



## Original Research Article

# TREATMENT RESPONSE AND SHORT-TERM OUTCOMES OF ENTERIC FEVER IN CHILDREN: A PROSPECTIVE OBSERVATIONAL STUDY.

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### ABSTRACT

**Background:** Enteric fever remains a major cause of morbidity among children in developing countries, particularly in regions with inadequate sanitation and unsafe drinking water. Despite advances in antimicrobial therapy, the disease continues to pose significant diagnostic and therapeutic challenges. Evaluation of treatment response and short-term outcomes is essential for optimizing patient management and improving prognosis. The aim is to assess the treatment response and short-term outcomes of enteric fever among children attending a tertiary care hospital.

**Materials and Methods:** A prospective observational study was conducted among 150 children diagnosed with enteric fever at a tertiary care hospital. Demographic details, clinical features, laboratory investigations, treatment modalities, and outcome parameters were recorded using a structured proforma. Clinical and laboratory responses were evaluated before and after treatment. Fever clearance time, duration of hospitalization, symptomatic recovery, complications, treatment success, relapse, and discharge outcomes were assessed. Statistical analysis was performed using SPSS software, and a p-value <0.05 was considered statistically significant.

**Results:** The mean age of the study population was 8.6±3.4 years, with males constituting 58.7% of cases. Confirmed enteric fever was observed in 68.0% of children, while 32.0% were classified as probable cases. Ceftriaxone was the most frequently prescribed antibiotic (61.3%). Favorable clinical response was achieved in 92.0% of patients. Significant reductions were observed in temperature, pulse rate, liver enzyme levels, and C-reactive protein following treatment (p<0.001). Fever clearance occurred within five days in 74.0% of patients, and 82.0% required hospitalization for seven days or less. Complete recovery was documented in 94.0% of children. Complications occurred in 16.7% of cases, with hepatitis (7.3%) and thrombocytopenia (5.3%) being the most common. Treatment success was achieved in 92.0% of patients, relapse occurred in 4.0%, and mortality was 0.7%.

**Conclusion:** Enteric fever in children showed excellent response to appropriate antimicrobial therapy, with rapid clinical recovery, significant laboratory improvement, low complication rates, and favorable short-term outcomes. Early diagnosis and prompt treatment remain crucial for minimizing morbidity and improving prognosis in pediatric enteric fever.

**Keywords:** Enteric Fever. Typhoid Fever. Treatment Outcomes in Children.

## INTRODUCTION

Enteric fever, comprising typhoid and paratyphoid fever, remains a major public health problem in developing countries, particularly in South Asia and

sub-Saharan Africa. It is caused primarily by *Salmonella enterica* serovar Typhi and, less commonly, by *Salmonella Paratyphi* A, B, and C. The disease is transmitted through the feco-oral route via contaminated food and water and is closely

associated with poor sanitation, overcrowding, and inadequate access to safe drinking water. Children constitute a particularly vulnerable population due to increased exposure to environmental risk factors and immature immunity. Despite improvements in hygiene and vaccination strategies, enteric fever continues to contribute substantially to pediatric morbidity and healthcare utilization in endemic regions. India bears a significant proportion of the global disease burden, with school-aged children and adolescents being the most frequently affected groups.<sup>[1]</sup>

The clinical presentation of enteric fever in children is highly variable, ranging from uncomplicated febrile illness to severe systemic infection with complications such as gastrointestinal bleeding, intestinal perforation, encephalopathy, hepatitis, myocarditis, and shock. Fever is the most consistent symptom, often accompanied by abdominal pain, vomiting, diarrhea or constipation, anorexia, headache, and hepatosplenomegaly. Because the clinical manifestations overlap with those of several other tropical febrile illnesses, accurate diagnosis remains challenging. Blood culture is considered the gold standard for diagnosis, although its sensitivity may be reduced by prior antibiotic exposure. Serological tests such as the Widal test and rapid immunological assays are commonly used in resource-limited settings despite their limitations in sensitivity and specificity.<sup>[2]</sup>

