

**INTERVENTIONAL CARDIOLOGY
HYDRATION REDUCES
ANGIOGRAPHIC AKI**

Intravascular volume expansion significantly reduces the incidence of contrast-induced acute kidney injury (CI-AKI) in patients with ST-segment elevation myocardial infarction (STEMI) undergoing primary angioplasty. The results of a prospective, randomized, controlled trial have now been published in *Circulation: Cardiovascular Interventions*.

According to the researchers in the trial, acute renal injury, which is a strong predictor of morbidity and mortality, occurs in 20–30% of patients treated with primary percutaneous coronary intervention (PCI), and patients with STEMI are particularly at risk. Prophylactic perioperative hydration is recommended in treatment guidelines, but the optimal strategy for patients with STEMI has not been established in clinical trials.

The investigators randomly allocated 450 patients with STEMI who were undergoing PCI into three groups: early hydration (preprocedure and postprocedure hydration with sodium bicarbonate), late hydration (postprocedure hydration with isotonic saline), and control (no hydration). The primary end point was development of CI-AKI (defined as an increase in serum creatinine of $\geq 25\%$ or 0.5 mg/dl over the baseline value within 3 days of administration of the contrast agent).

12.0% of patients in the early-hydration group developed CI-AKI, which was significantly lower than in both the late-hydration and control groups (22.7% and 27.3%, respectively, $P=0.001$ for trend). Mortality was higher in patients with CI-AKI compared with those without (12.9% versus 1.1%, $P=0.001$), but the study was neither designed nor adequately powered to assess differences in morbidity and mortality between the two hydration strategies.

Sodium bicarbonate and saline solution are used for rapid and slow infusion in emergency conditions, respectively. The trial was designed with different administration regimens for each of these volume-expansion solutions; which strategy is preferable in patients with STEMI cannot be determined from these data, and warrants further study.

Gregory B. Lim

Original article Maioli, M. *et al.* Effects of hydration in contrast-induced acute kidney injury after primary angioplasty. A randomized, controlled trial. *Circ Cardiovasc Interv.* 4, 456–462 (2011)