

## 급성 신부전환자의 장기 신기능 예측에 있어 혈장 Neutrophil Gelatinase-Associated Lipocalin 의 유용성

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### Plasma Neutrophil Gelatinase-Associated Lipocalin can Predict Long Term Renal Outcomes in Patients with AKI

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**Purpose :** Although acute kidney injury (AKI) is a disease with high mortality, recovery of renal function in survivors has been known to be almost complete except in minority of patients who subsequently develop chronic kidney disease (CKD). Objectives of this study were to determine longterm renal outcome in patients with AKI and also to determine factors that can predict the worsening of renal function.

**Methods :** Out of 100 hospitalized AKI patients who were enrolled in the prospective observational cohort study, 55 patients with median follow up of  $506.13 \pm 189$  days were included. Glomerular filtration rates (eGFR) estimated with MDRD equation and KDOQI stages were used to evaluate renal function. Plasma and urine NGAL levels were measured at the time of AKI diagnosis and the correlations between baseline NGAL levels and eGFR at 6 months and 1 year were also assessed.

**Results :** Patients' mean age was  $60.5 \pm 15.9$  and gender ratio was 6:4 (M:F). Three patients died during follow up period (ventricular tachycardia, cancer, unknown cause). Twenty three patients (41.8%) were in CKD stage III or IV and 13 patients (23.6%) were in stage V at 6 months. Among those who were not on maintenance dialysis at the time of discharge, 5 patients finally progressed to ESRD requiring chronic dialysis. In multivariate analysis predicting eGFR at 6 month, baseline eGFR was the strongest predictor, followed by initial plasma NGAL. In analysis of covariance with plasma NGAL in quartiles and 6 month-eGFR, there was a strong negative correlation ( $p < 0.01$ ) with significant differences in marginal means. Plasma NGAL was a good diagnostic marker for prediction of 6-month eGFR  $< 30$  ml/min (CKD stage 4-5), based on area under receiver operating characteristic curve analysis. (cut off : 328.5 ng/mL, AuROC=0.812, 95% CI 0.69-0.93, sensitivity 88.9%, specificity 70.3%).

**Conclusion :** Significant proportion of this cohort had worsened long-term renal function following episode of AKI. Initial plasma NGAL might serve as a useful biomarker for predicting long-term GFR outcome after AKI.

**Key Words :** 급성 신부전, 장기예후, 예측인자

Acute kidney injury, NGAL, long term outcome