P154

이식신의 장기적 기능 예측 인자로서 소변 NGAL의 유용성

고려대학교 안암병원 신장내과

최혜민 · 이재원 · 조상경 · 조원용 · 김형규

Urine NGAL in Early Posttransplant Period can Predict Longterm Graft Function

Hye Min Choi, Jae Won Lee, Sang-Kyung Jo, Won Yong Cho, Hyoung Kyu Kim

Division of Nephrology Korea University Medical College Seoul

Background: Several urinary biomarkers have been proposed as noninvasive predictors of adverse outcomes as well as early detectors of acute kidney injury. Although recent several studies demonstrated the usefulness of neutrophil gelatinase-associated lipocalin (NGAL) or IL-18 in predicting delayed graft function (DGF) after renal transplantation, it is not known whether these biomarkers could also be useful in predicting long-term allograft function. We evaluated to see whether urinary biomarkers including NGAL and a new emerging biomarker, liver type fatty acid binding protein (L-FABP) could predict 6 mo allograft function as well as short-term graft function after renal transplantation.

Methods: This was a prospective cohort study enrolling patients who underwent renal transplantation (30 deceased donor and 21 live donor transplant). We collected urine samples at 0, 6 and 48 hrs after tansplantion and analyzed levels of NGAL and L-FABP using commercial ELISA kits. We classified short-term graft function as DGF, slow graft function (SGF), or immediate graft function (IGF). Long-term graft outcome was assessed by measuring 6-mo eGFR using the MDRD equation and also the occurrence of proteinuria.

Results: Of the 51 patients in the cohort with median follow up period of 14 mo, 3 had DGF, 7 had SGF, and 41 had IGF. Mean levels of NGAL on day 2 in SGF group that also has recently been known to have significant negative impact on longterm graft function was significantly higher compared with that in IGF group (333.1±118 vs 123.5±24.8 ng/mL, p=0.010). However L-FABP levels were not significantly different between two groups at all measured time points. In addition to predicting short term graft function, upper median NGAL levels on day 2 were also associated with higher occurrence of low eGFR (eGFR<55 ml/min/1.73m^2, 33.3 vs 11.5%, p=0.07) and proteinuria (47.4 vs 23.1%, p=0.08) at 6 mo compared with lower NGAL group. NGAL levels on day 2 were negatively correlated with 6 mo eGFR (Pearson correlation coefficient −0.424, p=0.001). Same parameters for serum creatinine was −0.343 and p=0.018.

Conclusion: In summary, early posttransplant urinary NGAL, but not L-FABP, predict SGF and show a negative correlation with 6 mo allograft function. Although small sample size is a limitation, our data suggest that early posttransplant urinary NGAL might be useful in predicting not only SGF but also in predicting longterm graft function.

Key Words: NGAL, 이식신 기능, 신장 이식
NGAL, Graft function, Kidney transplantation