

Prospective Randomized Trial of Na/K Citrate for the Prevention of Contrast-Induced Nephropathy in High-Risk Patients

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Abstract : Objective: Contrast-induced nephropathy (CIN) or contrast-induced acute kidney injury (CI-AKI) is an unknown acute kidney injury (AKI) occurring after exposure to contrast media (CM). Contrast agents are most often used for diagnostic procedures or therapeutic angiographic interventions. Recently, Na/K citrate as a urine alkalinization has been evaluated for the prevention of CIN. We conducted this experiment to evaluate the efficiency of Na/K citrate on CIN in high-risk patients treated with cardiac catheterization. Methods: A prospective randomized clinical trial was conducted on 400 patients having moderate to high-risk factors for CIN treated with elective percutaneous coronary intervention (PCI) and were assigned randomly to the control group or the Na/K citrate group. The Na/K citrate group (n=200) received 5 g Na/K citrate solution, which was diluted in 200 mL water two h before and four hours after the first administration and intravenous hydration for two h prior to and six h after the procedure, while the control group (n=200) only received intravenous hydration. Serum creatinine (SCr) was calculated prior to the contrast exposure and after 48 h. CIN was described as a 25% increase in creatinine of serum (SCr) or >0.5 mg/dl 48 h after contrast administration. Results: CIN was observed in 33 patients (16.5%) in the control group and in 6 patients (3%) in the Na/K citrate group. A significant variation was recorded in the CIN incidence between the two groups 48 h after the radiocontrast agent administration ($p < 0.001$). Conclusion: Our results show that Na/K citrate is useful and substantially reduces the incidence of CIN.

Keywords : contrast media, citrate, PCI

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