Conference Paper

Typhoid Pediatric Inpatient Clinical Symptoms, Laboratory and Antibiotic Treatment

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Abstract.
Clinical features of typhoid fever vary from mild to severe. Laboratory examination for typhoid fever in Indonesia still uses the Widal test as a diagnostic tool. In 1992, isolates of S.typhi showed resistance to fluoroquinolones, with the first case reported in the United Kingdom. Similar cases were reported from several other countries, including India. This study aimed to describe the clinical symptoms, laboratory and antibiotics used for children with typhoid hospitalized at Hospital 'X' in West Java from January to March 2017. This research was a descriptive retrospective, using a cross-sectional design with a total sample of 127 respondents. The study was conducted from January to March 2018. Patients suffering from typhoid were hospitalized at Hospital 'X', West Java, were 37% aged between 5-9 years old with 51.18% males and those whose length of stay was for 3 days was 29.13%. Widal Titer O positive examination was 13.91% and positive H Titer was 45.21%, positive tubex 93.75%, 26.77% leukopenia, 48.81% with Hb value <11.5, the patient had a fever of 99.21%, 85.03% was given ceftriaxone. Clinical symptoms that are often experienced by children with typhoid typhoid is fever and the antibiotics that are often given are ceftriaxone.

Keywords: typhoid fever, widal titer, resistance

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1. INTRODUCTION

Until now, typhoid fever is still a health problem in developing countries, especially in Indonesia. Typhoid fever is a systemic infection with the causative agent Salmonella typhi. Transmission through consumption of contaminated food or drink [1,2]. The clinical features of typhoid fever vary widely from mild to severe. Among others, abdominal discomfort, change in mental status is often accompanied by complications. Therefore, it is difficult to diagnose this disease. In the pre-antibiotic era, symptoms were different, if the patient did not die with peritonitis or intestinal bleeding, 15% died with fever and the disease continued for no apparent reason.

Laboratory tests on typhoid fever in Indonesia still use the Widal as a diagnostic test. According to WHO 2010 the Widal test is not used because the sensitivity and specificity are very low [3]. The Widal test can be negative in 30% of cultures proven to have typhoid fever, because the antibody response is blunted by previous antibiotic use. In addition, patients with typhoid may not show an antibody response or show no increase in antibody titers [4]. However, considering the low cost of the Widal test it may be an option in many developing countries such as Indonesia.

According to WHO data in 2014, approximately 21 million cases and 222,000 deaths related to typhoid occur annually worldwide [1]. In Indonesia in 2008, the typhoid morbidity rate was reported at 81.7 per 100,000 population, with distribution by age group 0.0 /100,000 population (0–1 years), 148.7 / 100,000 population (2–4 years), 180.3 / 100,000 (5-15 years), and 51.2 / 100,000 (≥16 years). This figure shows that most patients are in the age group of 2- 15 years. According to data from the Indonesian Ministry of Health in 2010, 41,081 cases of typhoid and paratyphoid

fever were inpatients and 276 patients died and was the 3rd largest disease. in hospitalized patients. Typhoid fever in Indonesia tends to increase every year with an average of 800 per 100,000 population [2,5].

In developed countries, the incidence of cases and deaths has decreased due to good sanitation, hygiene, and vaccination. Meanwhile in Indonesia, sanitation, hygiene, and vaccination tend to be difficult to implement, so the use of antibiotics is one of the most effective.

Antibiotic therapy in typhoid fever is useful for treating signs and symptoms as well as efforts to eliminate career cases. However, the use of antibiotics that are not procedural and uncontrolled causes a new problem, namely the emergence of resistance [6,7]. Chloramphenicol is still the main choice for the treatment of typhoid fever because it is effective, cheap, easy to obtain, and can be given orally. However, cases of severe typhoid fever in children and even fatal cases have been reported due to multiple drug resistance to Salmonella typhi (multiple drugs resistance (MDR). Besides, the use of chloramphenicol can cause side effects in the form of bone marrow suppression and the most feared of is aplastic anemia [8].Several test results prove that some antibiotics have experienced resistance [6]. In the late 1980s, MDRTF occurred, namely strains of S. typhi were resistant to the three existing first-line drugs, namely chloramphenicol, ampicillin, and co-trimoxazole. , it was reported that there has been resistance to chloramphenicol, ampicillin, trimethoprim, sulfamethoxazole in Egypt [9]. typhi examined was resistant to five common antimicrobial agents available in developing countries, namely ampicillin, co-trimoxazole, chloramphenicol, tetracycline, and streptomycin [6,10].

2. RESEARCH METHODS

This type of research is a non-analytic retrospective descriptive study with a cross sectional approach. This study used the inclusion criteria for inpatients under 19 years of age suffering from typhoid with complete data. Secondary data samples were taken using a total sampling technique of 127 patients. The medical record data taken were the character of clinical symptoms, laboratory and antibiotic therapy in pediatric patients suffering from typhoid in hospitalization of Hospital 'X' for the period January-March 2017.

3. RESEARCH RESULTS

3.1. Based on Patient Characteristics

3.1.1. Based on Age

The highest distribution of pediatric patients with typhoid by age with category at 5-9 year in 47 from 127 pediatric patient (37%).

