

As vascular nurses, we work regularly with patients with chronic kidney disease (CKD) who require contrast for various tests and procedures. Therefore, it is beneficial to be aware of the PRESERVE Clinical Trial published by the New England Journal of Medicine in November 2017. This large, multinational, randomized control trial studied patients with CKD (Stage 3 or 4) who were undergoing angiography. The study was funded by the US Department of Veterans Affairs Office of Research and Development and the National Health and Medical Research Council of Australia.

Four thousand nine hundred thirty-seven patients who underwent angiography were randomly assigned to receive intravenous (IV) sodium bicarbonate (150 mmol per liter) or IV 0.9% sodium chloride and five days of oral acetylcysteine or placebo. A 2-by-2 factorial design was utilized. The mean volume of contrast material administered was 85 ml. The primary endpoint was composite death, need for dialysis, or a minimal 50% persistent increase in baseline creatinine in 90 days. Short term contrast associated acute kidney injury (AKI) was a secondary endpoint. Results showed the primary endpoint occurred in 110 of 2,511 patients in the sodium bicarbonate group (4.4%), 116 of 2,482 patients (4.7%) in the sodium chloride group, 114 of 2,495 patients (4.6%) in the acetylcysteine group, and 112 of 2,498 (4.5%) in the placebo group. There was no statistical significance found between the groups in the primary endpoint or in contrast associated AKI.

The authors conclude that in patients with CKD undergoing angiography, there is no benefit to the widespread use of peri-procedural use of bicarbonate IV fluids and acetylcysteine over intravenous sodium chloride with regards to death, major adverse kidney disease, or AKI. Several study limitations include a high percentage of coronary angiography patients (90.5%), study participants were predominately male (93.6 %), and procedures were limited to diagnostic angiograms. Refer to the PRESERVE study for further details.

[Weisbord SD, Gallagher M, Jneid H, et al. Outcomes after angiography with sodium bicarbonate and acetylcysteine. *N Engl J Med*. 2017. <http://dx.doi.org/10.1056/NEJMoa1710933>. Accessed November 26, 2017. doi: 10.1056/NEJMoa1710933]