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PREVENTION OF CONTRAST-INDUCED NEPHROPATHY COMPARISON OF TWO HYDRATION REGIMENS IN ELDERLY PATIENTS UNDERGOING PERCUTANEOUS CORONARY INTERVENTION

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Objective To observe the influence of two hydration regimens on the renal function of elderly patients undergoing percutaneous coronary intervention (PCI).

Methods Forty five elderly patients with coronary artery disease (CAD) scheduled for PCI were randomly assigned to receive isotonic (0.9% saline) (observe group) or half-isotonic (0.9% sodium chloride plus 5% glucose) hydration (compare group). Hydration liquid were administered at 1.5 ml/kg·h for 6 h after PCI. The serum creatinine (SCr) were detected before and 1, 3, 7 days after PCI.

Results Baseline characteristics such as age, gender, baseline SCr, estimated glomerular filtration rate (eGFR), left ventricular ejection fraction (LVEF) were well matched. The incidence of diabetes in observe group is higher than compare group (10/24 vs 2/21, $\chi^2=5.917$, $p<0.05$). The other risk factors for CIN such as >75 years, hypertension, chronic heart failure (CHF), chronic renal failure (CRF) have no significant difference between two groups. The contrast media dosage and SCr levels after PCI were not significantly different between groups. Hydration fluid volume used in observe group is lower than compare group (968.8±258.7 ml vs 1214.3±381.5 ml, $p<0.05$). The volume of 0.9% saline used for hydration is positively related to the eGFR measured 7 days after PCI. An increase in SCr >25% from baseline was observed in seven patients 3 days after PCI. Average increase was 33.1±4.5% or 26.9±6.6 µmol/l (22–41 µmol/l). The patients with CIN are older and has lower baseline LVEF than that non-CIN. SCr levels of six prediagnosed CRF patients were not significantly different before and after PCI. No deterioration of heart function or acute left heart failure were observed in seven CHF patients.

Conclusion CAD patients with advanced age and deceased heart function is more vulnerable to CIN. Hydration regimen can effectively protect renal function and is well tolerated in elderly CHF patients. 0.9% saline isotonic hydration is superior to half-isotonic hydration in the prevention of CIN.