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Clinical significance of copeptin as an early predictor of renal graft dysfunction in renal transplant recipients

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Objectives: Copeptin is the carboxyl-terminal part of the vasopressin precursor protein, which is an independent predictor of the onset of chronic kidney disease and the rapid reduction of glomerular filtration rate. We conducted a study to determine the clinical significance of copeptin as an early predictor of renal graft dysfunction in renal transplant recipients.

Methods: In the living or deceased donor kidney transplant recipient, serum creatinine and copeptin concentrations are checked for operation day, post-operation day 1, 3, and 7 and post-operation month 1 and 12. Acute rejection is defined as a case in which a sudden decrease in renal function is accompanied by a histological change after renal transplantation.

Results: Eight patients who underwent living or deceased donor kidney transplantation were enrolled in the study from July 2018 to December 2019. Seven patients received a deceased donor kidney transplant and one had a living donor kidney transplant. There were five male and three female with an average age of 50.6 ± 5.9 years. Four patients underwent histological examination and transplantation rejection was confirmed. All were acute T-cell rejection. No statistically significant correlation was found between creatinine level and copeptin concentration. ($P = 0.935$) There was no significant correlation between preoperative copeptin levels and rejection. ($p = 0.686$)

Conclusions: Copeptin has been identified in previous cohort studies as an independent predictor of the onset of new chronic kidney disease and a decrease in glomerular filtration rate. Glomerular filtration rate is generally regarded as the best indicator of transplant kidney function and as a predictor of graft and patient survival. Copeptin was expected to be used to identify individuals with a high risk of declining graft function or with a high likelihood of rejection, but did not show statistically significant results. More patients may be needed for further study.