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투석환자에서 투석방법이 혈관경직도와 심기능에 미치는 영향

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The Impact of Dialysis Modality on Arterial Stiffnessand LV Function in ESRD Patients

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Background : Arterial stiffness determined by pulse wave velocity (PWV) and augmentation index (AIx) has been established as powerful predictor of death in patients treated with hemodialysis (HD). There is, however, a lack of information regarding the comparative impact of different renal replacement therapies (RRT) on PWV and AIx. Therefore, we conducted a cross- sectional study to compare arterial compliance properties and cardiac function between age- , sex- , RRT duration- , blood pressure(BP)- matched CAPD and HD patients.

Methods : Demographic and laboratory data were recorded in a total of 61 patients maintained on RRT. All patients underwent PWV, AIx and echocardiography. These evaluations were performed in HD patients after 4 hr of dialysis session or in CAPD patients with abdomen empty of dialysate.

Results : The mean age was 56±13 years and the mean RRT duration was 29±21 months. Of the patients, 30 patients had been treated with HD and the remaining with CAPD. There were no significant differences in proportion of diabetic patients, previous history of coronary artery disease, ARB or ACE inhibitor use, hemoglobin, hsCRP, CaXP products and intact PTH levels between the two groups. However, total cholesterol, TG, and LDL cholesterol levels were significantly higher in patients on CAPD compared with those on HD ($p<0.05$). The PWV was significantly higher in HD patients (1891±278 vs. 1608±232 cm/sec, $p=0.003$), whereas the AIx was not different between the two groups although HD patients showed a trend for increased AIx. Echocardiographic studies revealed that there were significant increases in IVC size, E/E', and LV systolic and diastolic dimension in HD patients compared with CAPD patients ($p<0.05$). However, other parameters such as LV ejection fraction were similar in both groups. In a multivariate linear regression analysis, HD ($p=0.001$) and systolic BP ($p=0.015$) were independently associated with PWV.

Conclusion : Our study suggests that compared with CAPD, HD may be associated with the increased arterial stiffness and abnormal LV dysfunction, particularly diastolic dysfunction.

Key Words : 혈관 경직도, 심기능, 투석방법
Arterial stiffness, LV function, Dialysis modality