The emergence and spread of antimicrobial resistance among *Salmonella* species have complicated the management of enteric fever. Multidrug-resistant (MDR) strains resistant to chloramphenicol, ampicillin, and cotrimoxazole have been reported worldwide, followed by increasing resistance to fluoroquinolones and third-generation cephalosporins. More recently, extensively drug-resistant (XDR) strains have emerged in several countries, posing serious therapeutic challenges. Consequently, treatment strategies require continuous evaluation to ensure optimal antibiotic selection and effective disease control. Early initiation of appropriate antimicrobial therapy is associated with rapid clinical improvement, reduced complications, shorter hospital stay, and lower mortality.<sup>[3]</sup>

Assessment of treatment response in pediatric enteric fever is clinically important for monitoring therapeutic effectiveness, identifying treatment failures, and guiding modifications in antibiotic therapy. Parameters such as duration of fever clearance, improvement in clinical symptoms, laboratory recovery, development of complications, and duration of hospitalization are commonly used to evaluate treatment outcomes. Short-term follow-up also helps identify relapse, persistent infection, or delayed complications. However, data regarding treatment response and short-term outcomes among Indian children remain limited, particularly in the context of changing antimicrobial susceptibility patterns.<sup>[4]</sup>

Therefore, the present prospective observational study was undertaken to evaluate the treatment response and short-term outcomes of enteric fever among children attending a tertiary care hospital. The study aims to provide comprehensive information regarding clinical recovery patterns, treatment effectiveness, complications, and early outcomes, thereby contributing to evidence-based management strategies and improving pediatric healthcare outcomes in endemic settings.<sup>[5]</sup>

**Aim:** To assess the treatment response and short-term clinical outcomes of enteric fever among children attending a tertiary care hospital.

#### **Objectives**

1. To evaluate the clinical and laboratory response to treatment in children diagnosed with enteric fever.
2. To determine the duration of fever clearance, hospitalization, and recovery following treatment.
3. To assess short-term outcomes including complications, treatment failure, relapse, and discharge status among children with enteric fever.

## **MATERIALS AND METHODS**

**Source of Data:** The data were collected from pediatric patients diagnosed with enteric fever attending the outpatient department, pediatric ward, and pediatric intensive care unit of the Department of Pediatrics at the study institution. Clinical, laboratory, treatment, and outcome-related information were obtained from direct patient evaluation, hospital records, laboratory reports, and follow-up assessments.

**Study Design:** Prospective Observational Study.

**Study Location:** The study was conducted in the Department of Pediatrics of a tertiary care teaching hospital.

**Study Duration:** The study was conducted over a period of 12 months, including patient recruitment, treatment monitoring, follow-up, data collection, and analysis.

**Sample Size:** A total of 150 children diagnosed with enteric fever were included in the study.

#### **Inclusion Criteria**

1. Children aged 6 months to 18 years.
2. Children presenting with clinical features suggestive of enteric fever.
3. Laboratory-confirmed enteric fever by positive blood culture for *Salmonella* Typhi or *Salmonella* Paratyphi.
4. Probable enteric fever diagnosed based on compatible clinical features with supportive serological investigations.
5. Parents/guardians willing to provide written informed consent.

#### **Exclusion Criteria**

1. Children with chronic systemic illnesses such as malignancy, chronic kidney disease, chronic liver disease, or congenital heart disease.
2. Children receiving immunosuppressive therapy.
3. Children with concomitant severe bacterial infections requiring prolonged antibiotic therapy.
4. Children whose parents/guardians refused consent.
5. Patients lost to follow-up during the short-term outcome assessment period.

### Procedure and Methodology

After obtaining approval from the Institutional Ethics Committee, eligible children fulfilling the inclusion criteria were enrolled consecutively. Written informed consent was obtained from parents or legal guardians.

A detailed history regarding age, sex, duration of fever, presenting symptoms, vaccination status, previous antibiotic use, source of drinking water, sanitation practices, and socioeconomic status was recorded. Thorough clinical examination was performed at admission.

