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PRELIMINARY RESULTS FROM A RANDOMIZED TRIAL ON GLUCOSE-INSULIN-POTASSIUM AND N-ACETYL-CYSTEINE IN PREVENTION OF CONTRAST-INDUCED NEPHROPATHY IN DIABETIC AND/OR WITH CHRONIC RENAL FAILURE PATIENTS UNDERGOING PERCUTANEOUS CORONARY INTERVENTION

i2 Poster Contributions
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Background: Contrast-induced nephropathy is a serious complication after percutaneous coronary intervention (PCI). Glycemic levels abnormalities (hyper/hypoglycemia) before PCI may amplify the pathogenetic mechanisms of this complication. Moreover the protective effects of insulin and N-Acetyl-Cysteine (NAC) on the kidney function have emerged. We sought to evaluate the efficacy of glucose-insulin-potassium (GIK), with or without administration of NAC, in prevention of contrast-induced nephropathy, by plasmatic measurements of Neutrophil Gelatinase-Associated Lipocalin (pNGAL), a new early marker of acute kidney injury.

Methods: We randomized diabetic and/or with chronic renal failure patients to 3 different protocols: ISS, ISS-GIK, ISS-GIK-NAC. ISS infusion was started 12 hours before PCI up to 24 hours after. GIK infusion was administered from 12 hours before up to 12 hours after. NAC was given as oral doses of 1200 mg 12 hours and 1 hour before PCI. Blood samples were collected before and after PCI to evaluate serum creatinine and pNGAL.

Results: We report the results on the first 48 patients. We observed a significant reduction of pNGAL levels after PCI in the overall population (basal pNGAL 145±41 vs 6 h pNGAL 138±49 ng/ml; $p<0.001$). In particular, in ISS-GIK-NAC group pNGAL decrease was of -18.6±20% ($p=0.032$ vs ISS), in ISS-GIK group of -5.9±23% ($p=0.168$ vs ISS), while a pNGAL increase of 14.9±51 % was observed in ISS group (p for trend=0.067). Serum creatinine variation was -5.3±13% in ISS-GIK-NAC group ($p=0.039$ vs ISS), -5.4±10% in ISS-GIK group ($p=0.02$ vs ISS) and 4.0±11% in ISS (p for trend=0.039). Similar results has been noticed for creatinine clearance.

Conclusions: GIK infusion has been of some efficacy in preventing the contrast-induced nephropathy in diabetic and with chronic renal impairment patients undergoing PCI. NAC administration, as anti-oxidant agent, has been associated with a further decrease of post-PCI pNGAL, suggesting the sensitivity of this protein to oxidative damage on tubular epithelial cells induced by the contrast medium. Moreover for the first time pNGAL has been used for the evaluation of the efficacy of a nephro-protection protocol.