A prospective, randomized, double-blind, parallel-group, multicenter study to assess the efficacy and safety of intravenous dextrose 5% solution compared with normal saline (standard care) in rinsing during haemodialysis in subjects with end-stage renal failure (ESRF) with respect to systolic blood pressure control over 3 months period

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ABSTRACT

Introduction: Use of normal saline (NS) containing 0.9% sodium chloride for rinsing during haemodialysis treatment may cause sodium loading leading to hypertension. Switching to a non-sodium fluid may improve blood pressure (BP) control. **Methods:** Fifty-four non-diabetic ESRF patients on maintenance three times per week haemodialysis were randomized to either continue receiving the standard NS or switch to Dextrose 5% (D5) as a rinsing solution for three months. BP was measured at baseline, pre and post each dialysis session and at the end of the study. **Results:** There were no differences in age, duration on HD, gender, ethnicity, and BP at baseline between the two groups. Post-dialysis BP was significantly reduced at the end of the study compared to baseline for the D5 group. The reduction in BP was significantly higher in the D5 group compared to the NS group (systolic: -24.0mmHg vs -2.1mmHg, p=0.002; diastolic: -10.2mmHg vs -2.5mmHg, p=0.032). The reduction in mean arterial pressure (MAP) was larger in the D5 group by 12.4mmHg (p=0.011). **Conclusion:** Well-controlled BP and MAP are essential for hemodialysis patients as they reduce the risk of comorbidities such as cardiovascular and cerebrovascular events and determine their prognosis. One of the main contributing factors to inadequate BP control has been sodium loading from the NS solution used in priming and rinsing. Our study results showed that replacing NS with dextrose 5% during the rinsing phase was able to reduce their BP significantly.