

Proteinuria in Children

Proteinuria is significant presence of protein in urine. Physiological proteinuria should not be higher than 100 mg/m²/24 hrs.^[1]

Proteinuria can be:

- **glomerular** proteinuria - usually albuminuria (selective),
- **tubular** proteinuria - usually globulins and albumin (nonselective).

Differential Diagnosis of Proteinuria in Children

Mild Proteinuria

As mild (or intermittent) proteinuria is classified every proteinuria < 0,5 g/m²/24 hrs. Typical causes of mild proteinuria in childhood are:

- pyelonephritis,
- renal cystic diseases,
- obstructive uropathies,
- mild glomerulonephritis.

Moderate Proteinuria

As moderate proteinuria is classified proteinurie 0,5 - 1,0 g/m²/24 hrs. Typical causes of moderate proteinuria in children are:

- PSAGN - it is the most often cause of moderate proteinuria,
- Henoch Schoenlein nephritis,
- chronic glomerulonephritis,
- HUS,
- severe pyelonephritis.

Nephrotic Proteinuria

Nephrotic proteinuria - typically more than 1 g/m²/24 hrs - is associated with nephrotic syndrome (proteinuria, hypoproteinaemia, hypercholesterolemia and edema). Diseases connected with nephrotic proteinuria are:

- minimal change nephrotic syndrome
- focal segmental glomerulosclerosis
- membranous nephropathy
- congenital nephrotic syndrome.

Management of child with proteinuria

- complete history and physical examination (previous pharyngitis → PSAGN, gastroenteritis → HUS, present edema, petechiae, hypertension ...)
- confirmation of presence proteinuria (is necessary repeat urinalysis)
- protein/creatinine ratio (from first morning urine sample), if P/C ratio is > 0,5, other evaluation is necessary:
 - serum electrolytes analysis, creatinine clearance, serum levels of cholesterol, total protein, albumin
 - streptozyme, C3, C4, ASLO analysis
 - renal ultrasonography

Links

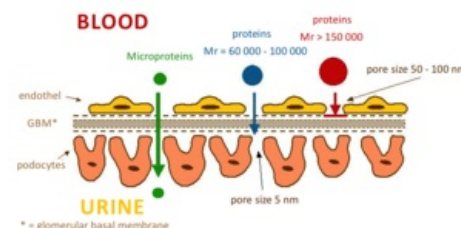
Related articles

- Nephrotic Syndrome in Children

References

1. DOLEŽALOVÁ, Šárka. *Nefrologie I* [lecture for subject Paediatrics, specialization Paediatrics, 1 LF Charles University in Prague]. Prague. 2011-11-21. Available from <<http://kddl.lf1.cuni.cz/download/Nefrologie.I.pdf>>.

Bibliography



Glomerular proteinuria - based on proteins size.

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