3.1.2. Based on Gender

The highest distribution of pediatric patients with typhoid by gender with category male in 65 from 127 pediatric patient (51,18%).

3.2. Based on Supporting Examinations

3.2.1. Based on the Widal's Examination Results

Distribution of pediatric patients with Typhoid by the Widal Examination results with titre O negative in 44 from 127 pediatric patient (38,26%) and titre H 1/320 in 44 pediatric patients (37,39%).

3.2.2. Based on the Tubex Examination Results

Distribution of pediatric patients with Typhoid by the Tubex examination results with category ≥4 in 15 from 16 pediatric patient (93.75%).

3.2.3. Based on the Value of Leukocytes

Distribution of pediatric patients with Typhoid by the value of leukocytes category normal 89 from 127 pediatric patient (70,07%).

3.2.4. Based on the Hb Value

Distribution of pediatric patients with Typhoid Based on Haemoglobulin Value category 11.5-15.5 in 63 from 127 pediatric patient (49.60%).

4. Based on the Characteristics of Clinical Symptoms

Table 1: Distrib ution of pediatric patients with typhoid fever based on the characteristics of clinical symptoms.

Symptom	Frequency	Percent (%)
Fever Nausea Cough Gag Diarrhea Constipation Limp Decreased Appetite Abdominal Pain Heartburn Dirty Tongue Dizzy Delirious Head Pain Body Aches Stiffness	126 64 54 46 34 33 24 18 15 14 10 7 6 5 5 3	99.21 50.39 42.51 36.22 26.77 25.98 18.89 14.17 11.81 11.02 7.87 5.51 4.72 3.93 3.93 2.36

5. Based on the Length of Hospitalization

Table 2: Dis tribution of pediatric patients suffering from typhoid fever based on the duration of stay.

Duration (days)	Frequency	Percent (%)
1	2	1.57
2	16	12.59
3*	37	29.13
4	27	21.25
5	16	12.59
6	8	6.29
7	7	5.51
8	6	4.72
9	5	3.93
10	3	2.36
Total	**127**	**100**

6. The Pattern of Antibiotic Use

TABLE 3: Distribution of pediatric patients with typhoid based on the pattern of antibiotic use.

Antibiotic	Duration	Amount (people)	Percent (%)
Ceftriaxone (IM/IV) * Cefotaxime (IM/IV) Cefixime (oral) Levofloxacin (oral) Ciprofloxacin (oral) Ceftazidim (IM/IV) Tiamfenikol (oral)	4 5 4 8 1 3 4	108 19 2 2 1 1 1	85.03 14.96 1.57 1.57 0.78 0.78 0.78

7. DISCUSSION

Based on the results of the study and table 1-3, the highest number of typhoid fever sufferers in children aged 5-9 years was 37%, the most sex was male, 51.18%.

The results of the above research indicate that the symptoms often experienced by pediatric typhoid patients are fever. This study's results are in line with research conducted at Sanglah General Hospital in 2013, namely fever as much as 100% followed by nausea as much as 58%, vomiting as much as 42% [11]. At Santa Elisabeth Hospital Medan the highest clinical symptoms were fever (100%), then nausea 67, 6%, Cough 36.3%, Diarrhea 24.7% [12]. In

India Fever 100%, Anorexia 61%, Vomiting 44%, Abdominal pain 18%, Diarrhea 16%, Cough 10% [13].

Based on the research results on the Widal examination, the highest O titer results are 1/160 titer was 19.13% and 38.26% negative. The highest H titer was in 1/320 titer on examination of results as much as 38.26%. According to IDAI (pediatrician association), the Widal is said to be positive if it is more than 200. The Widal test is significant with the O titer 13.91% and the H titer was 45.21%. Maybe in the patient this is said to be typhoid based on the supporting clinical symptoms.

The mean of subjects showed normal peripheral blood laboratory results. Typhoid fever patients are not always found to have leukopenia. Often the leukocyte count is normal limits and there may be leukocytosis, especially if accompanied other complications.

The results of the above research indicate that the antibiotic that is often given is Ceftriaxone. The results of this study are in line with research conducted at Sanglah General Hospital, namely 34% [11]. RS PMI Bogor Ceftriaxone 64.54%, Levofloxacin 13.90%; Ciprofloxacin 3.57%. RSUP Dr Soeradji Tirtonegoro Klaten Ceftriaxone as much

as 31.76%, Ciprofloxacin 27.06%. In India Ceftriaxone 14.66%, Cefixime 14.66%, Ofloxacin 14.22% [14].

Antibiotics including MDR are Ciprofloxacin and Ceftriaxone [15]. According to Chatterjee for S. typhi infection, initial empiric therapy with Ceftriaxone is recommended because of its extensive resistance. If susceptible, chloramphenicol, ampicillin, or TMP-SMZ can be used. The duration of therapy should be 14 days. In areas with multi-drug resistance, cefotaxime or ceftriaxone is recommended [16].

8. CONCLUSION AND SUGGESTIONS

8.1. Conclusion

Clinical symptoms that are often experienced by typhoid children are fever, antibiotics that are often given are ceftriaxone, some patients are anemic and leukopenia.

8.2. Suggestions

It is necessary to evaluate the applicable clinical pathways related to the duration and type of antibiotic use in cases of children with typhoid.

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