

## GLUTATHIONE PEROXIDASE PRO200LEU GENE POLYMORPHISM AS A POTENTIAL PREDICTOR OF RENAL FUNCTION DECLINE IN RENAL TRANSPLANT RECIPIENTS

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Mutations in genes encoding antioxidant enzymes may reduce their activity and make organism more prone to oxidative damage. The objective of this study was to determine the distribution of glutathione peroxidase 1 (GPX1) Pro200Leu gene polymorphism in renal transplant recipients and healthy volunteers, as well as the association between investigated gene polymorphism and erythrocytes' antioxidative status and estimated GFR (eGFR) within a two-year follow-up after renal transplantation. A total of 85 patients with transplanted kidney and 110 healthy volunteers were genotyped for GPX1 Pro200Leu gene polymorphisms using the polymerase chain reaction - restriction fragment length polymorphism (PCR-RFLP) method. Of all patients enrolled in genotyping analysis, only 72 patients on tacrolimus went into oxidative stress parameters research. We measured the erythrocytes' concentration of reduced glutathione (GSH) and the activities of GPX and glutathione reductase (GR). GFR was estimated by MDRD formula for creatinine clearance. There was no statistical difference in the distribution of GPX1 gene polymorphism between patients and controls. The obtained results demonstrated that renal transplant recipients with Leu/Leu genotype of tested GPX1 polymorphism had higher erythrocytes' activity of GR compared to the carriers of Pro/Pro genotype, but there were no differences in other oxidative stress parameters. The carriers of at least one Leu allele (Pro/Leu + Leu/Leu genotype) had significant decline in eGFR between the first and second year post-transplant. Genotyping of tested polymorphism in clinical practice may represent significant predictor of renal function decline and may provide identification of patients at high risk of graft loss. *Acta Medica Medianae* 2017;56(1):17-23.

**Key words:** gene polymorphism, glutathione peroxidase, oxidative stress, renal transplantation, renal function