Effects Of Prophylaxis On The Incidence Of Contrast-Induced Nephropathy After Primary Angioplasty

Pierro L\textsuperscript{1,2}, Poto S\textsuperscript{1,2}, Di Maio M\textsuperscript{1,2}, Polito MV\textsuperscript{1,2}, Bottigliero D\textsuperscript{1,2}, Mennella R\textsuperscript{1,2}, Ravera A\textsuperscript{1}, Farina R\textsuperscript{1}, Piscione F\textsuperscript{1,2}.

\textsuperscript{1}Heart Department, University Hospital “San Giovanni di Dio e Ruggi d’Aragona”, Salerno, Italy
\textsuperscript{2}Department of Medicine and Surgery, University of Salerno, Salerno, Italy

Contrast-induced nephropathy (CIN) is a complication of cardiac catheterization. Patients with ST-elevation myocardial infarction (STEMI) treated by percutaneous coronary intervention (PCI) have a markedly increased risk of developing CIN. Due to the lack of treatment, prevention is the key strategy.

The aim of this study is to assess the incidence, clinical predictors, and outcome of CIN in patients undergoing primary PCI and pretreated with N-acetylcysteine (NAC) and sodium bicarbonate (SB). We enrolled 321 STEMI patients undergoing PCI and pretreated with NAC (2400mg, intravenously) and SB (80mEq, intravenously). CIN was defined as a rise in serum creatinine ≥0.5 mg/dl or ≥25% from the baseline value, within the 120-hour period after PCI.

CIN occurred in 77 patients (23.99%). Patients with CIN were significantly older (66.8±13.99 vs 62.33±11.56, p=0.005), more frequently females (35.07% vs 19.67%, p=0.005), with lower baseline haemoglobin levels (13.71±2.18 g/dl vs 14.25±1.84 g/dl, p=0.022). In multivariate analysis, age >75 years (OR 3.179, 95%IC 1.346-7.510; p=0.008), baseline glycaemic levels (OR 1.003, 95%IC 1.000-1.006; p=0.043) and femoral arterial access (OR 1.718, 95%IC 0.966-3.056; p=0.048) were independent correlates of CIN. Patients developing CIN had significantly higher short-term (16.67% vs 2.99% p<0.001) and long-term (9.72% vs 2.99% p=0.006) mortality rate.

Patients with age >75 years, female sex, femoral arterial access, high baseline glycaemia and low baseline haemoglobin levels are at higher risk of developing CIN. The identification of these factors before angioplasty may help to apply more aggressive CIN prevention strategies. Further studies are needed to clarify the effective protective role of N-acetylcysteine in CIN developing.