CLINICAL PROFILE OF ENTERIC FEVER IN CHILDREN

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ABSTRACT

BACKGROUND

The protean manifestations of enteric fever make this disease a true diagnostic challenge. Untreated enteric fever is a grueling illness that may progress to delirium, obtundation, intestinal hemorrhage, bowel perforation and death. This is a prospective study of ninety eight confirmed enteric fever children done in J N Institute of Medical Sciences, Imphal.

AIMS

The present study was undertaken to determine the clinical profile and outcome of hospitalized children with enteric fever.

MATERIAL AND METHODS

The study was conducted at Jawaharlal Nehru Institute of Medical Sciences, Imphal from January 2012 to December 2014. Total of ninety eight children between 1 year to 12 years of age who had clinical features strongly suggestive of typhoid fever and on Widal test and blood culture found to be positive for salmonella typhi were analysed for clinical features. Detailed history, comprehensive physical examination and other relevant information were recorded by following standard procedures.

RESULTS

There were total of 98 cases of typhoid fever admitted. Of the 98 children 59 (60.20%) were boys and 39 (39.79%) were girls, with male: female ratio of 1.51:1. The cases were common among the age group 7 year to 12 years 51 (52 %); 100% of children in our series were unimmunized against typhoid. Typhoid fever has bimodal peak occurrence in March/April and August/September. Most of the cases were from rural areas 60 (61.22%). Predominant symptoms were fever 98 (100%), headache 75 (76.53%), anorexia 80 (81.63%), vomiting 26 (26.53%), abdominal pain 68 (69.38%), diarrhea 37 (37.75%) and cough 26 (26.53%). Hepatomegaly was the most common sign seen among the cases and was seen in 76 cases (77.55%). Other common clinical signs were coated tongue 80 (81.63%) and splenomegaly 38 (38.77%). Rose spots were not noticed. During the hospital stay, the most common antimicrobial used was intravenous Ceftriaxone. None of the patients presented with complications.

CONCLUSION

The clinical profile of enteric fever in our study revealed not much difference from that of other studies on enteric fever. There was not a single case of complication of enteric fever. Probably early initiation of antibiotics prevented the complications. Enteric fever is one of the common causes of fever in children with varied presentation and significant difference in the signs and symptoms compared to adults.

KEYWORDS

Salmonella, Enteric Fever, Typhoid, Children.

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INTRODUCTION

Typhoid or enteric fever is an ancient disease, which has affected mankind since human population grew large enough to contaminate their water and food supplies. Typhoid fever is a commonly encountered systemic disease caused by the gram negative bacteria *Salmonella enterica* serovar typhi.⁽¹⁾ In the 2000, Typhoid fever caused an estimated 21.1 million illness and 217,00 deaths and paratyphoid fever caused an estimated 5.4 million illnesses worldwide.⁽²⁾

Infants children and adolescents in South- central and South eastern Asia experience the greatest burden of illness.⁽²⁾ The highest peaks of typhoid fever occur within the 5- 19 years age range but the disease is also common under the age of 2 years in certain endemic areas of Asia. The diverse clinical manifestations in children often mimic other endemic infectious illness, cause delays in diagnosis and treatment, leading to severe complications and deaths.⁽²⁻⁴⁾ The impact of this disease fell sharply in the developed world with the application of 20th century sanitation techniques.

RESULTS

During this period a total of 98 children with typhoid fever were admitted to Paediatrics ward. Of the 98 children, 59 (60.20%) were boys and 39 (39.79%) were girls, with the male: female ratio of 1.51:1. The age range of the study population was 1 year to 12 years with cases being common

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among the age group of 7 year to 12 years 50 (51%) followed by 1 to 6 years 48 (48.9%).

Among the study population 51% (n=50) were school going children as shown in Table 1. Distribution of typhoid fever cases according to patient's residence showed that 60 (61.22%) children were from rural areas and 38 (38.77%) were from urban areas. This study also showed higher incidence of the disease in the rural areas as shown in Table 2. It has a bimodal peak occurrence as it occurs commonly in March/April and August/September. The monthly distributions revealed that most positive cases of the disease appeared in September 18 (18.36%), August 16 (16.32%) and March 15 (15.30%). Most cases (57.14%) clustered around the months of June to September as shown in Table 3. This study showed that the disease were more common in the low socio economic classes.