Laboratory investigations included complete blood count, liver function tests, renal function tests, C-reactive protein, blood culture and sensitivity, Widal test, Typhi IgM test, urine examination, and other investigations as clinically indicated. Blood cultures were obtained before initiation of antibiotic therapy whenever feasible.

Treatment was administered according to institutional protocols and antibiotic susceptibility patterns. Antibiotics such as ceftriaxone, cefixime, azithromycin, or other appropriate agents were prescribed by treating pediatricians. Supportive management included hydration, antipyretics, nutritional support, and management of complications.

Patients were monitored daily for clinical improvement, fever clearance, development of complications, requirement of change in antibiotics, duration of hospitalization, and treatment-related adverse events. Fever clearance time was defined as the time from initiation of effective antibiotic therapy until the patient's temperature remained below 37.5°C for at least 48 hours without antipyretics.

Short-term follow-up was conducted up to 4 weeks after discharge through outpatient visits or telephonic communication to assess recovery, relapse, readmission, or any delayed complications.

### Sample Processing

Approximately 5–10 mL of venous blood was collected under aseptic precautions. Samples for complete blood count were collected in EDTA vacutainers and processed using an automated hematology analyzer. Serum samples for biochemical investigations were processed using automated analyzers according to standard laboratory protocols. Blood culture samples were inoculated into culture bottles and incubated using standard microbiological techniques. Isolated organisms were identified by conventional biochemical methods, and antibiotic susceptibility testing was performed according to

Clinical and Laboratory Standards Institute (CLSI) guidelines.

Serological tests were performed according to manufacturers' instructions and standard laboratory procedures.

### Data Collection

Data were collected using a predesigned and pretested case record form. Information collected included:

- Demographic details
- Clinical presentation
- Physical examination findings
- Laboratory parameters
- Blood culture results
- Antibiotic therapy administered
- Fever clearance time
- Duration of hospital stay
- Complications
- Treatment modification
- Discharge status
- Short-term follow-up outcomes

All collected data were entered into a master chart and verified for completeness and accuracy.

### Statistical Methods

Data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) version 26.0.

- Continuous variables were expressed as Mean  $\pm$  Standard Deviation (SD) or Median (Interquartile Range) as appropriate.
- Categorical variables were expressed as frequency and percentage.
- Independent Student's t-test or Mann–Whitney U test was used for comparison of continuous variables.
- Chi-square test or Fisher's exact test was used for comparison of categorical variables.
- Logistic regression analysis was performed to identify factors associated with poor treatment response and adverse outcomes.
- Kaplan–Meier analysis was used to evaluate fever clearance time where applicable.
- A p-value  $<0.05$  was considered statistically significant.
- Results were presented with 95% confidence intervals wherever appropriate.

## RESULTS

[Table 1] presents the baseline demographic characteristics, diagnostic profile, treatment modalities, and overall treatment response among children with enteric fever. The majority of patients belonged to the 5–10 years age group, accounting for 69 (46.0%) children, followed by those younger than 5 years [42 (28.0%)] and older than 10 years [39 (26.0%)]. The age distribution was statistically significant ( $\chi^2=16.84$ ,  $p<0.001$ ), indicating that school-aged children were most commonly affected. The mean age of the study population was  $8.6\pm 3.4$  years (95% CI: 8.1–9.1 years), which was highly

significant ( $t=30.98$ ,  $p<0.001$ ). Male children predominated, constituting 88 (58.7%) cases, while females accounted for 62 (41.3%) cases, showing a statistically significant male preponderance ( $\chi^2=4.51$ ,  $p=0.034$ ). Regarding diagnosis, 102 (68.0%) children had confirmed enteric fever, whereas 48 (32.0%) were classified as probable cases, with the difference being highly significant ( $\chi^2=19.44$ ,  $p<0.001$ ). Ceftriaxone was the most frequently used antibiotic

and was administered to 92 (61.3%) patients, followed by azithromycin in 36 (24.0%) and cefixime in 22 (14.7%) patients, demonstrating a significant preference for ceftriaxone therapy ( $\chi^2=7.92$ ,  $p=0.019$ ). Favorable clinical response was achieved in 138 (92.0%) children, while only 12 (8.0%) exhibited delayed response, indicating excellent treatment effectiveness and a highly significant response rate ( $\chi^2=105.84$ ,  $p<0.001$ ).

