

## SUMMARY

**Background.** TGF- is a key profibrogenic cytokine associated with chronic allograft nephropathy (CAN) pathogenesis. Renal ischemia/reperfusion (I/R) injury and hypertension represent important factors contributing to the development of CAN. The aim of the first, experimental part of the present study was to investigate the effect of immunosuppressant sirolimus in a model of accelerated renal injury in hypertensive transgenic rats (TGRs). The aim of the second, clinical part was to correlate the degree of CAN in the protocol biopsy of transplanted patients with TGF-1 plasma levels and plasma levels of fibronectin. Another aim was to evaluate TGF-1 and fibronectin plasma levels in patients treated with different immunosuppressive (IS) regimens.

**Methods.** Experiments were performed in TGR(mREN-2)-27 rats and their normotensive controls. We used a model of accelerated renal I/R injury. In clinical part of the present study, protocol biopsy has been suggested to be a beneficial method for early CAN detection. Protocol core biopsy was carried out in 105 kidney transplant recipients treated with different IS regimens 12 months after renal transplantation.

**Conclusions.** Hypertension induced by high levels of renin in transgenic rats aggravated the renal injury induced by I/R injury. Sirolimus treatment was shown to reduce some consequences of I/R injury. We found decreased TGF-1 expression within the vessel intima. The analysis of protocol biopsies of transplanted patients has shown that TGF-1 tissue expression is linked with chronic vasculopathy. We found no relation between plasma levels of TGF-1 and kidney graft function, the grade of CAN, chronic vasculopathy and trough cyclosporine A levels. There were no correlations to fibronectin plasma levels. Despite the trend we have not found any association of the TGF-1 plasma levels with the type of IS regime.