

척수손상환자에서 나타나는 신경인성 방광과 만성신장병

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Neurogenic Lower Urinary Tract Dysfunction and Chronic Kidney Disease in Spinal Cord Injury Patients

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Background: It is believed that patients with neurogenic lower urinary tract dysfunction (NLUTD) have a significantly higher risk of developing chronic kidney disease (CKD) than the general population. However, data are limited except a few studies that examined the incidence of renal failure in spina bifida or myelomeningocele in pediatric patients. In addition, serum creatinine is not a reliable marker for renal function in NLUTD patients because they present muscle wasting due to disuse or denervation. We examined the prevalence of CKD in NLUTD patients from spinal cord injury (SCI) using serum cystatin-C, and the risk factors for progression to CKD.

Methods: This was a cross sectional study in Korea workers' compensation & welfare Hospital, which is a specialized center for patients from industrial accident. Patients with the diagnosis of NLUTD approved by occupational health and safety insurance, were under regular examination including regular laboratory test and urologic study such as urodynamic study, Sonography, voiding cystourethrography and urethrography. Patients who visited urology department for routine check-up underwent additional measurement of serum cystatin-C from July 2013 to September 2013.

Results: Serum Cystatin-C was checked in 291 patients (mean age 57.5±8.6 yr, mean time period after SCI 19.0±9.3 yr). Of 291 patients, detrusor hyperreflexia and detrusor areflexia accounted for 68.7% and 19.6%, respectively. The overall prevalence of CKD, defined as estimated glomerular filtration rate (eGFR) <60/ml/1.73m² was 20.1% and 6.5 %, by cystatin-C-based and creatinine-based eGFR, respectively, and was greater than age-matched general population in Korea (Korean National Health and Nutritional Examination Surveys). Proteinuria, vesicoureteral reflux and urinary tract stones were found in 46.7%, 10.3% and 27.5% of patients, respectively. Age, co-morbid diabetes and the presence of recurrent urinary tract infection (UTI) were the independent risk factors for the development of CKD in the multivariable analysis, while different bladder emptying modalities was not significantly associated.

Conclusions: The prevalence of CKD is higher in NLUTD patients than in the general population. Recurrent UTI and co-morbid diabetes as well as aging seem to be the important risk factors for development of CKD in NLUTD patients.

Key Words: 척수손상, 신경인성 방광, 만성 신장병

Spinal cord injury, Neurogenic bladder, Chronic kidney disease