

## 만성 신질환 환자에서 신질환의 진행 및 심혈관 질환 발생에 대한 망막병증의 역할

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### The Impact of Retinopathy on CKD Progression and Cardiovascular Events in Patients with Chronic Kidney Disease

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**Background:** Chronic kidney disease (CKD) and retinopathy shares a common pathophysiology of microvascular dysfunction, and retinopathy is prevalent disorder in CKD patients. However, the clinical impacts of retinopathy on CKD patients are undetermined.

**Methods:** We included 692 patients, who had nondialysis-dependent CKD stages 3-5. The clinical significance of retinopathy was evaluated with rate of renal function decline and composite of any cardiovascular event or patient death after index retinopathy examination.

**Results:** The retinopathy was observed in 313 (45.2%) CKD patients. Of these, 261 (37.7%) patients had diabetic retinopathy and hypertensive retinopathy was found in 52 (7.5%) patients. The rate of renal function decline was significantly steeper in CKD patients with retinopathy than those without retinopathy ( $-6.64 \pm 9.67$  mL/min/1.73m<sup>2</sup>/y vs.  $-3.00 \pm 9.37$  mL/min/1.73m<sup>2</sup>/y;  $p < 0.001$ ). The patients with proliferative diabetic retinopathy showed more rapid renal function decline than patients with non-proliferative diabetic retinopathy or patients with hypertensive retinopathy (all  $p < 0.05$ ). In a multivariate analysis, retinopathy was an independent predictor for renal function decline ( $\beta = -2.31$ ;  $p = 0.007$ ). The patients with retinopathy showed lower composite event-free survival rate than those without retinopathy ( $p = 0.020$ ). In the multivariate Cox hazards model, the retinopathy was independently associated with any cardiovascular events or death (hazard ratio, 1.53; 95% confidence interval 1.03-2.28;  $p = 0.037$ ).

**Conclusions:** The retinopathy is an independent risk factor for rapid renal function decline and predicts a higher rate of cardiovascular event or death in patients with CKD. These findings allow for the identification of individuals at greatest risk for major complication of CKD.

**Key Words:** 만성신질환, 망막병증, 심혈관질환

Chronic kidney disease, Retinopathy, Cardiovascular events