

A Randomized Controlled Trial of Prevention of Contrast Induced Nephropathy with Single Bolus Erythropoietin in Diabetic Patients with eGFR<60 ml/min/1.73m² Undergoing Coronary Angiography or PCI

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Background:

Contrast-induced nephropathy (CIN) was found to be associated with poor outcomes, thus prevention of CIN may be of clinical value. Erythropoietin (EPO) has been shown to elicit tissue-protective effects in experimental models and in few clinical studies of acute kidney injury (AKI). We therefore evaluated the effectiveness of EPO for prevention of CIN after coronary angiography (CA) and/or percutaneous coronary intervention (PCI) in consecutive patients at high-risk for having CIN.

Methods:

A prospective, randomized, controlled trial was carried out in patients, who underwent primary PCI or elective CA with or without PCI. Patients received a single dose of 50,000U of EPO or regular treatment before CA/PCI. CIN was defined as an increase in serum creatinine (SCr) level, compared to basal value, of at least 0.5 mg/dl during the first 3 days after exposure to contrast media. Primary outcome was the incidence of CIN. Secondary outcomes were enzymatic infarct size, hospital length of stay, renal replacement therapy and in-hospital mortality. Cystatin C and NGAL were measured.

Results:

Among the elective patients (68 patients) the incidence of CIN was low and similar among both groups (5.9%, p=ns). However, the incidence of CIN among patients undergoing primary PCI (N=12) was lower in the EPO group (0%) compared to control group (20%). There were no adverse effects of EPO administration.

Conclusion:

The low incidence of CIN among elective patients masks the potential reno-protective effect of EPO. However, among primary PCI patients, we demonstrated a beneficial effect. Patient recruitment is on-going, and complete data will be presented.