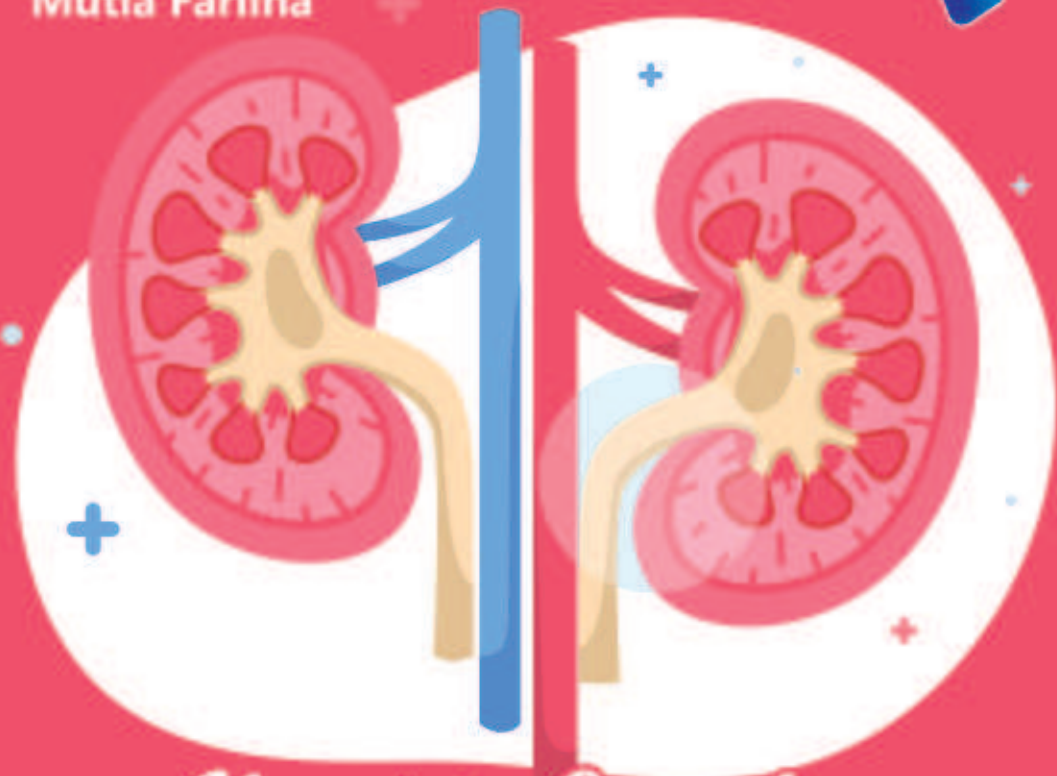


Arif Rohman Mansur
Mutia Farlina



Nursing Care for

URINARY TRACT INFECTION

Understanding and Managing
UTI in Children





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UTIs in children, especially infants and young children, are common and account for nearly 3% of the child population. UTIs are more common in girls after the age of 1 year, possibly because the shorter female urethra makes it easier for bacteria to enter the bladder. Another factor that affects the risk of UTIs in women is the location of the urethra which is close to the vagina and anus, allowing the spread of bacteria from that area.

Urinary tract infections (UTIs) can be caused by bacteria, viruses, or fungi, and can occur in the lower or upper urinary tract. Cystitis is a type of UTI that involves the urethra or bladder, while pyelonephritis is a type of UTI that involves the ureter, pelvis and kidney parenchyma. UTIs can be acute or chronic, with chronic ones being recurrent or persistent.

UTI symptoms differ between babies and children. The baby may show fever, irritability, vomiting, failure to thrive, or jaundice on the skin. Children may also have fever and vomiting, but may also have symptoms such as pain when urinating (dysuria), increased frequency of urination, hesitancy when urinating, urgency, and/or pain. Nursing management goals include eradicating infection, increasing comfort, and preventing recurrence of infection. Give medication as prescribed, encourage children to consume sufficient fluids, observe children's urine output and compare it with expected output, identify children who have UTIs and provide education to parents and children about how to prevent and treat the risk of infection in childhood. front.

