Arif Rohman Mansur
Ira Mulya Sari

Understanding Typhoid

Fever in children

Editor: Mutia Farlina

Understanding Typhoid Fever in children

This book provides a comprehensive overview of Typhoid Fever, covering its causes, pathogenesis, diagnosis, treatment, and prevention. Chapter 1 introduces the reader to the disease, its three Salmonella antigens, and its epidemiology and spread. Chapter 2 explains how the disease spreads and affects individuals, highlighting its symptoms and risk factors. Chapter 3 delves into the diagnostic process and available methods, such as blood culture and the Widal test. Chapter 4 covers the various treatments for Typhoid Fever, including antibiotics and supportive care. Chapter 5 explores different prevention methods and their effectiveness, such as vaccination and identifying high-risk areas. Chapter 6 focuses on supportive care, including when antibiotics are needed, how to take them properly, and potential side effects. Chapter 7 describes different types of antibiotics that can be used to treat Typhoid Fever, including penicillins and fluoroquinolones. Chapter 8 explains management options for home care and hospital treatment and addresses complications and long-term care. Finally, Chapter 9 discusses the possible complications of Typhoid Fever, such as perforation and peritonitis, and the importance of health education for patients. This book is an essential resource for anyone seeking to understand and manage Typhoid Fever.

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KATA PENGANTAR

Alhamdulillaahil-ladzii bini'matihi tatimmush-salihaat. Praise be to Allah, by whose grace all good deeds are perfect. The book entitled " Understanding Typhoid Fever in Children."

Typhoid fever is a severe infectious disease caused by Salmonella typhi bacteria. It is prevalent in many parts of the world, particularly in areas with poor sanitation and hygiene practices. This book is designed to provide a comprehensive guide to understanding typhoid fever, its causes, pathogenesis, diagnosis, treatment, prevention, and potential complications.

Chapter 1 introduces the readers to typhoid fever, its causes, and the epidemiology of the disease. Chapter 2 delves into the pathogenesis of typhoid fever, how it spreads, and the individuals most affected by the disease. Chapter 3 focuses on the diagnosis of typhoid fever, including the key diagnostic features and supporting investigations.

In Chapter 4, the book covers the treatment of typhoid fever, including when antibiotics are needed, how to take antibiotics and the potential side effects of antibiotics. Chapter 5 provides guidance on preventing typhoid fever, including vaccination, choosing a typhus vaccine, and managing high-risk areas.

Chapter 6 highlights supportive treatment options for typhoid fever, including improving healthcare team outcomes. Chapter 7 provides information on different types of antibiotics that may be used to treat typhoid fever. In contrast, Chapter 8 covers management options for typhoid fever patients, including home care and hospital treatment.

Lastly, Chapter 9 delves into the potential complications of typhoid fever, including perforation and peritonitis. This book also provides essential health education for patients with typhoid fever, which can help individuals better understand the disease and the steps they can take to manage it effectively.

The author expects constructive suggestions and input for the improvement of this short book; I hope this small work can be helpful for all of us, aamin

Padang, April 07, 2023

Arif Rohman Mansur

DAFTAR ISI

DAFTAR GAMBAR

UNDERSTANDING TYPHOID FEVER IN CHILDREN

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Ira Mulya Sari

CHAPTER 1 TYFOID FEVER

A. Get to know Typhoid Fever

Typhoid fever remains a significant global public health problem, with millions of cases and hundreds of thousands of deaths each year. It mainly spreads through contaminated food and water(Saporito et al., 2017).

