UK Kidney Association

Proteinuria quick reference

Proteinuria is detected using a laboratory albumin:creatinine ratio (ACR) on a spot urine sample*.

For quantification, an ACR may be sufficient when ACR<100mg/mmol, but at higher levels, a protein creatinine ratio (PCR) is more accurate. A PCR is the best test for quantifying proteinuria when a urine dipstick is positive (protein ++ or more).

24-hour collections to measure urinary protein are no longer necessary (24-hour urinary protein is approximately equal to PCR in mg/mmol divided by 100).

Proteinuria is a non-specific marker of renal damage. It may accompany chronic diseases, but can also be the first sign of a rapidly-progressive kidney disease where delay in diagnosis and treatment may lead to preventable harm.

Newly detected severe proteinuria (ACR>70mg/mmol or PCR>100mg/mmol) requires further investigation. Initial tests (prior to referral) should include:

1. Assessment of renal excretory function (eGFR)
2. Serum albumin
3. Dipstick to check for non-visible haematuria
4. Renal ultrasound

The patient should then be referred for specialist assessment.

When newly diagnosed severe proteinuria is accompanied by new-onset renal impairment and non-visible haematuria, immediate referral (by telephone that day) to the local renal department is mandatory without waiting for an ultrasound result.

Diabetes is the commonest cause of proteinuria. In a person with diabetes, factors which suggest a cause for proteinuria other than diabetic nephropathy include:

1. Onset of severe proteinuria (ACR>70mg/mmol or PCR >100mg/mmol) within five years of developing diabetes
2. Rapid increase in proteinuria or decline in eGFR over weeks
3. Urine dipstick positive for blood (++ or more)
4. Abnormal kidneys on ultrasound (pelvicalyceal abnormalities, scarring, asymmetry)

In people with diabetes who do not have these features, it is reasonable to attribute the proteinuria to diabetic nephropathy in the first instance, but the diagnosis should be reassessed if these features change.

In kidney diseases associated with proteinuria (not only diabetes) ACEinhibitors and ARBs at the highest tolerable doses are used to reduce proteinuria and slow progression of CKD

Heavy proteinuria (PCR>300mg/mmol) sufficient to cause an abnormally low serum albumin level and peripheral oedema is called nephrotic syndrome. This requires urgent referral to a specialist. There is an increased risk of thromboembolic disease.

* For guidance on proteinuria with ACR<70mg/mmol, see module on ACR