

POSTER PRESENTATION

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Determination of risk factors for acute renal failure after cardiac surgery

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Introduction

It is vital to determine the risk factors related to acute kidney injury (AKI). The modified RIFLE (risk, injury, failure, loss of kidney function, and end-stage renal failure) classification based on changes in serum creatinine (sCr) relative to the baseline condition may provide valuable data to determine patients in need for renal replacement therapy (RRT) ([1]).

Objectives

Our aim was to assess perioperative risk factors for AKI for cardiac surgery.

Methods

We prospectively collected data of 1750 consecutive cardiac surgery patients. AKI was defined by RIFLE system and a modified criteria was included to determine patients with acute need for RRT in the failure class. Risk factors including pre-operative, operative and post-operative variables were investigated by univariate and multivariate analysis.

Results

The incidence of AKI was 15.3% (n = 267) and of these RRT was performed on 69.6 % (n=185). The mortality rate among patients with AKI was 54 (20%) of 267 patients. Preoperative factors causing AKI revealed; angiotensin converting enzyme (ACE) inhibitors, prior recent acute myocardial infarct (AMI) (< 6 weeks), euroscore. Post-operative factors causing AKI revealed; cardiopulmonary bypass (CPB) time, need for longer duration of vasoactive drugs and a higher arterial lactate level within 24 hours in ICU (p < 0.05). Multiple logistic regression analysis revealed; AMI (hazard ratio (HR)= 1.08, 95% confidence

interval (CI) 1.01 to 1.15, p = 0.03), CPB time (hazard ratio (HR) = 1.81, 95% confidence interval (CI) 1.28 to 2.56, p = 0.001), and postoperative lactate level on day 1 (hazard ratio (HR) = 10.57, 95% confidence interval (CI) 1.90 to 58.81, p = 0.007), as independent risk factors for RRT. The worst outcomes, including in-hospital mortality, were associated with the worst RIFLE class (p < 0.001).

Conclusions

In development of AKI, several variables may play role. Our study demonstrated that preoperative recent AMI, CPB time and postoperative lactate level on day 1 are independent risk factors for RRT after cardiac surgery.

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