**Table 1: Baseline Characteristics and Treatment Response Profile of Children with Enteric Fever (N=150)**

Variable	n (%) / Mean±SD	95% CI	Test Value	P value
Age <5 years	42 (28.0)	21.4–35.8	$\chi^2=16.84$	<0.001
Age 5–10 years	69 (46.0)	38.2–54.0		
Age >10 years	39 (26.0)	19.6–33.5		
Age (years)	8.6 ± 3.4	8.1–9.1	$t=30.98$	<0.001
Male	88 (58.7)	50.7–66.2	$\chi^2=4.51$	0.034
Female	62 (41.3)	33.8–49.3		
Confirmed Enteric Fever	102 (68.0)	60.2–74.9	$\chi^2=19.44$	<0.001
Probable Enteric Fever	48 (32.0)	25.1–39.8		
Ceftriaxone Therapy	92 (61.3)	53.3–68.8	$\chi^2=7.92$	0.019
Azithromycin Therapy	36 (24.0)	17.8–31.4		
Cefixime Therapy	22 (14.7)	9.8–21.2		
Favorable Clinical Response	138 (92.0)	86.5–95.5	$\chi^2=105.84$	<0.001
Delayed Response	12 (8.0)	4.5–13.5		

**Table 2: Clinical and Laboratory Response to Treatment in Children Diagnosed with Enteric Fever (N=150)**

Parameter	Before Treatment Mean±SD	After Treatment Mean±SD	95% CI of Difference	Paired t value	P value
Temperature (°F)	102.7 ± 1.1	98.6 ± 0.5	3.9–4.3	40.65	<0.001
Pulse Rate (/min)	112.2 ± 12.4	88.6 ± 9.4	21.4–25.8	21.18	<0.001
Total Leukocyte Count (/mm <sup>3</sup> )	5980 ± 1625	7325 ± 1510	1078–1612	9.94	<0.001
Hemoglobin (g/dL)	10.5 ± 1.4	10.9 ± 1.3	0.2–0.6	4.12	<0.001
Platelet Count (×10 <sup>3</sup> /mm <sup>3</sup> )	180 ± 52	225 ± 48	37–53	11.09	<0.001
AST (U/L)	71.6 ± 33.8	42.4 ± 18.2	24.6–33.8	10.01	<0.001
ALT (U/L)	63.8 ± 28.2	36.9 ± 15.4	22.7–31.1	10.48	<0.001
CRP (mg/L)	45.8 ± 21.2	12.6 ± 8.1	29.1–37.3	16.03	<0.001

[Table 2] demonstrates significant clinical and laboratory improvement following treatment of enteric fever. The mean body temperature decreased substantially from 102.7±1.1°F before treatment to 98.6±0.5°F after treatment, with a mean difference of 3.9–4.3°F and highly significant statistical evidence ( $t=40.65$ ,  $p<0.001$ ). Similarly, pulse rate declined significantly from 112.2±12.4 beats/minute to 88.6±9.4 beats/minute (95% CI: 21.4–25.8;  $t=21.18$ ,  $p<0.001$ ), reflecting marked clinical recovery. Hematological parameters also improved significantly. Total leukocyte count increased from 5980±1625/mm<sup>3</sup> to 7325±1510/mm<sup>3</sup> ( $t=9.94$ ,  $p<0.001$ ), indicating normalization of infection-

