복막투석환자에서 혈관 경직도에 영향을 미치는 생화학적 인자

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Influence of Biochemical Alterations on Arterial Stiffness in Peritoneal Dialysis Patients

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Background : An increase in aortic stiffness, as reflected by an increase in pulse wave velocity (PWV) or aortic augmentation index (AI) is an important predictor of cardiovascular mortality in dialysis patients. Our aim is to elucidate factors related with the arterial stiffness in peritoneal dialysis (PD) patients.

Methods : In a cross- sectional study, we included 71 peritoneal dialysis patients, aged 50±14 years and with dialysis duration of months (median 27, interquartile range=3- 61). Age, mean arterial pressure (MAP), diabetes, serum albumin, Ca, P and intact parathyroid hormone (iPTH), uric acid, total bilirubin, high- sensitivity C- reactive protein (hsCRP) and net fluid removal were included in multiple regression analysis. Net fluid removal was calculated as the sum of urine volume and net ultrafiltration. PWV and AI were measured using an automatic wave form analyzer (model VP- 1000, Colin, Japan).

Results : In univariate analysis, aortic PWV was positively correlated with age, diabetes, net fluid removal, MAP, total cholesterol and LDL cholesterol. AI was positively correlated with MAP, Ca, iPTH.

Comparing the different subgroup according to tertile of PWV, age, male gender, diabetes, total cholesterol, LDL cholesterol, systolic blood pressure (BP), MAP, diastolic BP, pulse pressure(PP) increased from the lower to the upper third with statistically significant, whereas total bilirubin and albumin decrease, but these are not statistically significant.

In a multiple regression model, age (β =0.392; p<0.001), mean arterial pressure (β =0.314; p=0.001) and diabetes (β =0.333; p<0.001) were determinants of PWV in PD patients. Peritoneal dialysis duration (β =0.156; p=0.076), net fluid removal (β =0.170; p=0.055) were marginal determinants. Only MAP (β =0.564; p<0.001) was determinant of AI in PD patients.

Conclusion : Aortic arterial stiffness in patients with peritoneal dialysis may not be affected by traditional biochemical surrogate markers. Age, MAP, and diabetes are independently correlated with arterial stiffness. Peritoneal dialysis duration and net fluid removal have borderline significance.

Key Words : 혈관 경직도, 맥파속도, 복막투석
Aortic stiffness, PWV, Peritoneal dialysis