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Nephrotic Syndrome: A Case Study

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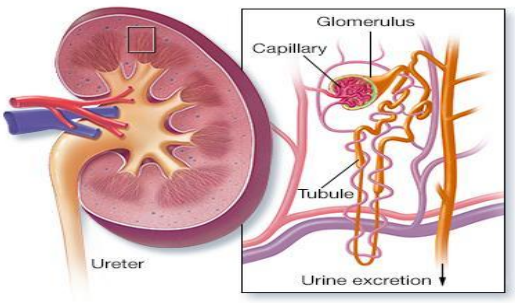
Abstract: ***Nephrotic syndrome is a kidney disorder that causes your body to lose excessive amounts of protein in the urine. This is due to damage to the glomeruli, the filtering units of the kidneys. The important symptoms include swelling (edema), especially around the eyes and ankles, protein in the urine (proteinuria), low levels of protein in the blood (hypoalbuminemia), and high cholesterol and other fats in the blood (hyperlipidemia). Nephrotic syndrome is usually caused by damage to the clusters of tiny blood vessels (glomeruli) of your kidneys. Tests and procedures used to diagnose nephrotic syndrome include, Urine tests, blood test. Treatments including diuretics, Immune system-suppressing medications. Nursing care focus on maintaining blood pressure and emotional support.***

Keywords: syndrome, edema, hypoalbuminemia, hyperlipidemia

1.Introduction

Nephrotic syndrome causes your kidneys to release too much protein in your urine. Causes include kidney diseases that affect the tiny filters inside your kidneys. Nephrotic syndrome usually results from a problem with your kidneys' filters. Glomeruli are tiny blood vessels in your kidneys. They remove wastes and excess fluids from your blood and send them to your bladder as urine. Common waste products include nitrogen waste (urea), muscle waste (creatinine) and acids.

Nephrotic syndrome occurs in about 1 in every 50,000 children each year. Most children receive a nephrotic syndrome diagnosis between the ages of 2 and 5. Boys are about twice as likely to have nephrotic syndrome as girls. It occurs in 3 in every 100,000 adults each year.



Definition

Nephrotic syndrome (NS) is a clinical syndrome defined by massive proteinuria (greater than 40 mg/m^2 per hour) responsible for hypoalbuminemia (less than 30 g/L), with resulting hyperlipidemia, edema, and various complications.

Types of nephrotic syndrome

1. **Congenital nephrotic syndrome** - rare but serious fatal problem. Associated with other congenital anomalies of kideney. Inherited autosomal recessive disease
2. **Primary or Idiopathic nephrotic syndrome-** Most common type (90%). It is regarded as autoimmune phenomenon as it responds to immuno suppressive therapy. It includes minimal change nephrotic syndrome, mesanglial proliferative nephrotic syndrome and focal sclerosis nephrotic syndrome
3. **Secondary Nephrotic syndrome -** Occurs in 10 % of children. It may occur due to Chronic glomerulonephritis, Diabetes mellitus, SLE, Malaria, Hepatitis B, Drug toxicity, HIV.

Etiology

Genetic causes

Congenital Nephrotic Syndrome, Focal Segmental Glomerulosclerosis, Diffuse Mesangial Sclerosis, Nail – Patella Syndrome, Alport Syndrome

Secondary causes

Congenital – Oligomeganephronia, Infectious – Hepatitis (B, C), HIV-1, Malaria, Syphilis, Toxoplasmosis, Inflammatory – Glomerulonephritis, Immunological – Castleman Disease.

Idiopathic

Minimal Change disease (>80 %), Mesangial proliferation, Focal segmental Glomerulosclerosis

Clinical Features

- Large amounts (greater than 3.5 grams) of the protein albumin in urine (albuminuria)
- High fat and cholesterol levels in blood (hyperlipidemia)
- Swelling (edema), usually in legs, feet or ankles. Swelling may also occur in hands or face.
- Low levels of albumin in blood (hypoalbuminemia).
- Loss of appetite
- Feeling unwell or sick
- Abdominal pain (pain anywhere from ribs to your pelvis)

Diagnostic evaluation

- History
- Physical examination
- Urinalysis - 24 hours urine
- Serum chemistry
- Creatinine clearance test
- Needle biopsy of kidney

1. Case study of Master. X

Master. X 8 years old male baby brought by his mother to government hospital whose reliability is poor with chief complaints of facial puffiness for 3 days, pedal edema for 2 days, abdominal distension for 2 days and fever for 4 days. After the detailed history collection, physical examination, blood analysis and urine analysis he was diagnosed as nephrotic syndrome. The child was conscious and oriented. His vitals are temperature: 101F, heart rate: 92 beats/ min, respiration: 24 breaths/ min, SpO2: 98%, blood pressure: 98/38mmhg.

1.1 Investigation

Urine analysis:
- Albumin++, sugar nil
- Pus cells: 8-10
- Epithelial cells: 1-2 cells

Blood examination: Albumin: 2g/dl

1.2 Ultrasonography: right kidney may be prone to developing focal glomerulosclerosis

1.3 Signs and symptoms

Book picture	Child picture
Severe swelling (edema)	Present
Foamy urine	Present
Weight gain due to fluid retention	Present
Fatigue	Present
Loss of appetite	Present

1.4 Management
- Administer medications like Tab. Amlodipine, Tab. Frusemzoe, Tab. B. complex
- Fluid restriction
- Salt restricted diet
- Administer antibiotics

1.5 Complications
- Blood clots
- High blood cholesterol and elevated blood triglycerides
- High blood pressure
- Acute kidney injury
- Chronic kidney disease

1.6 Nursing management
- Reduce the amount of fat and cholesterol in diet to help control blood cholesterol levels.
- Eat a low-salt diet to help control swelling.
- Reduce the amount of liquid in your diet

1.7 Nursing process for nephrotic syndrome

Assessment
- Assess for pedal edema
- Assess for protein urea
- Assess blood pressure for child
- Assess cholesterol level in blood
- Assess vital signs
- Assess skin integrity

Nursing diagnosis
- Excess fluid volume related to fluid accumulation in tissues and third spaces.
- Risk for imbalanced nutrition: less than body requirements related to anorexia.
- Risk for impaired skin integrity related to edema.
- Fatigue related to edema and disease process.
- Risk for infection related to immunosuppression.
- Deficient knowledge of the caregiver related to disease process, treatment, and home care.
- Compromised family coping related to care of a child with chronic illness.

Planning
- Monitoring fluid intake and output
- Improving nutritional intake
- Promoting skin integrity
- Promoting energy conservation
- Preventing infection

Implementation
- Monitored fluid intake and output
- Assessed the edema of the child
- Provided salt restricted diet

Evaluation

Ensure that the child:
- Is free from edema
- Maintain normal vital signs
- Maintain normal intake and output
- Verbalizes his apprehension and feelings

2.Conclusion

Children who have nephrotic syndrome can usually do the things that other children their age do, including during relapses. After a hospital stay, they should be able to continue going to school or nursery. They can play with other children and stay active.

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