related leukocyte suppression. Hemoglobin levels showed a modest but significant increase from 10.5±1.4 g/dL to 10.9±1.3 g/dL ( $t=4.12$ ,  $p<0.001$ ). Platelet counts improved from 180±52×10<sup>3</sup>/mm<sup>3</sup> to 225±48×10<sup>3</sup>/mm<sup>3</sup> ( $t=11.09$ ,  $p<0.001$ ), demonstrating recovery from thrombocytopenia. Liver enzymes also showed substantial reduction, with AST decreasing from 71.6±33.8 U/L to 42.4±18.2 U/L ( $t=10.01$ ,  $p<0.001$ ) and ALT decreasing from 63.8±28.2 U/L to 36.9±15.4 U/L ( $t=10.48$ ,  $p<0.001$ ). Furthermore, CRP levels declined markedly from 45.8±21.2 mg/L before treatment to 12.6±8.1 mg/L after treatment ( $t=16.03$ ,  $p<0.001$ ), indicating significant resolution of systemic inflammation.

**Table 3: Duration of Fever Clearance, Hospitalization and Recovery Following Treatment (N=150)**

Variable	Mean±SD / n (%)	95% CI	Test Value	P value
Fever Clearance Time (days)	4.7 ± 1.6	4.4–5.0	$t=35.98$	<0.001
Hospital Stay (days)	6.1 ± 2.2	5.7–6.5	$t=33.96$	<0.001
Time to Symptomatic Recovery (days)	7.4 ± 2.7	7.0–7.8	$t=33.57$	<0.001
Fever Clearance ≤5 days	111 (74.0)	66.5–80.4	$\chi^2=34.56$	<0.001
Fever Clearance >5 days	39 (26.0)	19.6–33.5		
Hospital Stay ≤7 days	123 (82.0)	75.1–87.4	$\chi^2=61.44$	<0.001
Hospital Stay >7 days	27 (18.0)	12.6–24.9		
Complete Recovery by Follow-up	141 (94.0)	88.9–96.9	$\chi^2=116.16$	<0.001
Incomplete Recovery	9 (6.0)	3.1–11.1		

[Table 3] summarizes the recovery pattern among children receiving treatment for enteric fever. The mean fever clearance time was 4.7±1.6 days (95%

CI: 4.4–5.0 days), which was highly significant ( $t=35.98$ ,  $p<0.001$ ). The average duration of hospitalization was 6.1±2.2 days (95% CI: 5.7–6.5

days), while the mean time required for complete symptomatic recovery was 7.4±2.7 days (95% CI: 7.0–7.8 days), both demonstrating significant outcomes (p<0.001). A total of 111 (74.0%) children achieved fever clearance within five days of treatment initiation, whereas only 39 (26.0%) required more than five days for fever resolution, indicating rapid therapeutic response in most patients ( $\chi^2=34.56$ , p<0.001). Similarly, 123 (82.0%) children

were hospitalized for seven days or less, while only 27 (18.0%) required prolonged hospitalization exceeding one week ( $\chi^2=61.44$ , p<0.001). During follow-up, complete recovery was documented in 141 (94.0%) children, whereas incomplete recovery was observed in only 9 (6.0%) cases. This difference was highly significant ( $\chi^2=116.16$ , p<0.001), indicating excellent short-term clinical outcomes.

**Table 4: Short-Term Outcomes Including Complications, Treatment Failure, Relapse and Discharge Status Among Children with Enteric Fever (N=150)**

Outcome Variable	n (%)	95% CI	Test Value	P value
No Complications	125 (83.3)	76.5–88.5	$\chi^2=66.67$	<0.001
Any Complication	25 (16.7)	11.5–23.5		
Hepatitis	11 (7.3)	4.1–12.7	$\chi^2=5.21$	0.022
Thrombocytopenia	8 (5.3)	2.7–10.2	$\chi^2=4.12$	0.042
Gastrointestinal Bleeding	3 (2.0)	0.7–5.7	Fisher Exact	0.049
Encephalopathy	2 (1.3)	0.4–4.7	Fisher Exact	0.158
Treatment Success	138 (92.0)	86.5–95.5	$\chi^2=105.84$	<0.001
Treatment Failure	12 (8.0)	4.5–13.5		
Relapse within 4 Weeks	6 (4.0)	1.8–8.5	$\chi^2=126.96$	<0.001
No Relapse	144 (96.0)	91.5–98.2		
Discharged Improved	146 (97.3)	93.4–99.0	$\chi^2=132.04$	<0.001
Referred to Higher Centre	3 (2.0)	0.7–5.7		
Mortality	1 (0.7)	0.1–3.7		

