

**RenalGuard, hemofiltration and hydration in prevention of contrast induced nephropathy in patients with severe chronic kidney disease undergoing percutaneous vascular interventions**

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**Background:** Contrast-induced nephropathy (CIN) is a frequent complication of percutaneous coronary and peripheral artery interventions and is associated with significant in-hospital and long-term morbidity and mortality. We aim to compare the impact on major events of RenalGuard system(RG), continuous veno-venous Hemofiltration (CVVH) and hydration (Hy) with sodium bicarbonate plus N-acetylcysteine in patients with severe renal failure.

**Methods:** We assigned 100 consecutive not dialyzed patients with severe renal failure (eGFR  $\leq 30$  mL/min x 1.73m<sup>2</sup> or with a baseline SerumCreatinine > 1.5 mg/dL, or with a CIN risk score  $\geq 11$ ) scheduled for an elective percutaneous coronary and/or peripheral interventions to a preventive strategy with RG (33 pts), CVVH (35 pts) or Hy (32 pts). Primary end points were In-Hospital and 1 month dialysis and MACEs, and CIN. Secondarily, 6-Month MACEs were recorded.

**Results:** In-H dialysis occurred in none of RG patients, 7 (20%) of CVVH patients vs 2 (6.3%) of Hy group (p=0.013). In-H MACEs were significantly less frequent in RG procedure [RG: 2 (6.1%), CVVH: 13 (37.1%) and Hy: 4 (12.5%) p=0.003; OR RGvs CVVH: 0.12; CI:0.02-0.60, p=0.01]. Similar trends were seen at 1 and 6 month follow-up (Fig). Particularly, none of RG patients died at 6 month FU, vs 9 (25.7%) CVVH patients and 2 (6.3%) Hydration protocol patients (p=0.002). Albeit not significant, CIN occurred less frequently in RG patients (15.2%) than CVVH (31.4%) and hydration protocol (25.0%) (p=0.288).

**Conclusions:** For the first time, RenalGuard, CVVH and hydration with sodium bicarbonate and N-acetylcysteine were compared in a real-world population: RG demonstrated to be safe and to significantly reduce risk of In-Hospital, 1 month and 6 month MACEs, compared to continuous veno-venous Hemofiltration and Hydration.

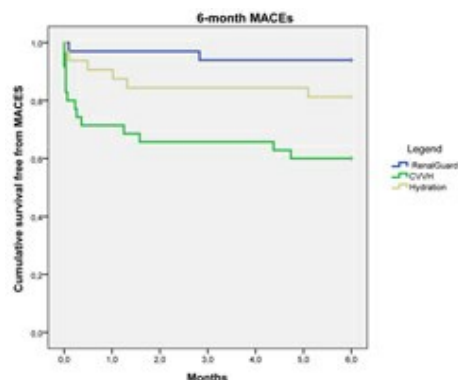


Figure 1. Survival free from MACE