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Dialysis

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Association between hydration status and postdialysis hypertension in hemodialysis Patients

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Background: Accurate volume assessment is important for dialysis patients because the fluid overload which leads to increased cardiac load. Intradialytic hypertension has been reported to occur commonly in hemodialysis (HD) sessions. However, the cause of intradialytic hypertension remains to be determined. We performed this study to further ascertain the association between hydration status and postdialysis blood pressure in HD patients.

Methods: We conducted a retrospective multi-center study. 222 HD patients were enrolled who were performed a postdialysis bioimpedance analysis. Postdialysis hypertension was defined as an increase in systolic blood pressure (SBP) of 10mmHg or more after dialysis. Δ SBP was calculated by SBP difference between before and after HD.

Results: Patients with postdialysis hypertension had higher extracellular (ECW)/total body water (TBW) than those in patients without postdialysis hypertension (0.40 ± 0.01 vs. 0.39 ± 0.02 , $p < 0.001$). By Spearman's correlation analysis, Δ SBP correlated significantly with ECW/TBW ($r = +0.277$, $p < 0.001$) and age ($r = +0.287$, $p < 0.001$). Also, hemoglobin ($r = -0.173$, $p = 0.012$), serum albumin level ($r = -0.232$, $p = 0.001$), and subjective global assessment score ($r = -0.224$, $p = 0.014$) had a significant correlation with Δ SBP. Ultrafiltration volume during HD and dialysate sodium level didn't correlate with Δ SBP. According to multivariable linear regression analysis, ECW/TBW was the independent risk factor affecting Δ SBP.

Conclusion: Our data support that ECW/TBW is a potential risk factor for postdialysis hypertension in HD patients.

Keywords: bioimpedance, Hemodialysis, hypertension, volume status