

## **Predictors of new renal impairment after coronary artery bypass grafting – single centre study.**

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### Background

Cardiac surgery is often associated with dysfunction of major organs despite advances in perioperative monitoring and management. Acute changes in renal function after coronary bypass surgery (CABG) are not well understood and represent a challenging clinical problem. The purpose of this study was to determine the predictors of postoperative renal dysfunction (PRD) required hemofiltration or dialysis in isolated coronary surgery.

### Methods

A total of 3459 patients who had no significant pre-existing renal disease (creatinine  $\leq$ 2.0 mg/dl and without dialysis) and who underwent isolated coronary surgery between July 1998 and March 2006 were recruited to the study. The data of these patients were prospectively collected in a data-base. The association of perioperative factors with new renal impairment required hemofiltration or dialysis was investigated by univariate and multivariate analysis.

### Results

The incidence of renal dysfunction was 2.2% (n=76). In hospital mortality for patients who experienced PRD needed hemofiltration / dialysis was 36% vs. 0.01% for patients who did not (P<0.001). Patients with PRD were older (67.7 vs. 63.7, P<0.001), had higher EuroSCORE (14.9 vs. 4.4, P<0.001) and Parsonnet score (11.9 vs. 6.9, P<0.001). Multivariable logistic regression identified the following variables as independent predictors of PRD: diabetes mellitus (95% CI 2.3–9.1), atrial fibrillation (95% CI 1.3-8.2), pulmonary disease (95% CI 1.2-6.8) and long cross clamp time (95% CI 0.042-0.69).

### Conclusion

Although the likelihood of postoperative renal dysfunction needed hemofiltration or dialysis in patients without pre-existing renal dysfunction is relatively low, it dramatically increases mortality after CABG. Diabetes mellitus, atrial fibrillation, pulmonary disease and long cross clamp time were independent predictors PRD required hemofiltration or dialysis.