

key points

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Glomerulonephritis is an important cause of kidney disease and, in the UK, the most common diagnosis in patients receiving chronic dialysis or waiting for kidney transplantation. A key feature is the presence of urinary abnormalities (proteinuria $\pm$ haematuria).

Patients with nephrotic syndrome typically present with peripheral oedema, massive urinary protein loss and associated low serum albumin levels. Blood pressure and renal function, as measured by eGFR, are usually normal initially. Patients presenting with nephritic syndrome tend to be hypertensive with dipstick-positive or visible haematuria. There may be rapidly progressive renal dysfunction and fall in eGFR.

Many patients will have a background genetic susceptibility to glomerulonephritis which may be triggered by environmental, infective or autoimmune factors. IgA nephropathy may result from environmental factors, such as alcohol abuse, interacting with genetic and autoimmune mechanisms leading to abnormal glycosylation of IgA molecules. Autoimmunity, in combination with genetic factors, is responsible for a significant proportion of cases of glomerulonephritis. Infective agents such as viruses can precipitate minimal change disease. NSAIDs, lithium, penicillamine and heroin can cause nephrotic syndrome.

Dipstick urinary abnormalities such as proteinuria $\pm$ haematuria in the setting of acute kidney injury, a urine ACR > 100 , uncontrolled hypertension or positive antibody tests should prompt urgent discussion with a nephrologist. Timely diagnosis and treatment of glomerulonephritis can help to minimise both the occurrence and severity of complications.

Uncontrolled hypertension and prolonged acute kidney injury increases the risk of chronic kidney disease (CKD), cardiovascular disease and heart failure. Those with nephrotic syndrome are prone to acute kidney injury from accompanying intravascular volume depletion.

General management of those with nephrotic syndrome includes loop diuretics along with a low-salt diet, fluid restriction and daily weight monitoring. Blood pressure control will help retard underlying progression of renal disease. The best evidenced approach for induction of remission in patients who present with a predominantly nephritic syndrome and rapidly declining kidney function is the use of high-dose glucocorticoids along with an immunosuppressive agent. All patients with glomerulonephritis should be managed according to CKD guidelines with CKD stage-appropriate measurement of renal function, blood pressure, and proteinuria.