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2507-670**Peripheral Ultrafiltration for the Prevention of Contrast Induced Nephropathy: A Pilot Study**

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Background: Peripheral ultrafiltration (PUF) is an effective method for fluid removal in heart failure patients. This pilot study evaluated the feasibility and safety of a PUF/hydration protocol for the prevention of contrast induced nephropathy (CIN) in patients with moderate to severe kidney dysfunction undergoing elective percutaneous coronary intervention (PCI).

Methods: Patients with serum creatinine (Cr) ≥ 1.8 mg/dL scheduled for elective PCI were recruited. A 16 Ga, 35 cm extended length catheter and 18 Ga IVs were placed in peripheral veins for blood withdrawal and return, respectively. PUF was performed with the *Aquadex FlexFlow* system (CHF Solutions, Inc.) at goal rate 500 mL/hour (hr). IV hydration with either NS or $\frac{1}{2}$ NS with $\frac{1}{2}$ ampule of NaHCO_3 was infused at a rate equal the amount of fluid withdrawn. PUF/hydration was performed for 4-6 hrs before PCI, continued during PCI, and for 4-6 hrs post PCI. Serum Cr was measured at baseline, 12 hrs, 48 hrs and 7 days post PCI. Serum electrolytes and hemodynamics were monitored during PUF. Incidence of CIN was defined as the increase in Cr from baseline of an absolute of 0.5 mg/dL or 25% from baseline.

Results: Nine patients completed the protocol: 78% were male, with mean age of 74.9 (± 10) years. Mean baseline Cr was 2.47 (± 0.8) mg/dL (Mean GFR 28.5 mL/min/1.73 m²) with mean contrast received 123 \pm 52 cc. PUF was conducted for a mean duration of 4.8 \pm 1.1 hr pre-PCI, 1.6 \pm 0.5 hr during PCI, and 5.2 \pm 0.6 hr post-PCI. In all patients, electrolytes remained stable, with the exception of serum bicarbonate, which decreased by a mean of 21% in the first 4 patients, prompting the addition of a small amount of NaHCO_3 to the hydration fluid in the remaining patients. No patients suffered adverse reactions, hemodynamic compromise, or significant discomfort from the protocol. 3 out of 8 patients had CIN at 48 hours, where Cr increased by mean 0.77 mg/dL; in 2 of these patients Cr normalized at 7 days. No patients required hemodialysis.

Conclusions: Peripheral ultrafiltration is a safe, well tolerated approach for the prevention of CIN. A randomized trial comparing PUF with maximum medical therapy will be performed to evaluate its efficacy.