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제2형 당뇨병 환자의 초기 신병증에서 urinary tubular marker의 임상적 의의

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Clinical Implication of Urinary Tubular Markers in the Early Stage of Nephropathy with Type 2 Diabetic Patients

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Aim: The aim of this study was to evaluate the association of urinary tubular markers, interleukin-18 (IL-18) and angiotensinogen with albuminuria in early nephropathy of type 2 diabetics.

Methods: Urine levels of tubular markers (kidney injury molecule [KIM]-1, neutrophil gelatinase-assoicated lipocalin [NGAL] and liver-type fatty acid-binding protein [L-FABP]), proinflammatory marker (IL-18), and a marker of intrarenal renin-angiotensin system (RAS) status (angiotensinogen) were determined in 118 patients with type 2 diabetes mellitus and 25 non-diabetic controls with estimated glomerular filtration rate (eGFR) ≥60 ml/min/1.73m^2.

Results: Urinary levels of KIM-1, NGAL, IL-18 and angiotensinogen were significantly higher in macroalbuminuria group compared with control and normo- and microalbuminuria groups but not significantly different between control and normoalbuminuria group. Urinary tubular markers were positively correlated with urinary IL-18 and angiotensinogen, respectively. The urinary albuminuria was correlated with all investigated urinary markers in univariate analysis.

Conclusions: The results of this study suggest that urinary tubular markers may be independently associated with albuminuria in the early stage of nephropathy in type 2 diabetics (eGFR ≥60 ml/min/1.73m^2) and may reflect inflammatory processing and the activation of the intrarenal RAS.

Key Words: 당뇨신장병, 콩팥세관, 알부민뇨
Diabetic nephropathy, Kidney tubule, Albuminuria