

## **Risk factors of postoperative nephropathy in patients undergoing innovative CABG and intraoperative graft angiography.**

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### **Abstract:**

#### Introduction:

Intraoperative graft angiography is considered to be the gold standard quality control of innovative CABG techniques. Iodixanol, an isosmolar, non-ionic contrast agent has been shown to be safe in patients with impaired renal function. We aimed to quantify postoperative nephropathy in CABG patients undergoing intraoperative angiography and to define associated risk factors for nephropathy.

#### Methods:

135 patients, aged 61 (43-83) years, underwent intraoperative angiography following CABG operations (36 robotically assisted CABG via sternotomy, 41 OPCAB and MIDCAB, 51 AHTECAB, 7 BHTECAB). In all patients iodixanol (Visipaque™) was used for angiography, median amount: 150 ml (20-500ml). Nephropathy was defined as an increase in serum creatinine concentration (SCr) of  $\geq 0.5$  mg/dl compared with preoperative values.

#### Results:

Nephropathy occurred in 19/135 (14%) patients, and was correlated with the following variables: preoperative SCr ( $p=0.015$ ,  $r=0.208$ ), age ( $p=0.008$ ,  $r=0.229$ ), postoperative peak Troponin T levels ( $p<0.001$ ,  $r=0.545$ ), postoperative peak levels of CK-MB ( $p=0.028$ ,  $r=0.189$ ), and presence of peripheral vascular disease ( $p=0.011$ ). No correlation was found for the amount of contrast agent administered, diabetes mellitus, hypertension, preoperative urea level, cardiopulmonary bypass time, aortic cross clamp time, postoperative peak levels of creatinase. In all 19 patients with postoperative nephropathy serum creatinine levels returned to their preoperative levels.

#### Conclusion:

Patients especially with older age and elevated serum creatinine levels undergoing innovative CABG and intraoperative angiography were at increased risk of postoperative nephropathy. However, no correlation was found between the amount of contrast agent (iodixanol) applied and the nephropathy rate and none of the nephropathy cases persisted.