NURSING CARE FOR URINARY TRACT INFECTION: UNDERSTANDING AND MANAGING UTI IN CHILDREN

Arif Rohman Mansur
Mutia Farlina



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PREFACE

Alhamdulillahil-ladzii bini' matihi tatimmush-salihaat. Praise be to Allah, by whose grace all good deeds are perfect. The author was given health and the opportunity to compile a book entitled "Nursing Care for Urinary Tract Infection: Understanding and Managing UTI in Children".

This book presents a comprehensive guide to urinary tract infections (UTIs) in children. Readers are invited to get to know the basic concepts of UTI, including the anatomy and physiology of the urinary tract, epidemiology, and the characteristics of infection in infants, toddlers, and children aged 2 years and over. UTI signs and symptoms are also discussed in detail. Furthermore, the risk factors and pathophysiology of UTI, as well as the causes and complications that can occur.

Methods for diagnosing UTI are discussed in detail, starting from medical history, physical examination, urinalysis, to culture methods and ultrasound examination of the kidneys and VCUG. Next, various methods of collecting urine samples are discussed, such as the use of diaper pads, clean catches, urine bags, catheters, and suprapubic aspirate. The reader will find useful information to carry out an effective urine sampling.

UTI therapy uses appropriate antibiotic treatment, including summary, prognosis, and recurrent urinary tract infection prevention approaches. Nursing care in the management of UTI in children. Management of nursing care, infection control, patient comfort, and prevention of recurrence of infection as well as case studies that help readers understand the application of the concepts they have learned. The evaluation and conclusions at the end of the book are endings which provide an overall picture of the management of UTIs in children. It is hoped that this book will serve as a useful reference resource for medical professionals, nurses, and parents concerned about children's urinary tract health. Hopefully this book can be useful for all writers and readers.

Padang, 05 June 2023
Arif Rohman Mansur

LIST OF CONTENT

PREFACE	iii
LIST OF CONTENT	iv
CHAPTER 1 URINARY TRACT INFECTION	1
A. Introduction	1
B. Anatomy and Physiology	2
C. Epidemiology	5
D. Definition of Urinary Tract Infection	7
E. UTI Signs and Symptoms	8
F. Classification of Urinary Tract Infections	15
CHAPTER 2 PATHOPHYSIOLOGY OF URINARY TRACT INFECTION	18
A. Urinary Tract Infection Risk Factors	18
B. Pathophysiology of Urinary Tract Infection	18
C. Causes of Urinary Tract Infection	21
D. UTI Complications	22
CHAPTER 3 METHODS OF DIAGNOSIS OF UTI	24
A. Medical History	24
B. Inspection	24
C. Urinalysis	24
D. Nitrite Test	27
E. Leukocyte Esterase Test	27
F. Microscopic Analysis for Bacteriuria	28
G. Automated Urinalysis	29
H. Culture	29
I. Kidney Ultrasound	30
J. Voiding Cystourethrogram (VCUG)	31
CHAPTER 4 URINE SAMPLE METHOD	34
A. Urine sample	34
B. Nappy Pads and Cotton Wool Balls	35
C. Clean catch	35
D. Urine Bag	37
E. Urine Collection Bag 100mL	38
F. Catheter	39
G. Suprapubic Aspirate (SPA)	42

	H. Conclusion of Urine Sampling.....	46
CHAPTER 5	THERAPY OF URINARY TRACT	
	INFECTIONS	47
	A. Therapeutic Management	47
	B. Antibiotic Treatment.....	48
	C. Summary.....	49
	D. Prognosis.....	50
CHAPTER 6	PREVENTION OF UTI.....	51
	A. Introduction.....	51
	B. Prevention of UTIs in Women	52
	C. Prevention of Recurrent UTIs	53
CHAPTER 7	NURSING CARE.....	55
	A. Nursing Care Management.....	55
	B. Fluid Requirements In Children.....	60
	C. Nursing Assessment	61
	D. Case Study	66
	E. Conclusion	67
BIBLIOGRAPHY.....		70
WRITER BIOGRAPHY		73



