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Volume overload is associated with increased mortality in peritoneal dialysis patients

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Objectives : Chronic dialysis patients are susceptible to volume overload, which condition is known to lead to the deterioration of heart function and endothelial dysfunction. The objective of this study was to evaluate the long term effect of volume overload in patients with peritoneal dialysis (PD).

Methods : Total ninety-eight patients on chronic PD from a single center were followed up for 7 years. The volume status was measured at baseline and after 24-months using Body Composition Monitor and volume overload was defined as overhydration value (ΔOH) over 1.1(L). Vascular calcification was evaluated with abdominal aortic calcification (AAC) score using lateral abdomen radiograph.

Results : During the follow up period, 21(21.4%) patients were censored. All 77 patients who completed the study experienced hospitalization and 27(27.6%) patients died. Patients' volume status at 24-months was not significantly different from the baseline, and majority of patients remained overhydrated. All-cause mortality was significantly increased in patients with older age (HR 1.085, 95% CI 1.047-1.125), diabetes (HR 4.469, 95% CI 2.063-9.680), higher systolic blood pressure (HR 1.031, 95% CI 1.003-1.060), overhydration (HR 1.249, 95% CI 1.087-1.433), and higher AAC score (APS score HR 1.114, 95% CI 1.055-1.176). Severe volume overload (ΔOH>2.5) was independently associated with increased cardiovascular events and all-cause mortality. (Figure 1).

Conclusions : Volume status is an important prognostic risk factor in PD patients, therefore intervention to maintain euvolemia should be vigorously applied.

Keywords : volume overload, peritoneal dialysis, mortality