



Comprehensive Review On Diagnosis And Management Of Nephrotic Syndrome

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Abstract

Nephrotic range proteinuria is a glomerular disease manifestation that is accompanied with hypoalbuminemia, edema, and hyperlipidemia, as well as significant urine protein losses. It may also include hematuria, hypertension, and a decreased glomerular filtration rate. Situations requiring action include managing high blood pressure, excessive cholesterol, and infection risk. Less salt should be consumed, and minimal fluids should be consumed. An annual report shows 5 out of every 100,000 persons are diagnosed. Between children and adults, there are different typical underlying causes.

Keywords: Glomerular disease, Nephrotic range, Hypoalbuminemia, edema, Hyperlipidemia

INTRODUCTION

The clinical condition known as nephrotic syndrome, which frequently coexists with hyperlipidemia and peripheral edema, severe proteinuria, and hypoalbuminemia, is not a disease. Patients often have edema and weariness when they first arrive, with no signs of serious liver disease or heart failure. A number of significant secondary reasons, such as systemic lupus erythematosus, diabetes mellitus, and negative drug side effects, are ruled out by the patient's medical history and a few diagnostic investigations. Membranous nephropathy and focal segmental glomerulosclerosis are the most common histologic subgroups in people with primary nephrotic syndrome. Idiopathic Nephrotic Syndrome is the most common kind of Nephrotic Syndrome. Venous thrombosis and hyperlipidemia are significant problems of nephrotic syndrome; infection and acute renal damage are other possible complications. Although it is uncommon, NS can cause spontaneous acute renal damage. This is because of the underlying medical condition. The majority of patients respond well to treatment that includes sodium restriction, fluid restriction, loop diuretics, angiotensin-converting enzyme inhibitor or angiotensin receptor blocker medication, and thorough screening for potential illness consequences, despite the absence of evidence-based recommendations. Renal biopsy is frequently advised, however it may be particularly beneficial for individuals who have suspected systemic lupus erythematosus or other renal illnesses, since these patients can benefit from biopsy-guided therapy and prognosis. Although there isn't enough proof, immunosuppressive therapy for NS frequently includes corticosteroids. It is not advised to regularly provide prophylactic medication to stave off infection or thrombosis. The use of anticoagulants and immunosuppressants, the requirement for renal biopsy, and any other grey areas should all be discussed with a nephrologist.

INCIDENCE OF NEPHROTIC SYNDROME IN INDIA AMONG ADULTS

Three new instances of nephrotic syndrome are reported annually in adults.³ Compared to microalbuminuria or decreased kidney function as a side effect of systemic disorders like diabetes and high blood pressure, it is a relatively uncommon manner for kidney disease to appear.⁴

CAUSES OF NEPHROTIC SYNDROME

1. The condition can be brought on by a wide variety of secondary and primary (idiopathic) glomerular disorders.

2. Primary (idiopathic) glomerular disease

Primary glomerular disorders are often the cause of the majority of instances of nephrotic syndrome. The most frequent main cause of the illness thirty years ago was idiopathic membranous nephropathy.⁵ There are noticeable racial disparities in the prevalence of various glomerular disorders, including focal segmental glomerulosclerosis. While focal segmental glomerulosclerosis accounts for 50–57% of cases in black individuals, membranous nephropathy continues to be the most prevalent aetiology in white people.⁶

3. Secondary glomerular disease

Because diabetes is becoming more widespread, diabetic nephropathy is a frequent cause. Immunoglobulin light chain amyloid nephropathy, which accounts for 10% of cases in one series, is another significant cause.⁵

Secondary causes of nephrotic syndrome

1. Other disease

- Diabetes mellitus
- Systemic lupus erythematosus
- Amyloidosis

2. Cancer

- Myeloma and lymphoma

3. Drugs

- Antimicrobial agents
- NSAID
- Captopril
- Lithium

4. Infections

- HIV
- Hepatitis B and C
- Malaria
- Syphilis
- Mycoplasma

5. Congenital causes

- Alport's syndrome
- Congenital nephrotic syndrome of the Finnish type
- Pierson's syndrome
- Nail-patella syndrome

CLINICAL SIGNS ACCOMPANY NEPHROTIC SYNDROME

- The nephrotic syndrome is characterised by four primary signs or symptoms. They are: - Proteinuria, or having too much protein in the urine.
- High blood cholesterol and fat levels. "Hyperlipidemia" is the medical word for it.
- Legs, feet, ankles, and occasionally the hands and face, experience swelling. It's known as edoema.
- Low blood albumin concentrations. (Hypoalbuminemia)

- Other features of the nephrotic syndrome include:

- The body having too much fluid as a result of serum hypoalbuminemia is the most typical symptom. Fluid builds up in the interstitial tissues when serum oncotic pressure declines. The retention of sodium and water makes the edoema worse. This might take a variety of shapes. Typically seen in the morning is puffiness around the eyes.
- Leg edoema that is forming in patches.
- Pleural effusion caused by fluid in the pleural cavity. Pulmonary edoema is more typically connected to excess fluid.
- Ascites is brought on by fluid in the peritoneal cavity.
- Anasarca, a widespread edoema with no specific location.

