**No difference in Sodium Removal with Ultrafiltration Therapy versus Conventional Diuretic Therapy in Patients with Acute Heart Failure**

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*Introduction:* There has been a renewed interest in the use of ultrafiltration therapy as an efficient method of decongestion for patients with acute decompensated heart failure (ADHF). Enhanced sodium removal has been proposed as an advantage of ultrafiltration over conventional diuretic-based treatment, and a key mechanism underlying the sustainability of its beneficial effects. There is a paucity of evidence regarding the impact of ultrafiltration as it relates to sodium balance in this setting.

*Methods:* We utilized data on the urine and ultrafiltrate sodium concentration, extracted from a pilot randomized controlled trial on 16 patients with ADHF, treated with ultrafiltration or diuretics. These findings were applied to the data from the Ultrafiltration in Decompensated Heart Failure with Cardiorenal Syndrome (CARRESS-HF) study. The 4-day urine and ultrafiltrate volumes of 188 patients were included. The daily and total fluid and sodium removal were calculated for both modalities and the differences were then compared using unpaired t-test.

*Results:* The urine sodium concentration was 85 mmol/L in patients receiving medical therapy and 26 mmol/L in the ultrafiltration group. The ultrafiltrate sodium concentration was 138 mmol/L. Although urine output was consistently lower in the ultrafiltration arm, the total extracted fluid volume was similar for both groups at 4 days (12.25 L of urine for medical treatment vs. 5.1 L of urine and 7.2 L of ultrafiltrate for ultrafiltration, p= 0.68). The total sodium removal was 1127 mmol (mean 282±95 mmol/day) for ultrafiltration (urine and ultrafiltrate) and 1041 mmol (mean 260±25 mmol/day) for medical therapy (p=0.68).

*Conclusion:* Compared to conventional diuretic-based medical treatment, ultrafiltration therapy did not result in significantly greater sodium removal in patients with ADHF despite comparable fluid removal and higher concentration of sodium in the ultrafiltrate. Reduced urinary sodium concentration in patients treated with ultrafiltration is the primary reason for its reduced efficacy.