The predominant symptoms of typhoid fever were fever, headache and gastrointestinal symptoms. Diarrhea was more common than constipation in this study. Hepatomegaly (77.55%) and splenomegaly (38.77%) and coated tongue (81.63%) were the major physical findings. Clinical features are depicted in Table 4. None of the children had complications in our study. According to the guidelines given by IAP national task force, ceftriaxone was used to treat all the patients diagnosed with enteric fever. In those patients who were discharged before 14 days, therapy was completed with cefixime. The mean duration of hospital stay was 7 days for uncomplicated cases and there was no mortality in our series.

Age Groups Years	Number		Total	Percentage
	Male	Female		
1-3	19	7	26	26.53
4-6	16	6	22	22.44
7-9	10	9	19	19.38
10-12	14	17	31	31.63

Table 1: Age distribution of infected children with typhoid fever

Sex	Number of Cases	Percentage
Male	59	60.20
Female	39	39.79
Residence		
Rural	60	61.22
Urban	38	38.77

Table 2: Distribution of typhoid fever cases according to sex and residence

Month	Number	Percentage
January	6	6.1
February	4	4.0
March	15	15.3
April	10	10.2
May	4	4.0
June	6	6.1
July	10	10.2
August	16	16.3
September	18	18.3
October	5	5.1
November	3	3.0
December	1	1.0
Total	98	100

Table 3: Distribution of the cases with typhoid fever during the study period

Symptoms	No. of Cases	Percentage
Fever	98	100
Headache	78	76.53
Vomiting	26	26.53
Anorexia	80	81.63
Abdominal pain and Distension	68	69.38
Diarrhea	37	37.75
Constipation	28	28.57
Cough	26	26.53
Signs		
Hepatomegaly	76	77.55
Splenomegaly	38	38.77
Coated tongue	80	81.63
Rose spot	0	0

Table 4: Clinical features of typhoid fever at admission

DISCUSSION

Enteric fever continues to be a major public health problem. The incidence is highest in South- Central Asia and South East Asia (over 100/1,00,000 cases/year), with the highest burden of disease in children aged 2-5 years.⁵ It is one of the commonest major infectious diseases in India. Results show that prevalence of enteric fever was highest (51%) among the school age children compared to preschool children. Similar findings were observed by earlier studies.⁶ Such results might be due to the fact that school age children had more chance of having unsafe drinking water and contaminated food at school from vendors on the streets. Naturally, there is a huge scope of contamination in outside food from food handlers, processors and sellers.

A significant proportion (48.9%) were within the 1-5 year age group. This is in contrast to findings in reports of studies in Asia where infants constituted significant proportions of patients compared to children.⁽⁶⁾ Male-to-female ratio was 1.52:1, which is in accordance with the results from other study.⁷ The study also showed higher incidence in rural areas (61.2%), similar findings were observed by other study.⁶ Holmes et al. showed that there is no seasonal preponderance and the disease appears sporadically during the year, however this study showed increased incidence in September, August and April and this may be due to more exposure of children to environmental changes which help development of the microorganisms. A limited study in an urban slum in India showed one percent of the children up to 17 years of age suffer from typhoid fever every year. The children contract the disease from rural areas more than urban area noticed in this study, indicates the difference in hygiene standards which seems to be linked with the degree of endemicity of typhoid fever.

Children in this study commonly presented with fever, headache and gastrointestinal symptoms and diarrhea was more common than constipation. Our observation of fever as a common complaint in all the children and diarrhea being more common than constipation, similar findings were also observed by other author.^(9,10) Our data showed that most common clinical findings was coated tongue followed by hepatomegaly (77.55%) and splenomegaly (38.77%). This coincides with findings of other studies.^(11,12) During the hospital stay intravenous Ceftriaxone was used in all the cases as the first line antimicrobial agent. There was no mortality among 98 observed cases.

CONCLUSION

Typhoid fever continues to be a major health problem in significant number of children requiring admission. Typhoid fever is predominant in school going children with slight male preponderance. This study was undertaken to acquire baseline information regarding typhoid fever. Clinical presentation; signs and symptoms of typhoid fever patients are varying. For the confirmatory diagnosis in addition to a high index of suspicion, Widal test and blood culture are required. Based on the above findings, it may be concluded that higher incidence of typhoid fever were found among the school aged children who consumed unsafe water and food from sources other than home.

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