PATHOPHYSIOLOGY OF NEPHROTIC SYNDROME

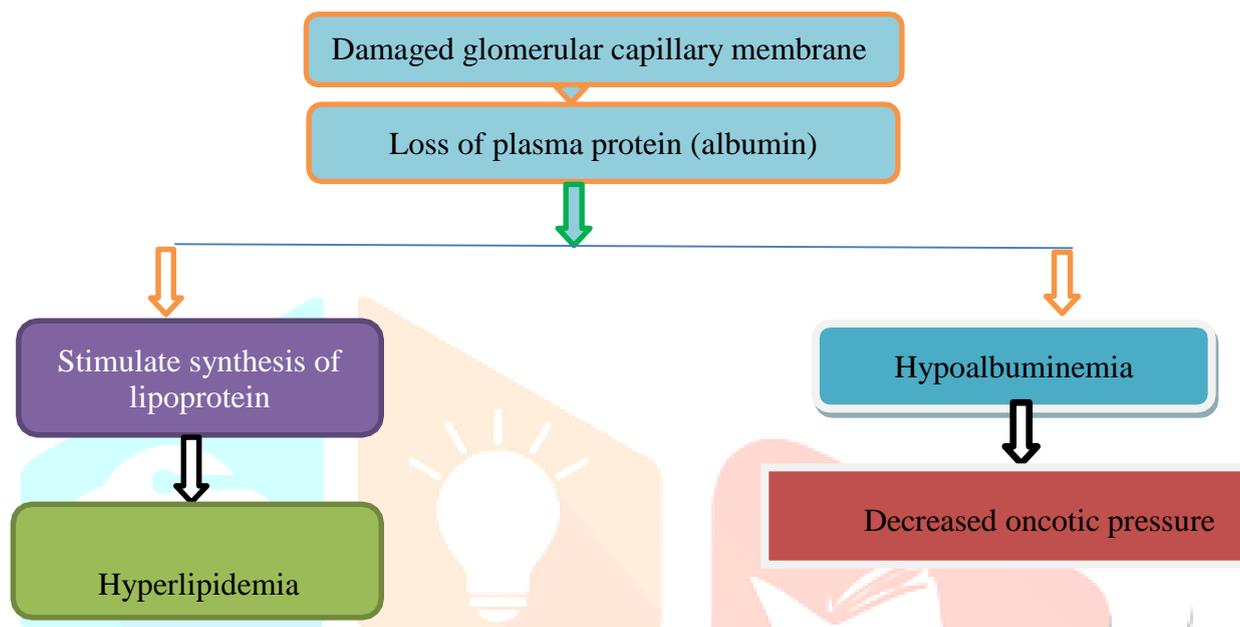


Diagram showing pathophysiology of Nephrotic syndrome

COMPLICATIONS OF NEPHROTIC SYNDROME

- The following are potential nephrotic syndrome side effects:
 - **Blood clots.** Blood proteins that aid in preventing clotting may be lost if the glomeruli are unable to filter blood adequately. The likelihood of getting a blood clot in the veins rises as a result.
 - **Elevated triglycerides and high cholesterol levels.** The amount of albumin produced by the liver increases as the blood level of that protein decreases. Additionally, triglycerides and cholesterol are released by the liver at the same time.
 - **Poor dietary habits.** Malnutrition may occur if too much blood protein is lost. This may result in weight loss, which edoema could cover up. Additionally, the patient may have low blood protein levels, low vitamin D levels, and anaemia (too few red blood cells).
 - **High blood pressure.** The accumulation of extra bodily fluid as a result of glomeruli damage and blood pressure elevation.
 - **Acute kidney damage.** Waste materials can accumulate fast in the blood if kidneys lose their capacity to filter blood as a result of glomeruli injury. If this occurs, the patient may require emergency dialysis, which is a synthetic method of removing excess fluid and waste from the blood and often involves the use of a dialyzer, an artificial kidney machine.
 - **Diabetic renal disease.** Over time, the kidneys' ability to function can be compromised by nephrotic syndrome. If kidney function deteriorates severely enough, the patient may require dialysis or a kidney transplant.
- **Infections.** Infection risk is higher in people with nephrotic syndrome.

