Nephrotic syndrome

Proteinuria >3g/day (PCR >300mg/mmol) is often associated with:

- salt and water retention apparent as oedema
- hypoalbuminaemia
- hypercholesterolaemia
- heightened susceptibility to infection
- increased risk of venous thrombosis

Management directed at the cause of proteinuria requires diagnosis (usually by renal biopsy). Specific treatment, usually immunosuppression, is available for some diseases.

Complications

Oedema is controlled by salt restriction and diuretics.

Blood pressure should be reduced to 125/75 or less, using ACE inhibitors and diuretics in first instance.

Hypercholesterolaemia usually requires HMG CoA reductase inhibitors if syndrome is lasting.

Anticoagulation as a minimum, immobilised patients should receive heparin prophylaxis .

Infection patients with chronic severe nephrotic syndrome should receive Pneumococcal and meningococcal vaccination. Penicillin prophylaxis has not been shown to be beneficial.

Diuretic Therapy

- Nephrotic patients are often relatively resistant to diuretics, but respond to loop diuretics – if necessary in high doses. Diuresis is usually enhanced by adding a thiazide such as bendrofluazide or metolazone, and/or Spironolactone or other distally-acting diuretic.
- Monitor therapy by weight, lying and standing blood pressure and general examination (JVP, chest, oedema). A degree of intravascular contraction is inevitable and necessary. Pronounced contraction is signalled by postural

drop in blood pressure >20% (or >20/10) and is potentially dangerous; this is particularly likely to occur if rate of weight loss is greater than 0.5-1.0kg/day. Greater rates of loss usually require daily observations.

- A degree of residual oedema and mild postural hypotension is often the best that can be achieved.

Treatment protocols

Sample steroid protocols for minimal change disease/FSGS

Regimen for a first episode of MCD-NS in children:
Prednisolone 60mg/m^2 daily for 4 weeks Prednisolone 60mg/m^2 alternate days for (4-8 weeks) Then reduce dose by one quarter each fortnight (total 4.5 months)
Regimen for an adult (MCD or FSGS; protocol recognises slower responses):
Prednisolone 1mg/kg/d daily for 8-16 weeks, or 2 weeks after complete remission, (whichever shorter) Prednisolone 1mg/kg/d alternate days for 2-4 weeks Tail dose over 3-4 months (first episode)

REMEMBER TO PRESCRIBE AN H2 BLOCKER (adults and children)

Consider bone protection (see section on osteoporosis prevention on steroids)

Subsequent relapses: tail more slowly if relapse has been quick; consider leaving on low dose therapy if frequently relapsing.

Frequently relapsing / steroid-resistant / steroid-dependent patients require discussion.

If response is incomplete, remember coagulation / lipid disturbances as above and vaccination.

Patient information

Nephrotic syndrome – information for patients from EdRenINFO

Acknowledgements: Richard Phelps was the main author for this page. The last modified date is shown in the footer.