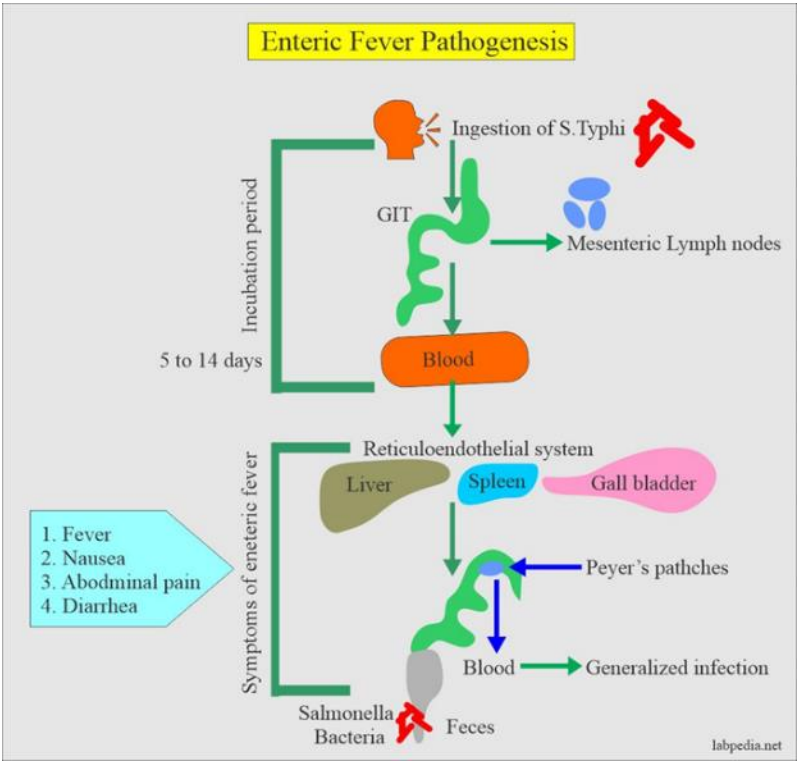
Typhoid fever is a type of enteric fever that causes systemic disturbances, abdominal pain, and fever that appears in a graded pattern. The cause of this enteric fever is Salmonella typhi. Although other serotypes, such as Salmonella paratyphi (A, B, C), can cause a similar syndrome, the resulting disease is not clinically significant.(Bhandari et al., 2023).

Enteric fever is a severe systemic illness characterized by fever and abdominal pain. The terms "enteric fever" and "typhoid" are often used interchangeably to refer to typhoid and paratyphoid fever. Based on clinical findings, it is usually not clinically useful or impossible to predict the causative organism (Andrews et al., 2023).

Typhoid fever is a bacterial infection that can spread throughout the body, affecting many organs. Without proper treatment, it can cause severe complications and can be fatal.

CHAPTER

2 PATHOGENESIS OF TYPHOID FEVER



Picture 8. Enteric fever pathogenesis

Source:https://www.labpedia.net/enteric-fever-part-1-typhoid-fever-enteric-fever-salmonella-typhi-and-vaccination/

CHAPTER 3 DIAGNOSIS

A. On examination, the key diagnostic features are:

Infections caused by S. Typhi and S. Paratyphi A are usually indistinguishable from clinical features alone. Positive cultures are used to confirm the diagnosis(Jong, 2012).

1. Fever more than seven days
2. Ill and serious condition for no apparent reason
3. Abdominal pain, bloating, nausea, vomiting, diarrhea, constipation
4. Delirium

Picture 14. Delirium

Source: https://today.uconn.edu/2015/07/delirium-shows-its-signature/#

5. Hepatosplenomegaly
6. In severe typhoid fever, decreased consciousness, convulsions, and jaundice can be found.

CHAPTER 4 TREATMENT OF TYPHOID FEVER

Typhoid fever requires immediate treatment with antibiotics.

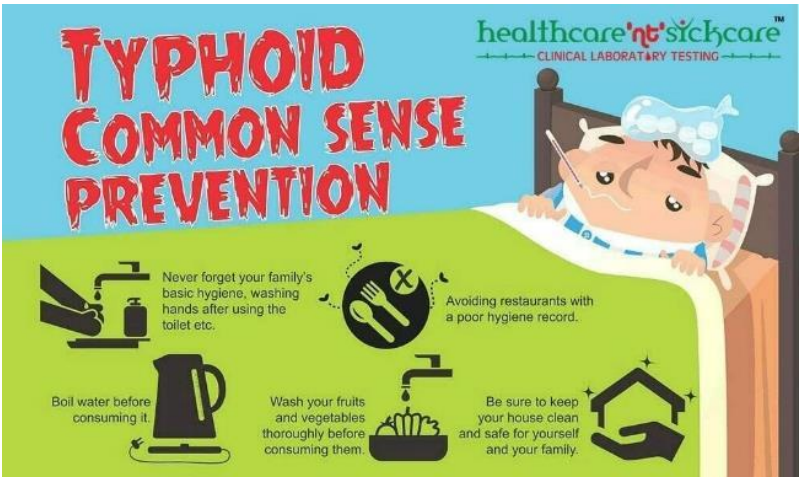
Picture 17. Illustration of Typhoid Fever
Source: https://homelandprepnews.com/stories/23865-cholesterol-lowering-medication-may-help-fight-salmonella-infection-increase-risk-typhoid-fever/

Research conducted by(Rauniyar et al., 2021)found that more than 75% of patients received treatment before reaching the hospital, with Azithromycin and Ceftriaxone being the most common prehospital antibiotics. The most common symptoms are fever, stomach pain, headache, and diarrhea. Ceftriaxone was the most frequently prescribed inpatient antibiotic, and resistance to ampicillin and trimethoprim-sulfamethoxazole was observed. The

CHAPTER

5

PREVENTION OF TYPHOID FEVER



Picture 18. Typhoid common sense prevention
Source:https://healthcarentsickcare.com/typhoid-fever

Prevention strategies, including clean water, sanitation, personal hygiene, and vaccinations, are recommended for travelers and those living in endemic areas(Saporito et al., 2017).

