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**The effect of strict volume control assessed by repeated bioimpedance spectroscopy on cardiac function in peritoneal dialysis patients**

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**Objectives:** Adequate fluid management plays an important role in decreasing cardiovascular risk in peritoneal dialysis (PD) patients. We evaluated whether strict volume control monitored by bioimpedance spectroscopy (BIS) affects cardiac function in PD patients.

**Methods:** This study is a secondary analysis of a multicenter, prospective, randomized, controlled trial in PD patients. Fluid overload was assessed by the average of overhydration/extracellular water (OH/ECW) at baseline, 6 months and 12 months. Patients were categorized as time-averaged overhydrated (TA-OH/ECW  $\geq$  15 %) or normohydrated (TA-OH/ECW < 15 %), and the clinical and echocardiographic parameters were compared between the two groups.

**Results:** Among a total of 151 patients, 120 patients exhibited time-averaged normohydration during the 1-year study period. Time-averaged overhydrated patients were more likely to have diabetic kidney disease, higher dialysate/plasma creatinine ratio, more anti-hypertensive medications, greater pulse pressure, and lower albumin compared to normohydrated patients. Overhydration status significantly associated with left atrium (LA) diameter, LV end-systolic diameter, end-systolic volume and ejection fraction. LA volume and LV mass index were significantly decreased at 12 months compared to baseline in both the time-averaged overhydrated and normohydrated patients. LA diameter, end-systolic volume and end-diastolic volume were decreased in normohydrated patients only. TA-OH/ECW, but not baseline or 12-month OH/ECW, was an independent risk factor of LV dysfunction based on multivariable logistic regression analyses (Odds ratio 4.556 [95 % Confidence interval 1.520-13.657],  $P = 0.007$ ).

**Conclusions:** Strict volume control based on repeated BIS measurements is an independent predictor of LV systolic function in non-anuric PD patients.