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# 복막 투석 환자에서 잔여신기능 감소에 따른 심기능의 변화

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# Preserved Residual Renal Function Improves Heart Function in Incident Peritoneal Dialysis Patients

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**Background:** Reduced residual renal function (RRF) is associated with left ventricular (LV) hypertrophy as well as all-cause and cardiovascular (CV) mortality in patients with end-stage renal disease. However, the serial changes in echocardiographic findings according to the decline rate of RRF in incident dialysis patients have not been investigated thoroughly.

**Methods:** A total of 81 patients, who started peritoneal dialysis (PD) between 2005 and 2012 at Severance Hospital were recruited. Echocardiography was performed at the time of PD commencement and 1 year after. The patients were dichotomized into 'faster' and 'slower' RRF decline groups according to the median values of RRF decline slope (-1.60 mL/min/yr/1.73$m^2$).

**Results:** Baseline RRF and echocardiographic parameters were comparable between the two groups. In the slower RRF decline group, echocardiographic parameters including LV end-diastolic volume index (LVEDVI), left atrial volume index (LAVI), and LV mass index (LVMI) were significantly improved at 1 year after PD commencement compared to baseline values. However, in the 'faster' RRF decline group, these indices did not significantly change in the first year of PD compared to baseline echocardiographic results. The rate of RRF decline was a significant independent factor for changes in LVEDVI (R=17.95, p=0.02), LAVI (R=8.54, p=0.01), and LVMI (R=21.00, p=0.01). The linear mixed model further confirmed that LVEDVI, LAVI, and LVMI improved at a significantly faster rate in the 'slower' RRF decline group (p=0.047, p=0.048, and p=0.001, respectively). Compared to the 'slower' RRF decline group, composite CV outcome [20.29 vs. 7.18/100 patient-years (PY), p=0.1], technique failure (18.80 vs. 4.19/100 PY, p=0.01), and PD peritonitis (15.73 vs. 4.95 /100 PY, p=0.06) developed more frequently in patients with 'faster' RRF decline. Multivariate Cox regression analysis revealed that 'faster' RRF decline was a significant risk factor for composite CV outcome [hazard ratio (HR)=4.82, 95% confidence interval (CI): 1.15-20.22, p=0.03], technique failure (HR=4.44, 95% CI: 1.15-17.18, p=0.03), and PD peritonitis (HR=7.37, 95% CI: 1.43-38.04, p=0.02).

**Conclusions:** Cardiac performance was not significantly improved in incident PD patients with rapid RRF decline, which might partly contribute to adverse clinical outcomes in this group. Therefore, preservation of RRF may benefit clinical outcome by improving cardiac performance

**Key Words:** 잔여 신기능, 심초음파, 복막투석
Residual renal function, Echocardiography, Peritoneal dialysis