**NURSING CARE FOR URINARY TRACT
INFECTION: UNDERSTANDING AND
MANAGING UTI IN CHILDREN**

**Arif Rohman Mansur
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CHAPTER

1

URINARY TRACT INFECTION

A. Introduction

Urinary tract infections can originate from bacteria, viruses, or fungi, and can occur in the lower or upper urinary tract. Cystitis is a lower urinary tract infection (UTI) that involves the urethra or bladder. Pyelonephritis is an upper UTI involving the ureters, pelvis, and renal parenchyma. UTIs can be acute or chronic (chronic can be recurrent or persistent)(Ball et al., 2017)

Infection of the urinary tract, which most commonly affects the bladder. UTIs usually occur as a result of bacteria rising into the bladder through the urethra. The incidence of UTI in children is almost 3% and is most common in infants and young children. UTIs occur more frequently in boys than girls in infancy, but after the age of 1 year, they are more common in girls. One explanation for why UTIs are more common in women is that the shorter female urethra makes it easier for bacteria to enter the bladder. The urethra is also located close enough to the vagina and anus in women, allowing bacteria to spread from there. Adolescent girls who are sexually active are at risk of developing a UTI, because bacteria can be forced into the urethra due to pressure during intercourse. Adolescent males may be partially protected from UTIs by the antibacterial properties of prostatic secretions. UTIs have different symptoms between babies and children. The baby may show fever, irritability, vomiting, failure to thrive, or jaundice on the skin. Children may also have fever and vomiting, but may also have dysuria (pain

CHAPTER

2

PATHOPHYSIOLOGY OF URINARY TRACT INFECTION

A. Urinary Tract Infection Risk Factors

1. Young age
Boys under the age of one and girls under the age of four are at the highest risk.
2. Not circumcised
There is a 4 to 10 times higher risk of UTI in uncircumcised boys. However, most uncircumcised boys do not get a UTI.
3. Using a bladder catheter for a long time.
4. Abnormalities of the urinary tract that are not formed properly before birth.
5. Have a bladder that is not working properly or constipation (bladder and bowel dysfunction).
6. Having had a UTI slightly increases the chance of getting another UTI.

B. Pathophysiology of Urinary Tract Infection

Urinary tract infections occur when microorganisms, commonly gram-negative bacteria such as *E. coli*, enter the urinary tract. These microorganisms are present in the genital area and enter through the opening of the urethra or during sexual intercourse. Urinary tract infections associated with hospitalization can also occur in patients who use urinary tract catheters or have undergone procedures such as cystoscopy where instruments are inserted into the urinary tract.(Keogh, 2010).

CHAPTER

3

METHODS OF DIAGNOSIS OF UTI

A. Medical History

Children are preverbal or unable to speak, especially at a younger age, they may not report symptoms such as dysuria (painful urination) or abdominal pain. Parents often notice nonspecific signs, such as lethargy, irritability, difficulty eating and vomiting. This condition often overlaps with many common and benign viral infections, as well as serious bacterial infections. Fever is often present, as the only feature present or the child may not have a fever. The urine smells foul or is discolored, which may not be seen in children who wear diapers. Older children may report local symptoms such as dysuria or flank pain.

B. Inspection

Children with UTIs may appear very well or very unhealthy. Fever, abdominal pain and dehydration can be identified. Local signs may be more common in older children. Because the clinical diagnosis is unreliable, a urine sample is required for further evaluation. The healthcare provider will ask about your child's symptoms and medical history (Kaufman et al., 2019).

C. Urinalysis

To determine whether a child has a urinary tract infection (UTI), a urine sample is needed. In small children who are not used to urinating in the toilet, initial testing can be done by

CHAPTER

4

URINE SAMPLE METHOD

A. Urine Sample

Signs and symptoms of urinary tract infection (UTI) in younger children are often non-specific. Symptoms such as fever, lack of appetite, lethargy and vomiting overlap with general infection symptoms. The clinical diagnosis of urinary tract infection (UTI) in young children is unreliable, so many young children with fever require a urine sample to diagnose or rule out a UTI. Before starting empiric antibiotic therapy for the treatment of UTI, a urine sample should be collected to confirm the diagnosis.

