



ANTIBIOTIC SENSITIVITY PATTERN AND CLINICAL RESPONSE OF TYPHOID FEVER IN CHILDREN

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ABSTRACT **Background:** Enteric fever is among the most common febrile illness encountered by pediatric practitioners in developing countries. The advent of antibiotic treatment has led to a change in the presentation of typhoid fever leaving the clinicians with limited therapeutic options for enteric fever as a result of increasing antimicrobial resistance. **Methods:** This is a hospital based prospective observational study done in department of pediatrics, Vijay Marie hospital, Hyderabad over a period of 16 months from march 2022 to July 2023. The study was accepted by institutional ethics committee. Written and informed consent was obtained from children's parents. All pediatric patients diagnosed with typhoid fever based on clinical and hematological profile were included in the study. **Results:** A total of 80 patients were included in the study. Majority of the children belong to age group of 5-12 years out of which 38 are males and 42 are females. The clinical features observed were fever (100%), vomiting (73.7%), abdominal pain (60%), splenomegaly (52.5%), hepatomegaly (47.5%), coated tongue (38.7%), diarrhea (35%), constipation (18.75%). Of the total patients, unvaccinated were (61.2%), vaccinated with one dose (23.7%) and vaccinated with two doses (15%). Of the 80 patients, 53.75% were blood culture positive, 23.2% were Widal positive, 16.25% were Typhi Ig M positive, 6.25% were based on leucopenia and eosinopenia. **Conclusion:** clinical presentation in the study subjects was similar to available reports from literature. Increasing resistance of Salmonella to 3rd generation cephalosporins were absorbed invitro and increasing recovery time in unvaccinated children were noted.

KEYWORDS : enteric fever, ceftriaxone, culture and sensitivity

INTRODUCTION:

Enteric fever is a multi-systemic tropical infectious disease in India having a high disease burden of 214.2 per 1 lakh population in a year. The causative organism is Salmonella Enterica Typhi or Para typhi A, B or C. In children, common age group affected is between 5-19 years. Non-specificity of clinical manifestations delay the diagnosis and treatment leading to fatal complications. Clinical suspicion is pivotal for diagnosis. The gold standard for diagnosis is Blood culture. But in 70% cases, culture is negative due to injudicious use of antibiotics before admission. A significant problem arises because commonly used antimicrobials have developed resistance. This study emphasizes the need for continuous evaluation and judicious use of antimicrobials based on clinical response. In the context of changing dynamics of resistance to antibiotics, it is imperative to have constant surveillance and antibiotic susceptibility data available to clinicians for appropriate management of disease.

METHODS:

This prospective observational study was carried out in department of pediatrics, Vijay Marie hospital during 16 months period.

Inclusion Criteria:

All pediatric patients diagnosed with enteric fever based on blood culture, Widal test, Typhi IgM and hematological profile were included in the study.

Exclusion Criteria:

Patients with the suggestive clinical features for whom alternate diagnosis was found was excluded from the study.

After obtaining the informed and written consent, the patients demographic data, clinical features, investigations, clinical response to treatment were noted in predesigned and pre-validated proformas and analyzed.

RESULTS:

During the study period, 122 patients were admitted with the suspect of enteric fever and of them, 80 were found to meet the diagnostic criteria.

Table1: Sex Wise Distribution Of The Patients

SEX	NUMBER	PERCENTAGE(%)
Male	38	47.5%
Female	42	52.5%

Table 2: Distribution Based On Clinical Features

CLINICAL FEATURES	NUMBER	PERCENTAGE(%)
Fever	80	100%
Abdominal pain	48	60%
Coated tongue	31	38.7%
Hepatomegaly	38	47.5%
Splenomegaly	42	52.5%
Vomiting	59	73.7%
Diarrhea	28	35%
Constipation	15	18.75%

Table 3: Distribution Based On Vaccination Status:

STATUS	NUMBER	PERCENTAGE (%)
Unvaccinated	49	61.2%
One dose	19	23.7%
Two dose	12	15%

Table 4: Distribution Based On Diagnostic Criteria:

CRITERIA	NUMBER	PERCENTAGE(%)
Widal	19	23.2%
Blood Culture	43	53.75%
Typhi IgM	13	16.25%
Leucopenia-eosinopenia	5	6.25%

Table 5: Distribution Based On Resistance Pattern:

ANTIBIOTIC	RESISTANCE	SENSITIVE
Amoxycillin-clavulanate	10(23.2%)	33(76.7%)
Chloramphenicol	31(72%)	12(27.9%)
Ciprofloxacin	17(39.5%)	26(60.4%)
Ceftriaxone	11(25.5%)	32(74.4%)
Azithromycin	14(32.5%)	29(67.4%)
Aztreonam	4(9.3%)	39(90.6%)

Table 5: Distribution Based On Response To Antibiotic (Ceftriaxone)

RECOVERY TIME	RESISTANT (11)	SENSITIVE (32)
48 hours	0	2(6.2%)
3 days	1(9%)	18(56.2%)

4 days	2(18%)	7(21.8%)
5 days	6(54.5%)	2(6.2%)
7 days	1(9%)	1(3.1%)
Need for change	1(9%)	2(6.2%)

DISCUSSION:

In the present study of 80 children treated as Enteric fever female to male ratio was 1.1. Of all the patients' blood culture was positive in 53.75%, Widal in 23.2%, Typhi IgM in 16.25% and leukopenia and eosinopenia in 6.25%.

Patients presented mostly with the clinical features of fever followed by vomiting's and abdominal pain. Hepatomegaly, Splenomegaly, Coated tongue and diarrhea were also noted in significant number of patients.

Of all the patient's majority of them were unvaccinated accounting to 61.2% and 15% were completely vaccinated and 23.7% were vaccinated with one dose.

Ceftriaxone was the antibiotic of choice for treatment and increasing invitro resistance was noted compared to previous studies. Based on clinical response Ceftriaxone was continued in resistant cases and response to treatment was noted by 5th day of starting antibiotic.

Of all the patients 3 were not responding to Ceftriaxone and changed to Azithromycin after 7 days and responded. Of the 3 one was resistant to ceftriaxone and 2 were sensitive.

CONCLUSION:

From the present study we conclude that the clinical features of typhoid are fever, vomiting, abdominal pain, splenomegaly, Hepatomegaly, coated tongue and diarrhea. Increasing percentage of invitro resistance was noted but clinical response is seen in patients. Notably completely vaccinated children showed early response to antibiotics.

Limitation of the present study was small sample size in single center with short duration. However, the present study will add to literature the clinical profile and clinical response to changing antibiotic pattern. The need for complete vaccination being emphasized.

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