

방광요관 역류증 환자의 단회뇨에서 요단백 및 효소 배설 측정

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Urinary Protein and Enzyme Excretion of Spot Urine in Children with Vesicoureteral Reflux

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Purpose : The aim of this study was to evaluate the clinical usefulness of measurement of β_2 microglobulin (β_2 MG), N-acetyl- β -D-glucosaminidase (NAG) of spot urine samples as indices of renal tubular damage and microalbumin of spot urine samples as a parameter of glomerular damage in children with vesicoureteral reflux (VUR) or renal defect.

Methods : We studied 91 children with previous UTI. The children were classified as 62 children without VUR and renal defect (group I), 10 children with VUR, without renal defect (group II), 19 children with VUR and renal defect (group III). Patients were separated according to the degree of VUR (mild VUR: VUR grade I-III, severe VUR: VUR grade IV-V). Urinary excretion of β_2 microglobulin (β_2 MG), microalbumin, N-acetyl- β -D-glucosaminidase (NAG), creatinine were measured in samples of morning urine specimens. Children with VUR or renal defect detected by voiding cystourethrography (VCUG) and DMSA renal scan were investigated.

Results : Microalbumin/Cr ratio of spot urine was significantly increased in group III compared group I (42.3 ± 27.2 mg/gCr vs 25.2 ± 10.9 mg/gCr, $p < 0.05$). NAG/Cr ratio of spot urine was significantly increased in children with VUR compared to children without VUR (3.70 ± 23.4 mg/gCr vs 18.7 ± 12.7 mg/gCr, $p < 0.05$). There were no statistically significant difference of β_2 MG/Cr ratio among three groups.

Conclusion : Urinary microalbumin and NAG excretion of morning urine sample may be useful simple and reliable clinical indicators for early identification of renal damage in children with VUR. Urinary microalbumin excretion may be useful marker to predict the the severity of VUR.

Key Words : 방광요관역류

Microalbumin, N-acetyl- β -D-glucosaminidase (NAG), β_2 microglobulin