A urine sample should also be collected from a young child with fever without a focus, particularly if the child is a neonate, a younger infant or otherwise unwell. Out of early baby and if the child is not sick, it may make sense to wait 24 hours to see if major symptoms appear, and if not, then have a urine sample checked. In general, children with obvious primary symptoms of disease do not need a urine sample (Kaufman, 2020). A urine sample needs to be taken to do a urine test. A urine test may be done for a number of reasons, and is the only way to know for sure if your child has a urinary tract infection (UTI).

CHAPTER

5

THERAPY OF URINARY TRACT INFECTIONS

A. Therapeutic Management

The goals of treating children with UTI are to:

1. get rid of the current infection
2. find risk factors to lower the likelihood of recurrence
3. stop the infection from spreading throughout the body
4. maintain renal function.

Based on the pathogen's identification, the child's prior antibiotic use, and the infection's location, antibiotic therapy should be started. There are numerous antimicrobial medications available to treat UTIs, but occasionally, bacterial resistance renders all of them ineffective. The penicillins, sulfonamides (including trimethoprim-sulfamethoxazole), cephalosporins, and nitrofurantoin are common anti-infective medications used for UTIs. In order to prevent repeated infections, surgical correction or urinary prophylaxis may be required if anatomical problems such as primary reflux or bladder neck obstruction are present. Reducing the likelihood of renal scarring is the goal of treatment and diligent monitoring(Hockenberry et al., 2016).

CHAPTER

6

PREVENTION OF UTI

A. Introduction

Primary prevention is accomplished by encouraging good perineal hygiene and managing major risk factors such as chronic constipation, encopresis, and urinary incontinence day and night. Some evidence suggests that prophylactic administration of antibiotics can help prevent more severe recurrent infections with marked symptoms, although their effect is limited. However, the effect of secondary prophylaxis in preventing scar tissue in the kidney is not known with certainty. Although cranberry juice may decrease urine acidity, it is not recommended to rely on cranberry juice as the only way to prevent UTIs in high-risk children.(Marcdante & Kliegman, 2014).

Prevention is the main goal in dealing with urinary tract infections, both first and recurring. Most of the preventive measures involve simple hygiene habits that should be part of daily care. Check for signs of intestinal parasites (such as scratching between the legs and anal area) and provide appropriate treatment. Tell sexually active adolescent girls to urinate as soon as possible after sex to remove bacteria introduced during intercourse. Also, teach parents and older children health practices that can prevent urinary tract infections

Children who have recurrent urinary tract infections with fever or recurrent infections associated with VUR may be given suppressive or prophylactic antibiotics for several months or years. Usually, this medication is given once daily; patients and

CHAPTER

7

NURSING CARE

A. Nursing Care Management

Nursing management goals include eradicating infection, increasing comfort, and preventing recurrence of infection.

1. Eradicate Infection

Children who can tolerate oral intake will be given oral antibiotics. Children with prolonged vomiting associated with a UTI or with suspected pyelonephritis will require hospitalization and intravenous antibiotics. Any baby younger than 8 weeks of age with a fever, UTI, and a history of concern should also be hospitalized for intravenous antibiotics. Administer oral or intravenous antibiotics as prescribed. Encourage the parents to complete the entire course of oral antibiotics at home, even if the child feels better. Give intravenous fluids as ordered or encourage adequate oral fluid intake to help clear bacteria from the bladder.

2. Increase Convenience

Give antipyretics such as acetaminophen or ibuprofen to reduce fever. Heating with a warm compress or a heating pad can help reduce stomach or side pain. If your child is afraid to urinate because it is burning or sore, encourage urination in a warm bath.

3. Prevent Recurrence of Infection

Encourage parents to return according to orders for a repeat urine culture after completing the course of antibiotics to ensure removal of bacteria (Kyle & Carman, 2013).

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