

## 진행성 신기능 저하로 신생검을 시행하여 당뇨 신질환과 세뇨관 괴사를 진단받은 6명의 환자의 임상 경과

성균관대학교 의과대학 삼성서울병원 신장내과<sup>1</sup>, 성균관대학교 의과대학 삼성서울병원 병리과<sup>2</sup>

손승연<sup>1</sup>, 권기영<sup>2</sup>, 장혜련<sup>1</sup>, 이정은<sup>1</sup>, 허우성<sup>1</sup>, 김윤구<sup>1</sup>, 김대중<sup>1</sup>, 오하영<sup>1</sup>

### Reversibility of Histologically Documented Tubular Necrosis Observed in Diabetic Nephropathy: A Series Six Case Reports

Seung Yeon Son<sup>1</sup>, Ghee Young Kwon<sup>2</sup>, Hye Ryoung Jang<sup>1</sup>, Jung Eun Lee<sup>1</sup>  
Wooseong Huh<sup>1</sup>, Yoon-Goo Kim<sup>1</sup>, Dae Joong Kim<sup>1</sup>, Ha Young Oh<sup>1</sup>

Nephrology Division, Department of Medicine<sup>1</sup> Samsung Medical Center,  
Sungkyunkwan University School of Medicine, Seoul, Korea  
Department of Pathology Samsung Medical Center<sup>2</sup>,  
Sungkyunkwan University School of Medicine, Seoul, Korea

**Background:** Acute tubular necrosis (ATN) is a classically reversible disease entity. However, it cannot be assure full recovery particularly in elderly and in subjects with chronic kidney disease (CKD). Recent epidemiologic study has revealed that acute kidney injury episodes are associated with a risk for developing advanced CKD in diabetes. In this study, we aimed to evaluate if histologically documented tubular necrosis accompanied by diabetic nephropathy was associated with subsequent renal function recovery.

**Methods:** From January 2009 to January 2013, among 852 patients who underwent kidney biopsy, 79 patients were diagnosed as having diabetic nephropathy. After exclusion of patients combined with other glomerulonephritis or interstitial nephritis, ATN accompanied by diabetic nephropathy was identified in 6 patients. We retrospectively reviewed the clinical course in these 6 patients.

**Results:** As a result, the mean age was 56±10 years and male patients were 4 of 6 patients. The mean duration of diabetes was 16.3±8.6 years and the median initial serum HbA1c was 6.8±2.4%. The indications for biopsy were progressive azotemia in all cases. At the time of biopsy, the mean serum creatinine level was 2.9±0.6 mg/dL, and spot urine protein to creatinine ratio was 5.3±3.9 g/g Cr. All six kidney specimens were compatible with diabetic nephropathy and were accompanied by various stages of tubular necrosis: acute tubular damage in 3 cases, subacute tubular damage in 1 case and subacute with chronic tubular damage in 2 cases. Despite of proper management for ATN, renal function was not improved at 3 months after kidney biopsy at all in 6 patients showing a progressive decline of estimated glomerular filtration rate. In addition, 2 patients progressed to end-stage renal disease at 2, 4 months after kidney biopsy, respectively.

**Conclusions:** This case-series suggests that tubular necrosis accompanied by diabetic nephropathy would not be reversible, even in case it seems acute lesion. The pathogenesis of tubular necrosis observed in diabetic nephropathy should be evaluated in further studies.

**Key Words:** 급성 세뇨관 괴사, 당뇨병성 신증, 가역성

Acute tubular necrosis, Diabetic nephropathy, Reversibility