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Time of Apyrexia after Azithromycin Therapy in Uncomplicated Childhood Typhoid Fever

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Abstract

Introduction with Objective: *The aim of the present study was to assess the time of apyrexia after Azithromycin therapy in uncomplicated childhood Typhoid Fever.* ***Materials and Methods:*** *A cross sectional study was conducted in the Department of pediatrics, Dhaka National Medical College, Dhaka from July 2024 to October 2024. According to selection criteria one hundred subjects were selected with the age ranging from 1-12 years of either sex who was diagnosed as typhoid fever. Widal test positive was included for the study & specific antibiotic Azithromycin was started. Statistical analyses of the results were obtained by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-20.1).* ***Results:*** *Most of the patients (n=51) belong to 6-8 years age group. Young male patients (52%) were more than the young female patients (48%). Majority of the patients (n=39) time of apyrexia after taking antibiotic was 4 days. Almost three fourth patients (75.0%) had nausea after taking antibiotic.* ***Conclusion:*** *Azithromycin is effective in the treatment of childhood typhoid fever. Majority of the patient's time of apyrexia after taking antibiotic was 4 days.*

Keywords: *Azithromycin, Uncomplicated Typhoid Fever, Salmonella typhi/paratyphi.*

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Introduction:

Typhoid and paratyphoid fever, also known as enteric fever, is a potentially fatal multi-system illness caused by Salmonella typhi or Salmonella paratyphi. It occurs throughout the world where water supply and sanitation are substandard. Typhoid fever is highly endemic in developing countries like Bangladesh with documented high prevalence among children. Every year there are at least 13–17 million cases of typhoid fever worldwide resulting in 600,000 deaths; 80% of these cases occur in Asia alone[1]. In 12 to 32 percent of patients, the two most feared complications intestinal hemorrhage and bowel perforation were the cause of death. Typhoid fever consequences have decreased to 2% or fewer since the development of efficient treatment. The mainstay of typhoid fever treatment is still antimicrobial therapy. Various antibiotics including chloramphenicol, cotrimoxazole, amoxicillin and flouroquinolones have been used in typhoid fever with variable success rate[2]. The emergence of different drug resistance stains in this disease, which is either multidrug resistance or extensively drug resistant typhoid fever, is a consequence of prolonged nonselective usage of antibiotics, which is alarming for health services as well as worldwide health authorities[3]. Widespread emergence of multi-drug resistant S. typhi has necessitated the search for other therapeutic options for typhoid fever. Azithromycin, the first drug of this class and studies comparing the efficacy of azithromycin with cefixime in adults and children with typhoid fever have reported it to be safe and efficacious[4].

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Azithromycin, a member of the macrolide class of antibiotics, possesses many characteristics for effective and convenient treatment of typhoid fever, including in vitro activity against many enteric pathogens, excellent penetration into most tissues, and achievement of concentrations in macrophages and neutrophils that are 1100-fold higher than concentrations in serum. Previous studies have demonstrated that a 7-day treatment course of azithromycin was highly effective against uncomplicated typhoid fever in adults and children[5].

Materials & Methods:

This cross sectional study was carried out on children age belonged to 1 – 12 years presenting with symptoms, signs and laboratory investigations diagnostic of typhoid fever in IPD and OPD of Pediatrics department, Dhaka National Medical College Hospital, Dhaka, Bangladesh during the period from July 2024 to October 2024. The diagnosis of typhoid fever was based on fever for more than 7 days; positive Widal test and exclusion of other febrile illnesses were enrolled in this study. Typhoid fever associated with other disease and patient who were already receiving antibiotics were excluded from the study. The collected data were entered into the computer and analyzed by using SPSS (version 20.1).The study was approved by the institutional ethical committee.

Result:

The table shows that the age structures of those patients have been categorized in years into four groups. Overall, 15 patients were ≤ 5 years old while 51 patients were in 6-8 years old. 26 patients belong to 9-11 years age group while 8 patients were in >11 years old (Table I).

Table I: Demographic characteristics of the study population (n=100).

Parameters	Number	Percentage
Age of the patients		
≤ 5 years	15	15%
6-8 years	51	51%
9-11 years	26	26%
>11	8	8%

Total numbers of patients both young male and young female were 100. Young male patients (52%) were more than the young female patients (48%) **(Figure 1).**

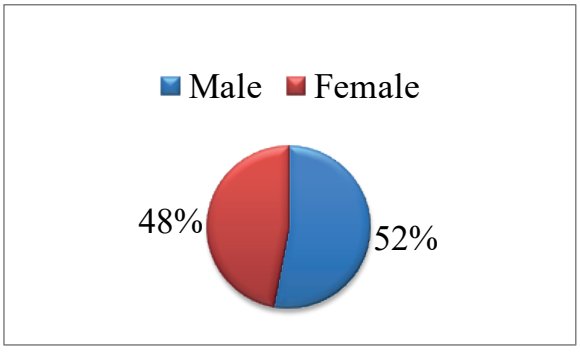

Figure 1: Pie Chart Showing Sex of the Patients

Majority of the patients (n=39) time of apyrexia after taking antibiotic was 4 days **(Table II) .**

Table II: Distribution of the patients by time of apyrexia after taking antibiotic (n=100)

Time of apyrexia after taking antibiotic	Number	Percentage
3 days	6	6%
4 days	39	39%
5 days	20	20%
6 days	35	35%

Almost three fourth patients (75.0%) had nausea after taking antibiotic. Vomiting was found in 7% patients. Diarrhea was found in 8% patients. Abdominal discomfort was found in 21% patients. Skin rash was found in 6% patients **(Table III).**

Table III: Distribution of the study patients by side effects of antibiotic (n=100)

Side effects	Number	Percentage
Nausea	75	75%
Vomiting	7	7%
Diarrhea	8	8%
Abdominal discomfort	21	21%
Skin rash	6	6%

*Patients may suffer more than one side effect

Discussion:

In this series it was observed that typhoid fever is predominant in young male subjects (52%). Rokonuzzaman et al. (2011) showed significant number of the patients was male 67.0%, and the rest 33.0% of them were female, which is consistent with the current study[6]. In this study, majority patients (51%) belonged to 6-8 years which is similar to the Devaranavadagi et al. (2017) study[7]. In this current study it was observed that time of afebrile after taking antibiotic 4 days in 39.0% patients. This finding is consistent to the finding of Frenk et al. (2000) who observed the mean afebrile period was 4.1±1.1 days in case of Azithromycin[8]. Our study finding is consistent to the finding of Islam et al. (2003) study who observed the mean afebrile period was 3.82±1.49 days in case of Azithromycin[1]. Azithromycin are generally well tolerated. Side effects include nausea, vomiting, dyspepsia, abdominal pain, diarrhoea, abdominal discomfort and skin rash. In our study we observed that 75% of the patients had nausea. Vomiting was found in 7 patients, Diarrhoea was found in 8 and abdominal discomfort was found in 21 patients. Sheng (2010) mentioned in his study that Gastrointestinal symptoms (nausea, vomiting, diarrhea, abdominal pain etc,) observed 60.53%, respiratory symptoms (cough, sore throat, etc.) 31.58% and headache 26.32%[9]. Adverse effects noted by Nelwan et al. (2006) where the authors found nausea in 4 patients, vomiting in one and meteorism in another one, which were all difficult to distinguish from the enteric infection [10].

Conclusion:

Azithromycin is effective in the treatment of childhood typhoid fever. Majority of the patient's time of afebrile after taking antibiotic was 4 days. Nausea and abdominal discomfort were the more common side effect.

Conflict of Interest: None.

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