, rash on skin in 40%, Abdominal pain in 23%, cough in 9%, headache in 7% and convulsion in 2%. **Conclusion:** In the paediatric age group Enteric fever is a significant threat. Early clinical diagnosis with rational use of antibiotics is important. Improved hygiene, vaccination, and awareness among people is necessary for prevention.

Keywords: Typhoid Fever, children, Antibiotics,

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INTRODUCTION

Typhoid fever is a systemic illness caused by *Salmonella enterica* serotype typhi or paratyphi A/B. Poor sanitation, poor clean water supply, dirty eating and poor hygiene are linked to typhoid fever.¹ Over 21 million people worldwide get infected annually with estimated mortality of 2,00,000 people per year. In developing areas of the world, Typhoid fever is a life-threatening systemic infection and continues to be a major public health problem.² Disease transmission occurs by ingestion of the organism. Organisms enter into the human body by ingestion of contaminated food or water.³ Typhoid carriers shed the organism in stool and

urine. The most common mode of transmission of typhoid is through ingestion of food or water contaminated with *S. typhi* from human stools.⁴ The Widal test continues to be important in the work up of patients with typhoid fever despite its variable sensitivity and specificity in India. Antibodies against O and H antigen of *Salmonella typhi* are measured by the Widal test. It lacks sensitivity and specificity in endemic areas. Blood culture is the Gold standard for diagnosis of Typhoid fever.³ The incidence of Typhoid is decreased with the introduction of clean water and good sewage system. Today most of the disease burden is seen in developing countries, where sanitary conditions are poor. The primary aim of the study was to study the clinical profile of enteric fever in paediatric patients at tertiary care hospital.

MATERIAL AND METHODS

This is a retrospective observational study conducted at Pediatric Department of tertiary care hospital after getting approval from the Institutional ethics committee. The records of all children between 1 and 15 years from our hospital between January 2018 and December 2020 with a diagnosis of typhoid fever were included in our study. Only culture-positive typhoid fever cases were included

for the study. Of the 324 clinically suspected cases reporting to the hospital, 164 individuals who were culture positive for *Salmonella typhi* during the study period were included in this study. Cases of typhoid fever diagnosed on the basis of only clinical examination and Widal test were excluded from the study. Details of the patients like age and sex, the mode of clinical presentation, complications, response to treatment were recorded from the case records. Data was entered and analyzed using SPSS version 11.5. Data has been summarized using percentages and proportions.

RESULTS

Case records of children discharged with a diagnosis of enteric fever were analysed and 164 children in the age range of one to 15 years were included in the study. Among the 164 children who were culture positive for *Salmonella typhi*, 93 (57%) were boys and 71 (43%) were girls. Out of 164 total patients: 46(28%) were between 1-5 years; 80(49%) were between 6 to 10 years of age and 38(23%) were above 10 years of age. Table 1. Majority of the patients were (49%) in the age group of 6-10 years.

Table 1: Age wise distribution of typhoid fever

Age (in years)	Total patients (n=1640)
1-5	46 (28%)
6-10	80 (49%)
11-15	38 (23%)

The most common clinical feature of typhoid fever were fever in 100%, followed by diarrhea in 65%, vomiting in 62%, hepatomegaly in 52%, weakness in 50%, coated tongue in 48%, splenomegaly in 42%, rash on skin in 40%, Abdominal pain in 23%, cough in 9%, headache in 7% and convulsion in 2%. Table 2.

Table 2: Clinical features of typhoid fever

Clinical features	No of patients	%
Fever	164	100%
Vomiting	102	62%
Diarrhea	107	65%
weakness	82	50%
Abdominal pain	38	23%
Cough	15	9%
headache	11	7%
Convulsion	3	2%
Hepatomegaly	85	52%
Splenomegaly	69	42%
Coated Tongue	79	48%
Rash in skin	66	40%

Almost all (164) patients were treated with Inj. Ceftriaxone. Out of them 147(86%) responded to the drug. In 23(14%) patients, oral Azithromycin was added when patient remained febrile after five days of injectable ceftriaxone. Almost all patients were discharged on Oral Cefixime after 24 hours of a febrile stay at hospital in Table 3.

Table 3: Antibiotics used in enteric fever

Antibiotics Given	No of cases	%
Inj.Ceftriaxone alone	141	86%
Inj.Ceftriaxone+oral azithromycin	23	14%

DISCUSSION

In our study we noted 28% pediatric patients were between 1 to 5 years of age. 49% were between 6 to 10 years and 23% were above 10 years of age. Ramaswamy *et al.* noted 1.8% cases in less than 1 year, 16% between 1 to 2 years, 32% between 2 to 5 years, 33.5% between 5 to 10 years and 15.8% in more than 10 year children.⁵ The preschool children have 8-9 times more risk for *S.typhi* infection than older children in highly disease endemic areas.⁶ Our data indicated 28% incidence of typhoid fever in children below 5 years (28%). This suggests that our area has high incidence of typhoid fever. These findings were resembling with earlier work of Sinha A. *et al.*⁷ The high disease burden in preschool children in our area highlights the importance of vaccine at an early age as well as improvement in water sanitation and hygiene.⁸ In all cases we noted fever as a main presenting complaint. Other common symptoms were diarrhea (65%), vomiting (62%), and weakness (50%). cough (9%). rarely associated symptoms were headache (7%) and convulsion (2.05%). Ramaswamy *et al.* noted fever in all cases and vomiting in 49 % and diarrhea in 29% cases as associated symptoms.⁹ S. Jog *et al.* noted vomiting, abdominal pain and loose stool as most common associated symptoms in 42%, 33.6% and 31% patients respectively.¹⁰ We noted Hepatomegaly in 52%, Splenomegaly in 42%. Ramaswamy *et al.* noted Hepatomegaly in 71% and Splenomegaly in 34%.⁹ while S Jog *et al.* noted only Hepatomegaly in 15.9% only Splenomegaly in 7.5% and hepatosplenomegaly in 12.6% cases.¹⁰ It was noted that 86% patients of typhoid fever became afebrile within 6 to 7 days of Inj. Ceftriaxone. In only 14% cases it was required to add Oral Azithromycin along with Inj. Ceftriaxone to treat typhoid fever. S Jog *et al.* noted that 62.1% patients of typhoid fever were treated by only Inj. Ceftriaxone and combination of Inj. Ceftriaxone and Azithromycin was used in 13.4% cases.¹⁰

CONCLUSION

Typhoid fever is still a big threat to the paediatric population with many requiring admission in tropical countries like India. It is important to diagnose the disease early and use antibiotics rationally. Typhoid fever in children can be prevented by drinking clean water, regular hand washing, maintenance of hygiene and vaccination at an early age.

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