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복막투석 환자에서 좌심방 확장과 잔여 신기능 감소와의 연관성

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Left Atrial Enlargement is Associated with a Rapid Decline in Residual Renal Function in ESRD Patients on Peritoneal Dialysis

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Background: Left atrial volume index (LAVI) has been considered an indicator of diastolic dysfunction and an independent predictor of mortality in patients with end-stage renal disease (ESRD). Residual renal function (RRF) has also been recognized as a significant predictor of morbidity and mortality in these patients. To date, however, little is known on the relationship between LA enlargement (LAE) and the changes in RRF in ESRD patients. Therefore, we conducted this prospective observational study to investigate the impact of LAVI on the decline in RRF in ESRD patients on peritoneal dialysis (PD).

Methods: One hundred and twenty-one incident PD patients were included. Within 2 month after PD initiation, LAE was determined by echocardiography and RRF by 24-hour urine collection. Subsequently, RRF was measured every 6 months. Patients were divided into 2 groups according the presence of LAE (LAVI >32 mL/m^2), and the clinical and laboratory data, including the rates of decline in RRF, were compared between the two groups. Multiple linear regression analysis was performed to identify independent determinants of the rates of RRF reduction.

Results: Patients with LAE tended to have higher baseline RRF, but RRF at 24-month was significantly lower in patients with LAE (P=0.014). The overall rates of decline in RRF were significantly greater in patients with LAE compared to those without LAE (−0.17±0.18 vs. −0.07±0.16 ml/min/month/1.73m^2, p=0.002). Moreover, there were significant inverse correlation between the slope of the decline in RRF and LAVI (p=0.036). Simple linear regression analysis revealed that male gender, diabetes, higher body mass index and baseline RRF, and enlarged LA were associated with a rapid decline in RRF. In multiple linear regression analysis adjusted for other risk factors, LAVI was found as an independent determinant of the rates of decline in RRF (β=−0.026, p=0.018) along with diabetes (β=−0.513, p=0.016) and baseline RRF (β=−0.129, p<0.001).

Conclusion: This study shows that a higher LAVI is independently associated with a more rapid decline in RRF in ESRD patients on PD, suggesting that volume and pressure control may help to preserve RRF in these patients.

Key Words: 복막투석, 좌심방 확장, 잔여 신기능
Peritoneal dialysis, Left atrial enlargement, RRF