

POSTER PRESENTATION

Open Access

Minimal changes of serum creatinine in the early postoperative period predict prognosis in patients after cardiac surgery

MH Bernardi^{1*}, R Ristl², M Mouhieddine¹, M Hiesmayr¹, A Lassnigg¹

From ESICM LIVES 2015

Berlin, Germany. 3-7 October 2015

Introduction

Preoperative renal insufficiency is an important predictor of mortality after cardiac surgery and the association between small serum creatinine (SCr) changes within 48 hours after cardiac surgery and mortality has been demonstrated. ([1]) Further it has been shown recently that a preoperative elevated SCr is a predictor for worse outcome after cardiac surgery too. ([2])

Objectives

The aim of the present investigation was the association between small SCr changes (Δ Crea) early after surgery

on 30-day mortality in patients below and above the SCr cut-off of 1.3 mg.dL^{-1} where mortality increases.

Methods

Elective adult cardiac surgical patients between 1997 and 2001 at the Medical University of Vienna were included. The cohort was split into two groups: Patients with an elevated SCr $>1.3 \text{ mg.dL}^{-1}$ and $\leq 1.3 \text{ mg.dL}^{-1}$. Within 120 minutes after end of surgery, the Δ Crea between the first measured SCr and the baseline SCr value was calculated for each patient. Mortality rates were calculated stepwise in 0.1 mg.dL^{-1} intervals of Δ Crea.

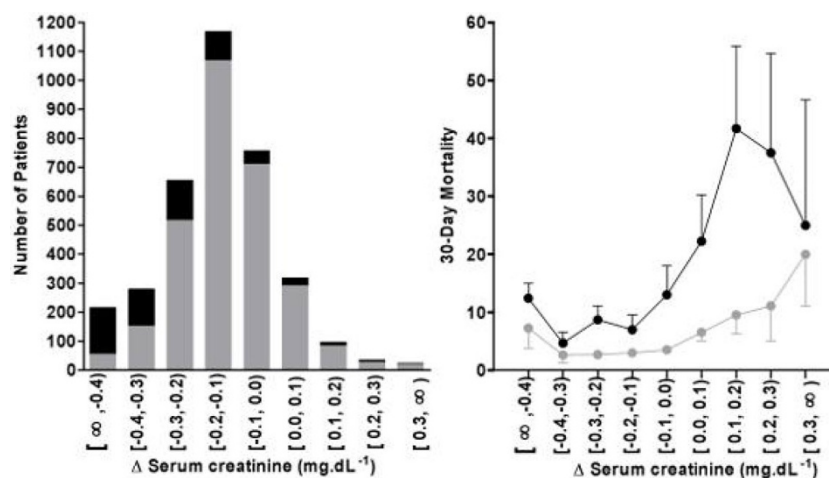


Figure 1

¹Medical University of Vienna, Cardiothoracic and Vascular Anaesthesia & Intensive Care, Vienna, Austria
Full list of author information is available at the end of the article

Results

A total of 3549 patients (1221 women) with a mean age of 64.5 years (range, 18 to 92) were investigated, 624 patients had an elevated SCr >1.3 mg.dL⁻¹. Within 30 days 5% (n=179) died. Mortality in patients with elevated SCr and a negative Δ Crea or equal 0 was 9% (n=573), while mortality increases in patients with an increasing Δ Crea to 31% (n=51).

An increase in mortality (12%) was found in the group with the most pronounced fall [∞ , -0.4). The relation of mortality to Δ Crea is shown in figure 1 (SCr >1.3 mg.dL⁻¹ marked in black and ≤ 1.3 mg.dL⁻¹ marked in grey).

Conclusions

Hemodilution occurs in patients operated on cardiopulmonary bypass (CPB). A decrease in SCr is the reaction to fluid supply and blood loss especially when preoperative SCr is elevated. Our findings suggest that in these patients with an elevated SCr, even a minimal increase after CPB accordingly to the preoperative SCr is associated with a higher rate of death and may be a marker of diffuse organ injury. Furthermore large decreases of Δ Crea directly after cardiac surgery worsen outcome in this patient group drastically. A renoprotective postoperative course is recommended.

Authors' details

¹Medical University of Vienna, Cardiothoracic and Vascular Anaesthesia & Intensive Care, Vienna, Austria. ²Medical University of Vienna, Center for Medical Statistics, Informatics and Intelligent Systems, Vienna, Austria.

Published: 1 October 2015

References

1. Lassnigg A, *et al. JASN* 2004, **15**:1597-1605.
2. Bernardi MH, *et al. BJA* 2015, **114**:53-62.

doi:10.1186/2197-425X-3-S1-A636

Cite this article as: Bernardi *et al.*: Minimal changes of serum creatinine in the early postoperative period predict prognosis in patients after cardiac surgery. *Intensive Care Medicine Experimental* 2015 **3**(Suppl 1):A636.

Submit your manuscript to a SpringerOpen® journal and benefit from:

- Convenient online submission
- Rigorous peer review
- Immediate publication on acceptance
- Open access: articles freely available online
- High visibility within the field
- Retaining the copyright to your article

Submit your next manuscript at ► springeropen.com