



University of Mosul / College of Nursing

Pediatric Nursing

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The Child with Genitourinary dysfunction

Learning Objectives

1. Distinguish alterations in urinary elimination and genitourinary disorders common in infants, children, and adolescents.
2. Identify appropriate nursing assessments and interventions related to medications and treatments for alterations in urinary elimination, genitourinary, and reproductive system disorders in children.
3. Develop an individualized nursing care plan or concept map for the child with an alteration in urinary elimination or genitourinary disorder.

Urinary Tract Infection

UTI is an infection of the urinary tract, most commonly affecting the bladder. UTI occurs most often because of bacteria ascending to the bladder via the urethra. About 8% of girls and 2% of boys will experience at least one UTI during childhood. One explanation for the more common occurrence in females is that the female's shorter urethra allows bacteria to have easier access to the bladder. The urethra is also located quite close to the vagina and anus in females, allowing spread of bacteria from those areas. UTI presents differently in infants than it does in children. Infants may exhibit fever, irritability, vomiting, failure to thrive, or jaundice. Children may also experience fever and vomiting, but also may have dysuria, frequency, hesitancy, urgency, and/or pain.

Pathophysiology:

Escherichia coli most commonly causes UTI, as it is usually found in the perineal and anal regions, close to the urethral opening. Other organisms include *Klebsiella*, *Staphylococcus aureus*, *Proteus*, *Pseudomonas*, and *Haemophilus*. Numerous factors may contribute to bacterial proliferation. Numerous factors may contribute to bacterial proliferation. Urinary stasis contributes to the development of a UTI once the bacteria have gained entry. Urine that remains in the bladder after voiding allows bacteria to grow rapidly. A decreased fluid intake also contributes to bacterial growth, as the bacteria become more concentrated. If the

urine is alkaline, bacteria are better able to flourish. Untreated bladder infection may allow reflux of infected urine up the ureters to the kidneys and result in pyelonephritis, a more serious infection.

The Common symptoms:

1. Fever
2. Nausea or vomiting
3. Chills
4. Abdomen, back, or flank pain
5. Lethargy
6. Jaundice (in the neonate)
7. Poor feeding or “just not acting right” (in the infant)
8. Urinary urgency or frequency
9. Burning or stinging with urination (the infant may cry with urination; the toddler may grab the diaper)
10. Foul-smelling urine
11. Poor appetite (child)
12. Enuresis or incontinence in a previously toilet-trained child
13. Blood in the urine

Therapeutic Management:

UTIs are treated with either oral or intravenous antibiotics, depending on the severity of the infection. Urine culture and sensitivity determine the appropriate antibiotic. A 7- to 14-day course of antibiotics is often prescribed, though 2- to 5-day courses may be as effective. Adequate fluid intake is necessary to flush the bacteria from the bladder. Fever management may also be needed.

Laboratory and Diagnostic Tests:

Common laboratory and diagnostic studies ordered for the assessment of UTI include:

1. Urinalysis (clean-catch, suprapubic, or catheterized): may be positive for blood, white blood cells, or bacteria (bacteriuria)
2. Urine culture: will be positive for infecting organism.
3. Renal ultrasound: may show hydronephrosis if child also has a structural defect.

Nursing Management:

Goals for nursing management include eradicating infection, promoting comfort, and preventing recurrence of infection.

1. Eradicating Infection:

The child who can tolerate oral intake will be prescribed an oral antibiotic. The child who has protracted vomiting related to the UTI or who has suspected pyelonephritis will require hospitalization and intravenous antibiotics. Children younger than 3 months, and those with dehydration, a toxic appearance, or sepsis should also be hospitalized for administration of intravenous antibiotics. Administer oral or intravenous antibiotics as prescribed. Urge the parent to complete the entire course of oral antibiotic at home, even though the child is feeling better. Administer intravenous fluids as ordered or encourage generous oral fluid intake to help flush the bacteria from the bladder.

2. Promoting Comfort:

Administer antipyretics such as acetaminophen or ibuprofen to reduce fever. A heating pad or warm compress may help relieve abdomen or flank pain. If the child is afraid to urinate due to burning or stinging, encourage voiding in a warm sitz or tub bath.

3. Preventing Recurrence of Infection:

Encourage the parents to return as ordered for a repeat urine culture after completion of the antibiotic course to ensure eradication of bacteria.

Nephrotic Syndrome

Nephrotic syndrome occurs as a result of increased glomerular basement membrane permeability, which allows abnormal loss of protein in the urine. Nephrotic syndrome generally occurs in three forms—congenital, idiopathic, and secondary. Congenital nephrotic syndrome is an inherited disorder; it is rare and occurs primarily in families of Finnish descent. Nephrotic syndrome may also occur secondary to another condition such as diabetes.

