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말기 신부전 환자에서 중심 혈압과 심혈관 질환 예측인자와의 연관성 비교

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Comparison of the Association between Central Blood Pressure and Cardiovascular Surrogates in Patients with End-stage Renal Disease

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Background: Hypertension is an established cardiovascular (CV) risk factor and is closely related with mortality in end-stage renal disease (ESRD) patients. Recent studies demonstrated central blood pressure (cBP) was a significant predictor of CV disease, since cBP represented the delivered load on coronary and cerebral arteries and was a strong relationship with vascular damage in general population. Therefore, we investigated the association with cBP or peripheral BP (pBP) and the value of CV predictors measured by carotid intima-media thickness (cIMT), pulse wave velocity (PWV), left ventricular mass index (LVMI) and coronary calcium score (CCS) in patients with ESRD.
Methods: Patients enrolled by Cardiovascular and Metabolic Disease Etiology Research center (CMERC) as ESRD group between November 2013 and February 2015 were evaluated. We performed cross-sectional study and analyzed the association between each value of cBP and pBP and parameters measured by cIMT, PWV, LVMI and CCS.
Results: Among the 92 ESRD patients, 52 (56.5%) were male and mean age was 53.2±13.5 years. Mean systolic and diastolic cBP was 140.2 and 83.6 mmHg and, systololic and diastolic pBP was 145.1 and 79.4 mmHg, and mean central pulse pressure (cPP) and peripheral pulse pressure (pPP) was 57.1, and 65.8 mmHg, respectively. Systolic and diastolic cBP and cPP are closely correlated with pBP and pPP ($r=0.841$, $r=0.848$, $r=0.856$, $p<0.001$, respectively). There was significant correlation between systolic cBP and cPP with LVMI, PWV and CCS. While cPP was strongly correlated with cIMT, systolic cBP had no statistically association with cIMT. After adjustment for age, sex, BMI, heart rate and total cholesterol, systolic cBP was significant associated with LVMI (β=0.287, P=0.22) and PWV (β=0.574, $p<0.001$), and cPP was significant associated with PWV (β=0.488, $p<0.001$) and CCS (β=0.371, $p=0.009$).
Conclusion: This study shows that cBP has a close correlation with the value of CV predictors such as LVMI, PWV, and CCS. cBP could be used for predicting CV events in ESRD population.

Key Words: 중심 혈압, 중심 맥압, 심혈관 질환 예측인자
Central blood pressure, Central pulse pressure, Cardiovascular