The approach to a child with Proteinuria

Children's Kidney Centre
University Hospital of Wales
Cardiff
CF14 4XW

DISCLAIMER: These guidelines were produced in good faith by the author(s) in conjunction with the paediatric nephrology team at the University Hospital of Wales, Cardiff reviewing available evidence/opinion. They were designed for use by paediatric nephrologists at the University Hospital of Wales, Cardiff for children under their care. They are neither policies nor protocols but are intended to serve only as guidelines. They are not intended to replace clinical judgment or dictate care of individual patients. Responsibility and decision-making (including checking drug doses) for a specific patient lie with the physician and staff caring for that particular patient.

Dr Graham Smith

August 2017

Summary
This document is aimed at providing doctors presented with a child with proteinuria with information to guide initial investigation.

Introduction
Proteinuria is an important marker of underlying renal disease. Heavy proteinuria may manifest as nephrotic syndrome and management of this problem is described in another document. Less severe proteinuria is often detected by dipstick analysis of urine.

Investigations
Quantify the proteinuria by sending urine to biochemistry for measurement of protein / creatinine ratio.

If Up/Uc > 20 mg/mmol, need to exclude orthostatic proteinuria.

- Send at least two early morning urines for protein / creatinine ratio

If these are normal and random urines are > 20 mg/mmol, then a diagnosis of orthostatic proteinuria can be made and patient reassured. No further follow-up required.

If EMU Up/Uc is raised (> 20 mg/mmol) then child needs investigation as to cause of proteinuria. The presence of haematuria should not influence investigation.

A full history and examination is required.
Check blood pressure. If treatment of hypertension required, then use an ACE inhibitor or ARII receptor antagonist.

Perform the following investigations:

- Urine culture
- U&E's
- Creatinine
- Bone chemistry
- Serum albumin
- C3 & C4
- ANA
- Anti-dsDNA
- Hepatitis serology
- Serum IgA level
- Serum cholesterol
- Urine beta-2-microglobulin / creatinine ratio

The next question is whether a real biopsy is required.

Indications for a biopsy:

- Up/Uc persistently > 100 mg/mmol
- Raised creatinine

Further management should be discussed with a paediatric nephrology consultant.