Typhoid fever and paratyphoid fever are common in many parts of the world. Typhoid and paratyphoid fever are most common in parts of the world where water and food may be unsafe and sanitation is poor. These places include parts of East and Southeast Asia, Africa, the Caribbean, and Central and South America. Suppose you are traveling to an area where typhoid and paratyphoid fever is common. In that case, you can take steps to protect yourself from infection.

CHAPTER

6 SUPPORTIVE TREATMENT

Give paracetamol if the child has a fever (≥ 39° C).

Picture 24. Paracetamol Tablets
Source: https://www.news-medical.net/health/Pharmacology-of-Paracetamol.aspx

Many mild bacterial infections clear up on their own without antibiotics. Antibiotics do not work for viral infections like colds, flu, coughs, and sore throats.

Antibiotics are no longer used routinely to treat:

1. chest infection
2. ear infections in children
3. sore throat

CHAPTER

7 TYPES OF ANTIBIOTICS

Antibiotics are commonly used in modern healthcare to treat and prevent bacterial infections. People have been looking for ways to treat infections since ancient times and used various substances such as dyes, molds, and heavy metals. Antibiotics specifically target bacteria and there are different classes of antibiotics with different mechanisms of action and potential adverse effects. This activity will explore the different types of antibiotics and their uses (Calhoun et al., 2023).

There are hundreds of different types of antibiotics, but most of them can be classified into six groups.

A. Penicillins (such as penicillin and amoxicillin).

They are widely used to treat various infections, including skin, chest, and urinary tract infections.

Picture 25. Penicillin Antibiotics
Source:https://www.dokter.id/berita/pengertian-alergi-penisilin-dan-cara-mengatasinya

CHAPTER 8 MANAGEMENT

1. Treat with chloramphenicol (50-100 mg/kg/day in 4 divided doses orally or intravenously) for 10-14 days, but see page 78 for treatment of young infants.
2. If chloramphenicol cannot be given, use amoxicillin 100 mg/kgBW/day orally, ampicillin intravenously for ten days, or co-trimoxazole 48 mg/kgBW/day (in 2 divided doses) orally for ten days.
3. If there is no clinical improvement, use third-generation cephalosporins such as ceftriaxone (80 mg/kg IM or IV, once daily, for 5-7 days) or oral cefixime (20 mg/kg/day in 2 divided doses for ten days).

Antibiotics are used to treat or prevent certain types of bacterial infections. They work by killing the bacteria or preventing it from spreading. However, they only work for some.

Azithromycin was the most frequently prescribed antibiotic before hospitalization, while ceftriaxone was the most frequently prescribed after admission. Because most patients have received antibiotics before hospitalization, it is difficult to determine the effectiveness of antibiotics. As a result, further monitoring of typhoid fever and the bacteria's vulnerability to antibiotics is recommended(Rauniyar et al., 2021).

CHAPTER 9 COMPLICATIONS OF TYPHOID FEVER

Complications are observed in some cases, including thrombocytopenia, intestinal perforation, rectal bleeding, ascites or pleural effusion, and meningitis, which tend to be more common in children over five years of age(Chiu et al., 2000).

A. In People Who Have Never Been Treated With Antibiotics

Complications caused by typhoid fever usually only occur in people who have never been treated with appropriate antibiotics or who are not treated immediately. In such cases, about 1 in 10 people develop complications, which usually develop during the third week of infection.

B. In people with untreated typhoid fever

1. internal bleeding in the digestive system
2. rupture (perforation) of a part of the digestive system or intestine, which spreads the infection to nearby tissues
3. Internal bleeding
4. Most of the internal bleeding that occurs with typhoid fever is not life-threatening, but it can make you feel very unwell. Symptoms include:
   a. feeling tired all the time
   b. hard to breathe
   c. pale skin
   d. irregular heartbeat
   e. vomiting blood
   f. very dark or tar-like dirt (feces).

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TENTANG PENULIS

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