

## IgA 신증에서 세뇨관 간질 손상의 생화학적 지표로서의 KIM-1과 NGAL

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### Kidney Injury Molecule-1 and Neutrophil Gelatinase-associated Lipocalin as a Biomarker of Tubulointerstitial Injury in IgA Nephropathy

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**Introduction:** Urinary neutrophil gelatinase-associated lipocalin (uNGAL) and Kidney injury molecule-1 (uKIM-1) have been known as a predictor of kidney injury but there was a lack of study on its roles in chronic glomerulonephritis. This study was performed to exam the levels of uNGAL and uKIM-1 and to assess whether they had an association with a pathologic finding and clinical activity in patients with IgA nephropathy.

**Methods:** uNGAL and uKIM-1 were measured using commercial human ELISA kits on 40 patients with IgA nephropathy (15 males (37.5%) with a mean age of 36.2 ± 12.9 years) and 10 healthy volunteers (5 males (50%) with a mean age of 37.3 ± 9.6 years).

**Results:** The patients with IgA nephropathy had higher uNGAL (26.9 ± 35.4 ng/mgCr vs. 9.1 ± 7.8 ng/mgCr,  $p=0.006$ ) and uKIM-1 (1.17 ± 1.51 ng/mgCr vs. 0.29 ± 0.20 ng/mgCr,  $p=0.001$ ) compared with those of healthy volunteers. On univariate regression analysis, uNGAL was correlated with serum creatinine ( $r=0.652$ ), eGFR ( $r=-0.393$ ), urine proteinuria ( $r=0.324$ ), and albumin ( $r=-0.423$ ) and uKIM-1 was correlated with pathologic grading (H.S Lee grading) ( $r=0.335$ ), tubulointerstitial inflammation ( $r=0.353$ ), and hemoglobin ( $r=-0.486$ ). In a model of multivariate regression analysis, uNGAL had an association with serum creatinine ( $p=0.006$ ) and eGFR ( $p=0.005$ ) and uKIM-1 did with H.S. Lee grading ( $p=0.004$ ) and tubulointerstitial inflammation ( $p=0.011$ ).

**Conclusion:** uNGAL was associated with residual renal function and uKIM-1 had high correlation with pathologic severity such as tubulointerstitial inflammation.

**Key Words:** KIM-1, NGAL, IgA 신증

KIM-1, NGAL, IgA nephropathy