DIAGNOSTIC EVALUATION FOR NEPHROTIC SYNDROME

- Protein, cast, and specific gravity analyses of urine.
- Blood to check the amounts of albumin, globulin, and total serum protein.
- The sedimentation rate of erythrocytes.
- Blood cholesterol.
- Immunoglobulin
- Electrophoresis

Renal ultrasonic

- Adult Renal Biopsy

MANAGEMENT OF NEPHROTIC SYNDROME

- **Medicines for high blood pressure.** Blood pressure and the volume of protein excreted in the urine are both decreased by medications known as angiotensin-converting enzyme (ACE) inhibitors. This class of drugs includes the drugs lisinopril (Prinivil, Qbrelis, Zestril), benazepril (Lotensin), captopril, and enalapril (Vasotec).
- **Blood pressure medications.** Medications known as angiotensin-converting enzyme (ACE) inhibitors lower both blood pressure and the amount of protein secreted in the urine. The medications lisinopril (Prinivil, Qbrelis, Zestril), benazepril (Lotensin), captopril, and enalapril (Vasotec) are all members of this family of medications.
- **Drugs that lower cholesterol.** Statins can aid in lowering cholesterol levels. It is unclear, though, if cholesterol-lowering drugs can help nephrotic syndrome sufferers achieve better results, such as reducing their chance of developing heart attacks or dying sooner.
- **Blood thinners (anticoagulants).** These may be administered, especially if the patient already has a blood clot, to lessen the blood's propensity to clot. Warfarin (Coumadin, Jantoven), dabigatran (Pradaxa), apixaban (Eliquis), and rivaroxaban (Xarelto) are anticoagulants. Heparin is another.
- **Immune system-suppressing medications.** The inflammation that comes along with certain of the disorders that might lead to nephrotic syndrome can be reduced by immune system-regulating medications like corticosteroids. Medications include cyclosporine, cyclophosphamide, and rituximab (Rituxan).

NEPHROTIC SYNDROME CONSERVATIVE MANAGEMENT

1. Monitor urine output and urine examination
2. Blood pressure monitoring
3. Fluid and electrolyte balance
4. Weight

NURSING CARE OF NEPHROTIC SYNDROME

- Check the blood pressure and vital signs, and do so often.
- Maintain fluid balance; the amount needed is estimated based on the child's weight and output.
- Each day, the weight should be recorded and compared with the output and oedema.
- Specific gravity and albumin levels are checked in the urine on a daily basis.
- To gauge the oedema, measure your abdomen circumference every day.
- The diet need to be high in proteins and low in salt.
- Sitting down relieves dyspnea brought on by ascites, and abdominal paracentesis is used to release upward pressure on the diaphragm.
- Depending on the patient's tolerance and the blood protein levels, proteins may be administered at a rate of 4 to 5 g per kg of body weight.
- Sufficient calories must be provided. Feeds may be brief and irregular.
- Encourage the patient in the Fowler position to lighten up on the pressure on the diaphragm since the ascites is making breathing difficult for the patient.

- The oedematous skin has to be taken care of by positioning, providing skin care, cleansing, and maintaining the skin's dryness.
- Support divisional activities that make you happy.

REFERENCES

1. CHARLES KODNER, MD, University of Louisville School of Medicine, Louisville, Kentucky Diagnosis and Management of Nephrotic Syndrome in Adults, Mar 15, 2016 Issue
2. https://www.niddk.nih.gov/-/media/Images/Health-Information/Urologic/Kidney-Nephron-FINAL_2044x1890.jpg
3. Llach F. Thromboembolic complications in the nephrotic syndrome. Coagulation abnormalities, renal vein thrombosis and other conditions. Postgrad Med 1984;76:111-4, 116-8, 121-3
4. National Collaborating Centre for Chronic Conditions. Chronic kidney disease: early identification and management of adults with chronic kidney disease in primary and secondary care. Draft for consultation: full guideline published 10 March 2008. www.nice.org.uk/nicemedia/pdf/CKDCConsFullGuideline.pdf
5. Haas M, Meehan SM, Karrison TG, Spargo BH. Changing etiologies of unexplained adult nephrotic syndrome: a comparison of renal biopsy findings from 1976-1979 and 1995- 1997. Am J Kidney Dis 1997;30:621-31.
6. Korbet SM, Genchi RM, Borok RZ, Schwartz MM. The racial prevalence of glomerular lesions in nephrotic adults. Am J Kidney Dis 1996;27:647-51
7. Freedberg, Irwin M.; et al., eds. (2003). Fitzpatrick's dermatology in general medicine (6th ed.). New York, NY [u.a.]: McGraw-Hill. p. 659. ISBN 0-07-138076-0.
8. <https://www.atozgoogle.com/nephrotic-syndrome/>
9. <https://www.mayoclinic.org/diseases-conditions/nephrotic-syndrome/symptoms-causes/syc20375608#:~:text=Nephrotic%20syndrome%20is%20a%20kidney,excess%20water%20from%20your%20blood.>
10. Nephrotic syndrome in adults. National Institute of Diabetes and Digestive and Kidney Diseases. <https://www.niddk.nih.gov/health-information/kidney-disease/nephrotic-syndrome-adults>. Accessed Nov. 22, 2019.
11. <https://www.atozgoogle.com/nephrotic-syndrome/>