

Proteinuria

Jump to summary of monitoring for low-risk patients

Note that this guidance excludes pregnancy, and nephrotic level proteinuria (>3.5g/d, protein/creatinine ratio >300mg/mmol). Both of these require investigation in their own right. Nephrotic level proteinuria usually requires renal biopsy to establish the cause, unless this is immediately evident.

Establish that the result is a true positive:

Persistent proteinuria is abnormal and implies intrinsic renal disease.

Check separate samples including early morning to establish that the finding is consistent.

Check these by measuring PCR or ACR (protein/creatinine or albumin/creatinine ratio), as concentrated samples may give positive results on dipstick tests (but not usually more than 1+) even in health, and as a measure of severity.

Exclude:

- Fever
- Urine infection
- Exercise-induced proteinuria
- 'Orthostatic proteinuria' - absent in early morning sample (though this requires monitoring, and may require further investigation if levels of protein are high).

Investigations

Assess **history, blood pressure, renal function**, seek evidence for **diabetes mellitus** (random blood glucose and glycosylated Hb).

The presence of the following increase the likelihood of significant renal disease, and indicate that further nephrological investigations are appropriate:

Factors increasing likelihood of renal disease:

- proteinuria greater than PCR >100mg/mmol or ACR >70 has been labelled as a referral threshold, but risk is graded, with greater risk of

- progressive renal disease in younger
- haematuria also present (this halves official referral threshold to PCR 50, ACR 30)
 - impaired renal function (if it is deteriorating, investigation is urgent)
 - hypertension (less suggestive with increasing age)
 - history suggestive of systemic disorder (eg new onset of arthralgia, malaise, acute phase response)
 - family history of renal disease

What could be causing the proteinuria?

Almost any renal disease, or any type of renal injury, can cause proteinuria. Glomerular diseases are always responsible for heavy proteinuria (nephrotic syndrome), and lesser proteinuria may therefore be an early sign of these. However it may also be seen in people with tubulointerstitial renal disease, and in those with vascular renal injury from atherosclerosis or possibly longstanding hypertertension.

What is the significance of proteinuria?

In the absence of features predisposing to renal disease, the risk of serious pathology is related to the level of proteinuria. Low levels or intermittent proteinuria can be managed by regular (6-12 monthly) monitoring of urine testing, blood pressure, and serum creatinine.

How should it be managed?

Because of the association of proteinuria with progression of renal injury, rigorous attention to blood pressure control is strongly recommended if renal function is impaired (see information on [blood pressure in renal disease](#)).

When should patients be referred for further investigation?

The new development or worsening of any of the risk factors for intrinsic renal disease indicates that nephrological assessment is appropriate.

SUMMARY of regular monitoring for low-risk patients with < 1g protein/d (PRC=100, ACR=70)

Every 6 months, extending to 12-24 months if all is unchanged, check:

- Blood pressure
- Quantitate proteinuria (PCR or ACR)
- Serum creatinine

Further information

Patient information on proteinuria is available from [EdRenINFO](#), our web pages containing information about kidney diseases for patients, doctors and all medical staff. Patient info on [nephrotic syndrome](#) is also available.

[Proteinuria](#) from the [EdRenHANDBOOK](#) covers use of spot urine sample values to substitute for some 24 hour collections. Handbook information is aimed primarily at hospital doctors and concerns immediate management of renal problems.

[UK CKD eGuide](#)