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급성신손상 환자의 진단과 예후에 대한 생물학적지표로서 NGAL의 연속측정의 효과

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Effects of Serial Plasma Neutrophil Gelatinase-associated Lipocalin Measurement as Biomarker for Diagnosis and Prognosis in Acute Kidney Injury Patients

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Background and Objectives: Acute kidney injury (AKI) is a common and serious condition, the diagnosis of which currently depend on functional markers such as serum creatinine measurement. Neutrophil gelatinase-associated lipocalin (NGAL) appears to be a promising novel biomarker for the early diagnosis of AKI patients and a wide range in its predictive value has been reported. The aim of this study was to evaluate the predictive value of serum NGAL and serial measurement in patients with established AKI in emergency room.

Materials and Methods: Serum NGAL was measured in 701 patient at admission and 24hr later. Patients were divided four groups; group 1 includes patients with normal renal function, group 2 includes patients with AKIN stage 1, group 3 includes patients with AKIN stage 2, group 4 includes patients with AKIN stage 3. Serum NGAL was measured by ELISA at admission. We studied possible relationship between serum NGAL, estimated glomerular filtration rate (eGFR), and mortality in patient with AKI.

Results: Serum NGAL levels were significantly higher in AKI patient than in healthy control (452.19±471.57 ng/mL vs. 183.12±259.46 ng/mL, $p<0.001$). The serum NGAL level showed a significant inversed correlation with GFR ($r=0.164$, $p=0.018$). The discriminatory ability of NGAL for AKI also increased with increasing AKIN stage. (AKIN1 56.0 (52.0-548.0), AKIN2 159.0 (77.5-425.5), AKIN3 503.5 (88.0-1300), $p<0.001$).

Conclusion: From this results, we concluded that serum NGAL is a reliable marker of renal function in AKI patient. Serial NGAL measurement has impacts for diagnosis and prognosis, but monitoring protocols are needed for early detection and management of AKI patients.

Key Words: 급성신손상, NGAL, 생물학적 지표
NGAL, Acute kidney injury, Biomarker