

Pilot and feasibility study examining the effects of a comprehensive volume reduction protocol on hydration status and blood pressure in hemodialysis patients.

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Introduction: Chronic volume overload is a persistent problem in hemodialysis (HD) patients. The purpose of this study was to investigate the impacts of comprehensive volume reduction protocol on HD patient's hydration status and blood pressure (BP).

Methods: Twenty-three HD patients (age=55.7 ± 13.3y) completed a 6-month comprehensive volume control protocol consisting of: 1) reducing post-dialysis weight; 2) reducing BP medication prescriptions; and 3) weekly intradialytic counseling to reduce dietary sodium intake and interdialytic weight gain (IDWG). The primary outcome was volume overload (VO) measured by bioelectrical impedance spectroscopy. Secondary outcomes included: IDWG, post-dialysis weight, estimated dry weight (EDW), dietary sodium intake, BP and BP medication prescriptions.

Results: From baseline (0M) to 6 months (6M), significant improvements were noted in: VO (0M 3.9 ± 3.9L vs 6M 2.6 ± 3.4 L, p=0.003), post-dialysis weight (0M 89.4 ± 23.1 kg vs 6M 87.6 ± 22.2 kg; p = 0.012), and EDW (0M 89.0 ± 23.2 vs 6M 86.7 ± 22.5 kg., p=0.009). There was also a trend for a reduction in monthly averaged IDWG (p = 0.053), and sodium intake (0M 2.9 ± 1.6 vs 6M 2.3 ± 1.1 g/day, p=0.125). Neither systolic BP (0M 162 ± 27 vs. 6M 157 ± 23 mmHg, p=0.405) nor diastolic BP (0M 82 ± 21 vs 6M 82 ± 19 mmHg, p= 0.960) changed, though there was a significant reduction in the total number of BP medications prescribed (0M 3.0 ± 1.0 vs 6M 1.5 ± 1.0 BP meds; p=0.004).

Discussion: Our volume reduction protocol significantly improved HD patient's hydration status. While BP did not change, the reduction in prescribed BP medication number suggests improved BP control. Despite these overall positive findings, the magnitude of change in most variables was modest. Cultural changes in HD clinics may be necessary to realize more clinically significant results.