Idiopathic nephrotic syndrome is the most commonly occurring type in children and is also called minimal change nephrotic syndrome (MCNS). MCNS most often has its onset in children by age 6 years. Complications of nephrotic syndrome include anemia, infection, poor growth, peritonitis, thrombosis, and renal failure.

Pathophysiology:

Increased glomerular permeability results in the passage of larger plasma proteins through the glomerular basement membrane. This results in excess loss of protein (albumin) in the urine (**proteinuria**) and decreased protein and albumin (hypoalbuminemia) in the bloodstream. Protein loss in nephrotic syndrome tends to be almost exclusively albumin. Hypoalbuminemia results in a change in osmotic pressure, and fluid shifts from the bloodstream into the interstitial tissue (causing edema). This decrease in blood volume triggers the kidneys to respond by conserving sodium and water, leading to further edema. The liver senses the protein loss and increases production of lipoproteins. Hyperlipidemia then develops as the excess lipids cannot be excreted in the urine. Hyperlipidemia associated with nephrotic syndrome may be quite severe, yet cholesterol levels may decrease when the nephrotic syndrome is in remission, only to rise significantly again with a relapse.

Children with nephrotic syndrome are at increased risk for clotting (thromboembolism) because of the decreased intravascular volume. They are also at increased risk for the development of serious infection, most commonly pneumococcal pneumonia, sepsis, or spontaneous peritonitis. Steroid-resistant nephrotic syndrome may result in acute renal failure.

Therapeutic Management:

Medical management of MCNS usually involves the use of corticosteroids. Intravenous albumin may be used in the severely edematous child. Diuretics are also required in the edematous phase. Long-term therapy is usually required to induce remission. The nephrologist will determine the length of therapy based on the child's response. Children who have steroid-responsive MCNS generally have a favorable prognosis. Some children with MCNS exhibit a minimal response to steroid therapy or experience remissions and the MCNS is steroid resistant.

The Common symptoms:

1. Nausea or vomiting (may be related to ascites)
2. Recent weight gain
3. History of periorbital edema upon waking, progressing to generalized edema throughout the day
4. Weakness or fatigue

5. Irritability or fussiness



Note marked edema associated with nephrotic syndrome.

Nursing Management:

Goals for nursing management include promoting diuresis, preventing infection, promoting adequate nutrition, and educating the parents about ongoing care at home. As with other chronic disorders, provide ongoing emotional support to the child and family.

1. Promoting Diuresis

Administer corticosteroids as ordered. Tapering or weaning doses are required when the time comes to stop corticosteroid therapy. Administer diuretics if ordered, usually furosemide. Children may develop hypokalemia because of potassium loss as an adverse effect of furosemide. Those children may require potassium supplementation or a diet higher in potassium-containing foods.

Monitor urine output and the amount of protein in the urine. Weigh the child daily on the same scale either naked or wearing the same amount of clothing. Assess for resolution of edema. Measure pulse rate and blood pressure every 4 hours to detect hypovolemia resulting from excessive fluid shifts. Enforce oral fluid restrictions if ordered.

In cases of severe hypoalbuminemia, intravenous albumin may be administered. Increases in the serum albumin level cause fluid to shift from the subcutaneous spaces back into the bloodstream. A diuretic such as furosemide administered immediately after the albumin infusion allows for optimal diuresis and prevents fluid overload.

2. Preventing Infection:

Monitor the child's temperature. Administer prophylactic antibiotics, if prescribed. Delay administering live vaccines until at least 2 weeks after corticosteroid or other immunosuppressive medication therapy ceases.

3. Encouraging Adequate Nutrition and Growth:

Encourage a nutrient-rich diet within prescribed restrictions. Fluid restriction is reserved for children with massive edema. Sodium intake may be restricted in the edematous child in an effort to prevent further fluid retention. Encourage protein-rich snacks. Consult with the child and family in planning meals and snacks that the child likes and will be likely to consume. Use of nutritional supplement shakes may be helpful for some children.

4. Providing Emotional Support:

Nephrotic syndrome is often a chronic condition, Frequent hospitalizations require the child to miss school and the parents to miss work; this creates further stress for the family. The child may experience social isolation because he or she must avoid exposure to infections or because of self-esteem problems. The child may be dissatisfied with his or her appearance because of edema and weight gain, short stature, and the classic "Moon face" associated with chronic steroid use. Provide emotional support to the child and family. Encourage them in their efforts to maintain the treatment plan. Introduce the child to other youngsters with chronic renal conditions.