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A study of profile of the patients with typhoid fever in pediatric patients at tertiary care centre

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Abstract

Background: Typhoid fever is a disease that is spread via contaminated food and water. It's a bacterial infection that causes red spots to appear on the chest and belly, as well as severe digestive irritation.

Aim: The present study evaluated the profile of the patients with typhoid fever in Hyderabad, Telangana state.

Materials and Methods: This study was a prospective study conducted during the period of August 2021 to December 2021. The study included children aged 2 to 18 years old who had a 5-day or longer fever with clinical signs and symptoms of typhoid fever and a positive Widal or Typhidot test.

Results: 110 patients were selected in the study. Children of 2-8 year age group (46.8%), 9-14 years age group was 38.2% and 15-20 years age group was 15%. The ratio of males to females was 1.29:1. The major clinical feature was fever by all children (98.2%), followed by headache and anorexia (56.4% each), followed by abdominal pain (37.3%), vomiting (36.4%), diarrhoea (16.4%) and constipation (10.9%). 64 cases reported splenomegaly, out of 40 cases in first week, 55% of cases reported splenomegaly. In the second week, 61% reported splenomegaly, in the third week, 50% reported splenomegaly. 31.8% of the children with fever had leukocyte count less than 4000/ mm³, normal leukocyte count was observed in majority of the children with fever i.e. 47.3% and 20.9% of children had >11000/ mm³.

Conclusion: Clinical presentation in the study subjects was similar to available reports from literature.

Keywords: typhoid fever, widal test, splenomegaly

Introduction

Typhoid fever is a life-threatening disease that occurs more commonly in developing countries and continues to be a serious public health issue. Around 16 million new cases of enteric fever have been recorded worldwide ^[1]. The annual incidence of enteric fever has been estimated to be more than 13 million cases in Asia alone, with more than 0.6 million people dying each year. 2.14 per thousand people was the incidence of typhoid fever in India. The name typhoid is derived from the Greek word 'TYPHOS,' which means smokes or stupor ^[2]. Salmonella species, subspecies enterica, and serovar typhi cause typhoid, a multisystemic bacterial illness. Serovars paratyphi A, B, and C induce a milder form of the disease. Each year, there are around 26.9 million typhoid cases and over 2 lakh deaths, with the bulk of cases occurring in Asia. Typhoid fever has a wide range of incidences across Asia, with India and Pakistan having the highest rates ^[3]. Low living standards and inadequate hygiene practises have contributed to the disease load, making India typhoid fever endemic. Typhoid fever is becoming more common in children under the age of three, and the disease was previously thought to be exceedingly unusual in children under the age of three ^[4, 5]. However, there is now established evidence that enteric fever affects people of all ages. Traditional enteric fever signs and symptoms are rarely seen in endemic places like India. Unusual symptoms might cause diagnostic confusion and delay the diagnosis of typhoid fever. The present study evaluated the profile of the patients with typhoid fever in Hyderabad, Telangana state.

Materials and Methods

This study was a prospective study conducted from period of August 2021 to December 2021. The child patients parents were informed about the study and its aim and objectives, and a written informed consent was obtained from the parents of child patients. Institutional ethical committee approval was obtained in prior.

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The study included children aged 2 to 18 years old who had a 5-day or longer fever with clinical signs and symptoms of typhoid fever and a positive Widal or Typhidot test. The patients were described in terms of their demographics and clinical characteristics. All children were asked about their medical history, including any family members who had experienced comparable illnesses, their socioeconomic position, and their drinking water source. The study specifically excluded children who had been diagnosed with paratyphoid fever. All patients had a total leukocyte count done.

Statistical Analysis: The Statistical software namely Graph pad was used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

Results

110 patients were selected in the study. Children of 2-8 year age group (46.8%), 9-14 years age group was 38.2% and 15-20 years age group was 15%. Children having age of less than 2 years and above 20 years were excluded from the study.

62 were males and 48 were females in the study. The ratio of males to females was 1.29:1. 76.7% were from urban areas and 23.3% were from rural areas. Tap water was the source of drinking water in 80.5% case and bore well water was the source of drinking water was 19.5%.

Table 1: Distribution based on fever duration before hospital admission.

Fever Duration	No. of cases	Percentage
1-8 days	40	36
9-15 days	60	55
Over 16 days	10	9

Table 1 shows that the fever duration lasted for 1-8 days in 36% patients, 9-15 days in 55% patients and over 16 days in 9%.

Table 2: Distribution based on symptoms at admission time to hospital.

Symptoms	No. of cases	Percentage
Diarrhoea	18	16.4%
Vomiting	40	36.4%
Anorexia	62	56.4%
Fever	108	98.2%
Headache	62	56.4%
Abdominal Pain	41	37.3%
Cough	30	27.3%
Constipation	12	10.9%

Table 2 shows that the main complaint was fever by all children (98.2%), followed by headache and anorexia (56.4% each), followed by abdominal pain (37.3%), vomiting (36.4%), diarrhoea (16.4%) and constipation (10.9%).

Table 3: Signs at hospital admission time.

Signs	No. of cases	Percentage
Rose spots	0	0
Jaundice	0	0
Respiratory infections	5	4.5
Abdominal tenderness	32	29.1
Hepatomegaly	43	39.1
Splenomegaly	64	58.2
Coated tongue	78	71
Toxic look	92	83.6

Table 3 shows that the most common sign was toxic look (83.6%), followed by coated tongue (71%), splenomegaly (58.2%), hepatomegaly (39.1%).

