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SERUM AND URINE LEUCINE RICH ALPHA-2-GLYCOPROTEIN-1 IS ASSOCIATED WITH KIDNEY TRANSPLANT INJURY AND FAILURE

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BACKGROUND AND AIMS: Kidney transplantation is the treatment of choice for most of the patients with end stage chronic kidney disease. To improve patient and graft survival, early diagnostics and discovery of specific biomarkers is important.

Leucine rich alpha-2-glycoprotein-1 (LRG-1) is an innovative, non-invasive biomarker that is elevated in case of angiogenesis, inflammation and kidney injury. Aim was to evaluate biomarker LRG-1 level in serum and urine in kidney transplant recipients in accordance with kidney injury markers and time period after kidney transplantation.

METHOD: In the study 35 patients were enrolled. Patients had functioning kidney grafts and they were more than one year post transplant. We detected patient serum and urine LRG-1 levels, using ELISA. Correlation between serum LRG-1, urine LRG-1 and kidney graft structural and functional damage markers was performed. Also, we compared serum LRG-1 levels between subgroups (patients >5 years post transplant and ≤ 5 years post transplant).

RESULTS: Serum LRG-1 had positive correlation with serum cystatin-C ($r=0,46$, $p<0,01$), serum urea ($r=0,53$, $p<0,01$) and negative correlation with eGFR ($r= -0,39$, $p=0,02$). Patients with >5 years post transplant had higher serum LRG-1 level compared with patients ≤5 years post transplant ($p<0,01$). Serum LRG-1 had positive correlation with a longer time period after transplantation ($r=0,53$, $p=0,01$). Urine LRG-1 had correlation with proteinuria ($r=0,58$, $p<0,01$) and NGAL level in urine ($r=0,44$, $p<0,01$). The most common maintenance immunosuppressive regimen was therapy with tacrolimus, mycophenolate and prednisolone (48,6%).

CONCLUSION: Higher serum LRG-1 level correlates with decreased kidney transplant function and with longer time period after transplantation. Higher LRG-1 level in serum and urine is related to kidney transplant injury and failure. Urine LRG-1 can be a useful biomarker for tubular dysfunction in kidney transplant recipients.