

MEETING ABSTRACT

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Miniplegia versus blood cardioplegia in elective aortic valve replacement: a prospective randomised, non - inferiority controlled trial

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Background/Introduction

Antegrade intermittent 4:1 blood cardioplegia with Buckberg solution is widely used in elective aortic valve replacement. Use of miniplegia could simplify myocardial protection in this setting.

Aims/Objectives

Our objective was to compare both strategies in terms of non-inferiority.

Method

A prospective, randomised controlled trial was performed. Primary end-point was demonstrating non-inferiority of miniplegia versus intermittent 4:1 blood cardioplegia in elective aortic valve replacement. For sample size calculation, a maximum increase +15% in mean peak postoperative troponin T was considered non-inferior ($\Delta = +474.24$ ng/L). Power was 0.9, and $\alpha < 0.05$ was considered statistically significant. Secondary end-points were differences in troponin curve, reperfusion and postoperative rhythm, haematocrit, use of inotropic and vasopressor drug support, ICU stay, and postoperative evolution.

Results

66 patients were enrolled and randomised. There were no significant differences in baseline and preoperative variables. Peak troponin T in miniplegia group was non-inferior to blood cardioplegia group ($p = 0.036$). Patients in the miniplegia group showed a higher incidence of spontaneous sinus rhythm after myocardial ischemia (18/33, 54.5% versus 8/33, 24.2%, $p = 0.005$) and fewer

patients required defibrillation (9/33, 27.7% versus 21/33, 63.6%, $p = 0.03$) for ventricular reperfusion arrhythmias. Postoperatively, there were no differences in troponin T release, inotropic and vasopressor drug support, ICU stay, and postoperative mortality.

Discussion/Conclusion

Miniplegia used as myocardial protection in elective aortic replacement is non-inferior to blood cardioplegia. Preferential return to sinus rhythm and lower incidence of reperfusion arrhythmias in the miniplegia group could reflect a better myocardial protection during cardioplegic arrest. Ease of administration and inexpensive use of miniplegia are additional benefits.

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