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혈액 투석 환자에서 좌심실 충만압의 장기적 변화와 임상적 의의

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Longitudinal Changes and Clinical Implications of Left Ventricular Filling Pressure on Chronic Hemodialysis

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Background : Left ventricular (LV) filling pressure as well as LV hypertrophy is related to prognosis in end stage renal disease (ESRD). However, there are few data about the time course of changes of LV filling pressure and its clinical implications in patients on chronic hemodialysis. The aims of this study were to determine whether LV filling pressure are associated with the changes of LV mass index (LVMI) and LV systolic function and to determine whether the N-terminal pro-brain natriuretic peptide (NT-proBNP) levels are associated with the changes of LV filling pressure in patients on chronic hemodialysis.

Methods : This study was designed prospectively. Two-dimensional and Doppler echocardiographic examinations and measurement of plasma NT-proBNP were performed in 37 consecutive patients on chronic hemodialysis and repeated median 43 months later. A ratio of peak early transmitral flow velocity to peak early diastolic mitral annular velocity (E/Em), an estimate of LV filling pressure, was calculated

Results : In multivariate analyses, baseline E/Em ratios were independently associated with changes of LVMI from baseline to follow-up (β-coefficient 0.451, p=0.021). And the changes of E/Em ratios from baseline to follow-up were also independently associated with changes of LVMI (β-coefficient 0.376, p=0.026). The changes of NT-proBNP levels were independently associated with changes of E/Em ratios (β-coefficient 0.609 p<0.001) while the baseline plasma NT-proBNP levels were not significantly associated with the changes of E/Em ratios.

Conclusion : Our data suggest that estimation of E/Em ratios might be helpful in predicting the changes of LVMI and periodic follow-up of NT-proBNP levels may be useful for the detection of the change of LV filling pressure in patient on chronic hemodialysis.

Key Words : 좌심실 충만압, 좌심실 심근지수, 혈액투석
LV filling pressure, NT-proBNP, LVMI