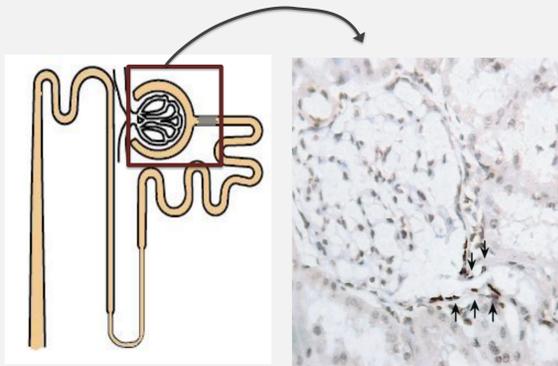


Apoptosis controlling system disturbances in children with nephrotic syndrome

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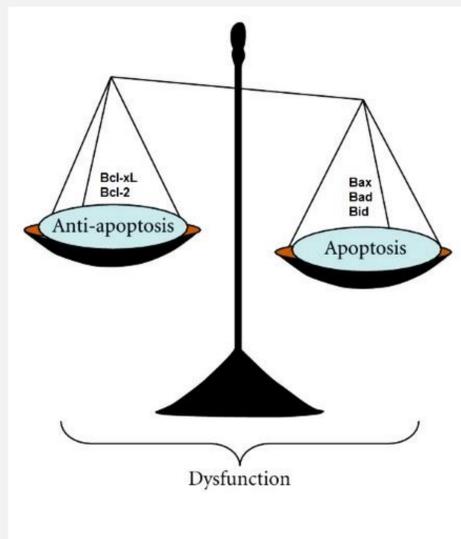
Background

Proteinuria and apoptosis of proximal tubular cells at the glomerular-tubule junction are considered to be a major causes of the disconnection. Glomerular-tubule disconnection and formation of atubular glomeruli, which is a common feature in both tubular and glomerular disorders, contributes to the progressive decline of function in chronic renal disease.



Background

Control and regulation of apoptosis signaling pathways exist under the influence of proteins from Bcl-2 family. Bcl-2 is involved in the regulation of mitochondrial membrane permeability and contains both proapoptotic and antiapoptotic proteins.



Material and methods

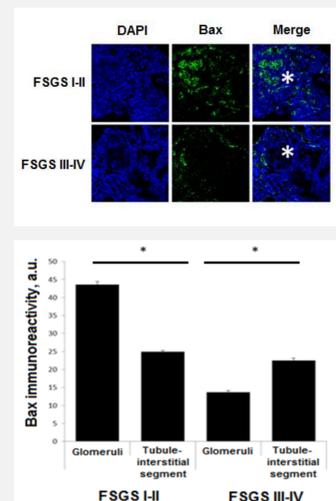
- An examination of renal biopsies of 53 patients (aged 10 to 15 years) with nephrotic syndrome hospitalized in Pediatric Nephrology unit of the Children Clinical Hospital №7 (Kyiv, Ukraine) was done.
- Among all patients 24 (45,28%) were with hormone-sensitive type of nephrotic syndrome, others – 29 (54,72%) showed hormone-dependent type of nephrotic syndrome.
- Immunohistochemical determination of the apoptosis controlling factors (Bax, Bcl-xL) was performed using material of kidney biopsies of children morphological form of nephrotic syndrome focal segmental glomerulosclerosis (FSGS).
- TUNEL test to determine the level of apoptosis biopsy material has been used.

Objective

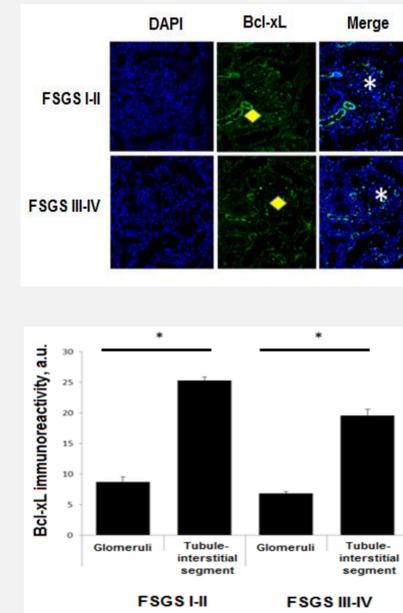
The objective of this paper was to study the topical features of factors controlling apoptosis activity levels in kidney tissue in children with nephrotic syndrome.

Results

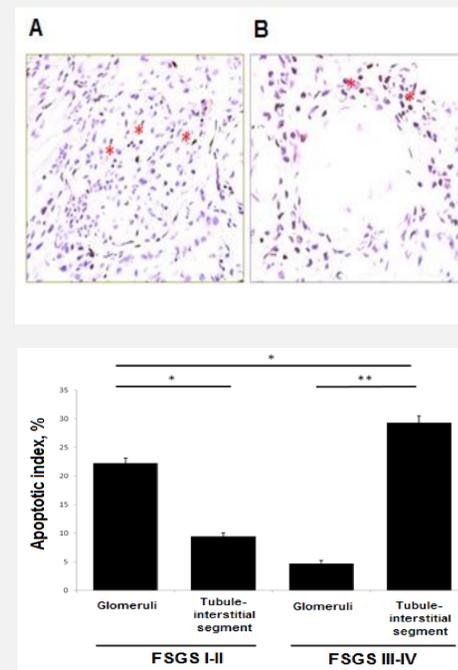
Expression of proapoptotic factor Bax in kidney tissue of patients with nephrotic syndrome



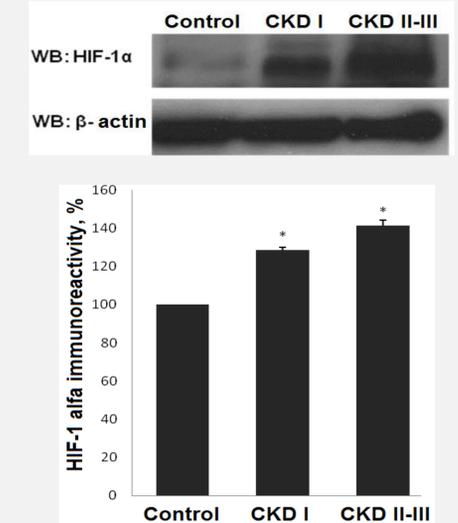
Expression of antiapoptotic factor Bcl-xL in kidney tissue of patients with nephrotic syndrome



Apoptosis in kidney tissue of patients with nephrotic syndrome



Level of HIF-1α in plasma of patients with nephritic syndrome



Conclusions

- Progression of glomerulosclerosis in children with nephrotic syndrome is accompanied by increased activity of proapoptotic factor Bax and a simultaneous reduction in expression of antiapoptotic factor Bcl-xL.
- Revealed dependence of topology of Bcl-xL levels on FSGS degree indicates that development of glomerular and tubule-interstitial disorders under the influence of proteinuria occurs in specific range.
- Disturbances in apoptosis controlling system were accompanied by activation of the cellular hypoxia.

Contact information

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