[Table 4] presents the short-term outcomes and complications observed among children with enteric fever. The majority of patients [125 (83.3%)] experienced no complications during the course of illness, whereas complications occurred in only 25 (16.7%) children, showing a highly significant predominance of uncomplicated cases ( $\chi^2=66.67$ , p<0.001). Among the complications, hepatitis was the most common, affecting 11 (7.3%) patients and demonstrating statistical significance ( $\chi^2=5.21$ , p=0.022). Thrombocytopenia occurred in 8 (5.3%) children and was also statistically significant ( $\chi^2=4.12$ , p=0.042). Gastrointestinal bleeding was observed in 3 (2.0%) cases and reached significance by Fisher's exact test (p=0.049). Encephalopathy was rare, occurring in only 2 (1.3%) patients and did not achieve statistical significance (p=0.158). Treatment success was achieved in 138 (92.0%) children, while treatment failure occurred in only 12 (8.0%) cases, reflecting a highly favorable response to therapy ( $\chi^2=105.84$ , p<0.001). Relapse within four weeks was uncommon and occurred in only 6 (4.0%) children, whereas 144 (96.0%) remained relapse-free during follow-up ( $\chi^2=126.96$ , p<0.001). Regarding discharge outcomes, 146 (97.3%) children were discharged in improved condition, 3 (2.0%) required referral to a higher center, and mortality was recorded in only 1 (0.7%) case. The discharge outcomes were highly significant ( $\chi^2=132.04$ , p<0.001), highlighting the excellent prognosis and effectiveness of treatment among children with enteric fever.

## DISCUSSION

The present study showed that enteric fever was most common among children aged 5–10 years [69 (46.0%)], with a mean age of 8.6±3.4 years. This

finding is comparable with Sinha et al,<sup>[1]</sup> (1999) and Ochiai et al,<sup>[2]</sup> (2008) who reported higher incidence of typhoid fever among school-aged children due to increased exposure to contaminated food and water outside the home. Male predominance was observed in the present study [88 (58.7%)], which was statistically significant (p=0.034). Similar male predominance was reported by Bhutta et al,<sup>[3]</sup> (1991) and Crump et al,<sup>[4]</sup> (2010) possibly due to greater outdoor activity and exposure among boys. Confirmed enteric fever was present in 102 (68.0%) cases, while 48 (32.0%) were probable cases, supporting the importance of blood culture and serological testing in diagnosis. Blood culture remains the diagnostic gold standard, although sensitivity may be reduced by prior antibiotic use and delayed presentation.

Ceftriaxone was the most commonly used antibiotic in the present study [92 (61.3%)], followed by azithromycin [36 (24.0%)] and cefixime [22 (14.7%)]. This pattern is consistent with Bhutta (2006),<sup>[5]</sup> and Parry et al,<sup>[6]</sup> (2002) who emphasized the role of third-generation cephalosporins and azithromycin in the treatment of pediatric enteric fever, especially in areas with multidrug resistance. The favorable clinical response rate in the present study was 92.0%, while delayed response was observed in only 8.0% of cases. Similar good therapeutic response was reported by Frenck et al. (2000),<sup>[7]</sup> who found both ceftriaxone and azithromycin effective in uncomplicated typhoid fever. However, recent antimicrobial resistance trends highlight the need for culture-guided therapy and antimicrobial stewardship.

The present study demonstrated significant clinical and laboratory improvement following treatment. Temperature reduced from 102.7±1.1°F to

98.6±0.5°F, and pulse rate decreased from 112.2±12.4/min to 88.6±9.4/min, both statistically significant ( $p<0.001$ ). Similar clinical improvement after appropriate antimicrobial therapy was observed by Wain et al,<sup>[8]</sup> (1998) and Bhutta et al (1991).<sup>[3]</sup> Laboratory recovery was also evident, with improvement in total leukocyte count, platelet count, AST, ALT, and CRP levels. The reduction in AST and ALT levels suggests resolution of enteric fever-associated hepatic involvement, comparable with observations by Khosla et al,<sup>[9]</sup> (1991) who reported mild to moderate hepatic dysfunction in typhoid fever. The significant decline in CRP from 45.8±21.2 mg/L to 12.6±8.1 mg/L indicates reduction in systemic inflammation following treatment.

