

Nephrotic Syndrome

Practical bedside approach • Adults

01 RECOGNISE THE SYNDROME

- **Heavy proteinuria (>3.5 g/24 hours), hypoalbuminaemia and usually oedema.** Hyperlipidaemia and lipiduria are common associated findings.
- Patients may report foamy urine, weight gain, swollen ankles or morning periorbital swelling.
- Glomerular barrier damage causes urinary protein loss. Renal sodium retention and reduced plasma oncotic pressure contribute to oedema.
- **Nephrotic-range proteinuria alone does not necessarily mean a complete nephrotic syndrome.**

02 IDENTIFY THE CAUSE

- Primary causes: **minimal change disease, membranous nephropathy and primary FSGS.**
- Secondary causes: diabetes, lupus, amyloidosis, infections, medications and malignancy.
- Ask about systemic symptoms, diabetes, recent infections, NSAID use and family history.
- In adults, kidney biopsy is often needed to guide treatment; selected patients can be diagnosed without biopsy.

03 INITIAL ASSESSMENT

- Assess blood pressure, weight, oedema, urine output and **intravascular volume status.**
- Quantify proteinuria using **urine protein-to-creatinine ratio (PCR)** or a 24-hour urine collection; dipstick testing alone is insufficient.
- Check albumin, creatinine, electrolytes, lipids and full blood count. Examine the urine sediment: red cell casts suggest an associated nephritic component.
- Select cause-specific tests: anti-PLA2R, ANA/anti-dsDNA, complement, HBV/HCV/HIV and monoclonal protein studies.

04 TREATMENT AND MONITORING

- Restrict dietary sodium and use loop diuretics for significant oedema; monitor weight, kidney function and electrolytes.
- Reduce proteinuria with an **ACE inhibitor or ARB** when blood pressure, potassium and kidney function permit. Consider an SGLT2 inhibitor in eligible, stable patients with proteinuric CKD.
- **Treat the underlying disease.** Immunosuppression depends on the diagnosis and is not required for every patient.
- Individualise prophylactic anticoagulation according to thrombotic and bleeding risks. Review vaccination, infection and cardiovascular risks; avoid NSAIDs and high-protein diets.
- Follow proteinuria, albumin, kidney function and oedema to assess response.

05 COMPLICATIONS AND RED FLAGS

- Major complications: **thromboembolism, infection, acute kidney injury and severe fluid overload.**
- Sudden dyspnoea, chest pain or unilateral leg swelling requires urgent assessment for thrombosis. Fever, abdominal pain, oliguria or rapidly worsening kidney function needs prompt investigation.
- **Marked oedema can coexist with intravascular volume depletion:** assess volume status before intensifying diuretics.

KEY MESSAGE

Nephrotic syndrome is a clinical syndrome, not a final diagnosis. Confirm protein loss, identify the cause, assess complications and treat the disease and its consequences.

REFERENCE

KDIGO Glomerular Diseases Work Group. KDIGO 2021 Clinical Practice Guideline for the Management of Glomerular Diseases. Kidney Int. 2021;100(Suppl):S1-S276; subsequent chapter updates.