

## 만성 신부전 환자에서 경동맥 죽상경화반과 신기능 감소속도와의 관계

한림대학교 성심병원

김좌경, 송영림, 김성균, 김형직

### Carotid Plaque Could Predict the Rate of Renal Function Decline in Patients with Chronic Kidney Disease Stage 3 and 4

Jwa-Kyung Kim, Young Rim Song, Sung Gyun Kim, Hyung Jik Kim

Hallym University Sacred Heart Hospital

**Background:** The presence of carotid plaque is a surrogate marker of systemic atherosclerosis and closely associated with adverse cardiovascular outcomes. However the prevalence of carotid plaque as well as its relationship with renal decline rate and progression to dialysis is unknown in chronic kidney disease (CKD) patients.

**Methods:** This prospective longitudinal observational study enrolled 411 CKD stage 3 and 4 patients. All patients performed carotid ultrasonography at their first visit or refer to nephrologists. The decline of renal function was measured by eGFR slope and renal endpoint was defined as commencement of dialysis. Carotid plaque was defined as a focal structure encroaching into the arterial lumen of at least 0.5 mm or 50% of the surrounding carotid intima media thickness (cIMT), or demonstrates a thickness >1.5mm as measured from the media-adventitia interface to the intima-lumen interface.

**Results:** Carotid plaque was observed in 282 (68.6%) patients, and baseline eGFR and eGFR slope was  $44.4 \pm 11.7$  mL/min/1.73m<sup>2</sup> and  $-2.7 \pm 1.1$  mL/min/1.73m<sup>2</sup>/yr. The presence of carotid plaque was closely associated with eGFR slope ( $r = -0.292$ ,  $p < 0.001$ ), and patients with carotid plaque had significantly faster rates of renal decline than those without ( $-3.6 \pm 3.8$  vs.  $-1.2 \pm 2.8$  mL/min/1.73m<sup>2</sup>/yr,  $p < 0.001$ ). According to multivariate analysis, statistically significant variables associated with more rapid renal progression rate were diabetes mellitus ( $p = 0.021$ ), systolic blood pressure ( $p = 0.014$ ), lower albumin ( $p = 0.042$ ), greater proteinuria ( $< 0.001$ ), increased cIMT ( $p < 0.001$ ) and the presence of carotid plaque ( $p < 0.001$ ). During the 2.5-year follow-up, 47 (11.4%) started dialysis therapy. Patients with carotid plaque had a worse dialysis-free survival than those without carotid plaque [hazard ratio 3.17, 95% confidence interval (CI) 1.06 to 9.42,  $p = 0.038$ ].

**Conclusions:** The presence of carotid plaque was closely associated with rapid decline of renal function and progression to dialysis in CKD stage 3 and 4 patients. Detecting carotid plaque may help identify patients at high-risk for rapid progression of renal dysfunction.

**Key Words:** 만성신부전, 경동맥죽상반, 신기능감소속도

Renal progression, Chronic kidney disease, Carotid plaque