

English Summary

The objective of my PhD. thesis was to examine the pathophysiology of renal damage in patients with chronic kidney disease, defined by Kidney Disease Improving Global Outcomes (KDIGO) as a persistent renal damage or lowering the kidney function at least for 3 months.

In the study *Urinary TGF beta 1 in children with hydronephrosis* we dealt with renal damage in children with obstructive uropathy. We focused on the identification of non-invasive marker transforming growth factor (TGF) beta 1 of this disease and its correlation with laboratory indications of renal parenchymal damage. Cytokine TGF beta 1 belongs among the main mediators of fibrogenesis in kidney diseases. A higher urinary concentration of TGF beta1 in patients suffering from obstructive hydronephrosis has been found in several studies before, but it has not been confirmed by other authors. In our study we are the first to describe the correlation of urinary concentrations TGF beta1 with laboratory markers of kidney damage.

In the study *Premature atherosclerosis in children with chronic kidney disease* we dealt with the chronic kidney disease (CKD), its consequences and its impact on the origin of atherosclerosis. Patients in end-stage renal disease are many times over in danger of cardiovascular complications than the rest of the population. In this study we used the non-invasive examination of blood vessel damage when the thickness of the tunica intima and media, carotid intima-media thickness (CIMT) was measured by ultrasound. Further, we determined the laboratory parameters including the lipid profile and atherogenic index. Finally, we proved a significant difference in the CIMT and atherogenic index between ill and healthy children. It was clearly observed that the serum levels of natural anti-oxidants- bilirubin and albumin – have an impact on the development of atherosclerosis. Both studies

have been published in impact factor journals. I am enclosing pediatric nephrology case reports showing my publication activities.