Volume Overload and Quantitated Blood-Plasma Volume: How Effective is Intravenous Diuretic Therapy in Patients Hospitalized for Decompensated Chronic Heart Failure?

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Abstract

Background: The management and outcome of heart failure (HF) is complicated by the presence of volume overload. Despite advances in understanding and management of this syndrome, effective management is challenging. In this study, we sought to evaluate frequency distribution of quantitated total blood volume (TBV) in a group of chronic heart failure (CHF) patients hospitalized for decompensation.

Methods: Twenty-six patients evaluated (73±9 yrs, sCr 1.8±0.9 mg/dL) underwent TBV analysis at admission in this group, and of this group, 17 patients also had PV quantitated at hospital discharge. Only 6 patients were euvolemic at admission with a mean deviation from normal expected TBV value of +4±5% and 24 were hypervolemic (Table 2).

Results: The study cohort consisted of 26 patients admitted to St Mary's Hospital, Mayo Clinic, Rochester, MN for DHF and who also met inclusion/exclusion criteria. The study evaluated the response to standard loop diuretic therapy in achieving guideline-recommended euvolemia prior to hospital discharge.

Conclusions: The study evaluated the response to standard loop diuretic therapy in achieving guideline-recommended euvolemia prior to hospital discharge. The relatively minor quantitated intravascular volume change during diuretic therapy in CHF patients treated at hospital discharge, with ongoing inpatient treatment, suggests that DHF patients have persistent TBV expansion. The persistent TBV expansion at discharge suggests that DHF patients may require ongoing inpatient treatment for fluid overload and that aggressive diuretic therapy, remains a significant challenge for DHF patients.