In the present study, mean fever clearance time was 4.7±1.6 days, mean hospital stay was 6.1±2.2 days, and mean symptomatic recovery time was 7.4±2.7 days. Fever clearance within 5 days was achieved in 74.0% of children, which is comparable with Frenck et al,<sup>[7]</sup> (2000) and Bhutta (2006),<sup>[5]</sup> who reported fever clearance within approximately 4–6 days after effective antimicrobial therapy. Complete recovery by follow-up was observed in 141 (94.0%) children, indicating good short-term prognosis. Complications were seen in 25 (16.7%) cases, with hepatitis [7.3%] and thrombocytopenia [5.3%] being the most common. Gastrointestinal bleeding and encephalopathy were uncommon. These findings are consistent with Parry et al,<sup>[6]</sup> (2002) and Bhan et al,<sup>[10]</sup> (2005) who reported that complications are less frequent when diagnosis and treatment are timely. Treatment success was achieved in 92.0% of cases, relapse occurred in only 4.0%, and mortality was 0.7%, comparable with Crump et al,<sup>[11]</sup> (2015) who emphasized that early diagnosis and appropriate antibiotics reduce morbidity and mortality in enteric fever.

## CONCLUSION

The present prospective observational study evaluated the treatment response and short-term outcomes of enteric fever among 150 children admitted to a tertiary care hospital. The study demonstrated that enteric fever predominantly affected school-aged children, with a significant male predominance. Most patients were diagnosed as confirmed cases of enteric fever and responded favorably to standard antimicrobial therapy, particularly ceftriaxone-based treatment regimens. Significant clinical improvement was observed following treatment, as evidenced by rapid reduction in body temperature and pulse rate. Laboratory parameters also showed marked recovery, including improvement in leukocyte count, hemoglobin level, platelet count, liver enzyme levels, and inflammatory markers such as C-reactive protein. These findings indicate effective resolution of infection and systemic inflammation with appropriate antimicrobial therapy. The majority of children achieved fever clearance within five days and required hospitalization for less

than one week. Symptomatic recovery was rapid, and complete recovery during short-term follow-up was observed in most patients. Although complications occurred in a small proportion of cases, they were generally manageable, with hepatitis and thrombocytopenia being the most common complications. Serious complications such as gastrointestinal bleeding and encephalopathy were infrequent.

The study further demonstrated a high treatment success rate, low relapse rate, and very low mortality. Most children were discharged in improved clinical condition, highlighting the effectiveness of early diagnosis, timely initiation of appropriate antibiotics, and supportive care. Overall, the findings emphasize that prompt recognition and evidence-based management of enteric fever can result in excellent short-term outcomes and reduced morbidity among pediatric patients.

## Limitations of the study

1. The study was conducted at a single tertiary care center, which may limit the generalizability of the findings to other healthcare settings.
2. The sample size, although adequate, may not fully represent the broader pediatric population affected by enteric fever.
3. Short-term follow-up was performed; therefore, long-term outcomes and late complications could not be assessed.
4. Not all cases were blood culture-confirmed, and some diagnoses were based on clinical and serological criteria.
5. Prior antibiotic use before hospital presentation may have influenced blood culture positivity rates.
6. Antimicrobial susceptibility testing was not available for all culture-positive isolates.
7. The observational design limited the ability to establish causal relationships between treatment regimens and outcomes.
8. Variations in treatment practices among clinicians could have influenced treatment response.
9. Nutritional status and socioeconomic determinants were not analyzed in detail.
10. Potential recall bias may have occurred while obtaining information regarding symptom duration and previous treatment history.

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