Table 4: Fever duration in respect to splenomegaly.

Fever duration	First week	Second Week	Third week
Total number of cases	40	66	4
Cases with splenomegaly	22	40	2
Cases without splenomegaly	18	26	2

In a total number of cases of 110, 64 cases reported splenomegaly, out of 40 cases in first week, 55% of cases reported splenomegaly. In the second week, 61% reported splenomegaly, in the third week, 50% reported splenomegaly.

Table 5: Leukocyte total count.

Count/mm ³	No. of cases	Percentage
<4000	35	31.8
4000-11000	52	47.3
>11000	23	20.9

Table 5 shows that 31.8% of the children with fever had leukocyte count less than 4000/ mm³, normal leukocyte

count was observed in majority of the children with fever i.e. 47.3% and 20.9% of children had >11000/ mm³.

Discussion

In present study, children of 2-8 year age group (46.8%), 9-14 years age group was 38.2% and 15-20 years age group was 15%. In Siddiqui SS ^[6] *et al.* study, similar results were observed, the bulk of the children were between the ages of 2 and 7. (45.4 percent). Children aged 8 to 13 made up 37.4 percent of the study's participants. According to a study by Sen *et al.* ^[7] the average age of presentation with enteric fever is 7.6 years. The typical age of presentation, according to Comeau *et al.* ^[8] is 7.5 years. According to a study by Modi R⁹, children aged 6 to 10 years were the most common age group to present with enteric fever. The underlying cause was suggested to be outside exposure to unsanitary foods in this age group. Typhoid fever affects people of all ages. The study's youngest patient was a one-year-old child. Male to female ratio was 1.29:1 in the current study. Male predominance was similarly documented in studies by Sen *et al.* ^[7] and Comeau *et al.* ^[8] although the male: female ratio in the Modi R ^[9] study was 0.81:1. Male to female ratio was 1.36:1 in Siddiqui SS ^[6] *et al.* study. In current study, 76.7% were from urban areas and

23.3% were from rural areas. Tap water was the source of drinking water in 80.5% case and bore well water was the source of drinking water was 19.5%. In Siddiqui SS^[6] *et al.* study, the majority of cases (75.8%) came from urban areas, including slums, while 24.2 percent came from rural areas. In 80.8 percent of cases, drinking water came from a tap, while 19.2 percent came from a bore well. Enteric fever was more common in those who drank municipal tap water than in people who drank bore well water, according to studies by Devaranavadagi RA *et al.*^[10] as well as Modi R *et al.*^[9] In present study, the main complaint was fever by all children (98.2%), followed by headache and anorexia (56.4% each), followed by abdominal pain (37.3%), vomiting (36.4%), diarrhoea (16.4%) and constipation (10.9%). According to a study by Modi R^[9], gastrointestinal problems were the second most common after fever, with abdominal discomfort affecting 57.14 percent of patients and vomiting affecting 50 percent. Comeau *et al.*,^[8] Kapoor JP *et al.*,^[11] and Sinha *et al.*^[12] all made similar observations. Joshi *et al.*,^[13] on the other hand, found that headache was the most prevalent symptom after fever in 52.5 percent of patients, and that abdominal pain and vomiting were the other two most common associated symptoms in 22.5 percent and 20% of cases, respectively. The most common sign was toxic look (83.6%), followed by coated tongue (71%), splenomegaly (58.2%), hepatomegaly (39.1%). In study conducted by Devaranavadagi RA *et al.*,^[10] the most prevalent symptom is a toxic appearance (68 percent), followed by a coated tongue (49 percent), hepatomegaly (44 percent), and other symptoms. According to Laishram *et al.*^[14] the most prevalent sign is a coated tongue (80%), followed by hepatomegaly (76%) and splenomegaly (38 percent). In present study, 31.8% of the children with fever had leukocyte count less than 4000/ mm³, normal leukocyte count was observed in majority of the children with fever i.e. 47.3% and 20.9% of children had >11000/ mm³. Leucocytopenia and Eosinopenia were detected in 34 percent and 39 percent of cases, respectively, in the Devaranavadagi RA *et al.*^[10] investigation. Eosinopenia, on the other hand, was found in 72 percent of patients in a research by Ganesh R *et al.*^[15] In Jagadish N Bhadbhade^[16] study, similar results were observed which was the majority of the patients were in the 9-12 age range, which accounted for 29.83 percent of the total, followed by the 6-9 age group, which accounted for 6.9%. Were 24.86 percent; 3-6 years old were 20.99 percent, 1-3 years old were 13.81 percent, and one-year olds were 10.50 percent. Males made up 58.01 percent of the total, while females made up 41.99 percent. Fever was the most prevalent clinical sign, with 85 percent reporting vomiting, 78 percent reporting diarrhoea, 65 percent reporting weakness, 59 percent reporting a coated tongue, 48 percent reporting hepatomegaly, 41 percent reporting splenomegaly, and 30 percent reporting skin rash.

Limitations

The present study's limitations include a hospital-based and convenience sample, as well as a cross-sectional design. However, the findings of this study will contribute to the body of knowledge about the clinical presentation of typhoid fever in a hospital context in this region.

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