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혈액투석 환자에서 동맥 미세석회화와 관상동맥 칼슘수치와의 관계

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Arterial Micro-Calcification is Associated with Coronary Artery Calcium Score in Hemodialysis Patients

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Background: Coronary artery calcium score (CACS) is known as independent predictor of future cardiovascular events, cardiovascular death, and all cause death in hemodialysis (HD) patients as well as general population. We have reported that arterial micro-calcification (AMC) is closely related to early access failure and aortic stiffness, which is risk factor of cardiovascular mortality in HD patients. This study was designed to evaluate relation of AMC and CACS in HD patients.

Methods: Sixty-four HD patients who received vascular access operation were included in this study. The AMC was diagnosed by pathologic examination of arterial specimen by von Kossa stain, which was acquired during the operation. All patients underwent a multi-detector computed tomography (MDCT) imaging procedure and CACS was calculated. Patients were classified into two groups, according to the CACS, as low (<100), in 28 patients, and high (≥100), in 36 patients. We compared CACS between the patients with and without AMC.

Results: Mean age was 65.8±12.5 years and the male gender was 37 (57.8%). The incidence of AMC was 62.5% (n=40). The mean CACS was 439.3±901.1 (0-5674.1), and the median value was 128.4. Patients with the positive AMC group showed a significantly older age (68.6±10.2 vs 61.2±14.7, p=0.036) and a higher prevalence of diabetes (85.0% vs 45.8%, p=0.001). Positive AMC group showed high incidence of high CACS compared to negative AMC group (77.5% vs 20.8, p=0.000). By binary logistic regression, high CACS was independently associated with positive AMC (OR 8.894, 95% CI 1.174-46.154, p=0.008).

Conclusion: The present study suggests that AMC is closely associated with CACS in HD patients.

Key Words: 관상동맥 칼슘수치, 동맥 미세석회화, 혈액투석
Coronary artery calcium, Micro-calcification, Hemodialysis