

Central versus Peripheral Cannulation in Reoperative Cardiac Surgery: Intra-Operative Adverse Events and Early Outcome

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Background

Reoperative cardiac surgery represents a surgical challenge due to the injury potential during sternotomy and adhesions separations. Extra-thoracic cannulation prior to sternotomy may reduce adverse events and improve outcome. We compared early results, between extra-thoracic cannulation and initiation cardiopulmonary bypass (CPB) prior to sternotomy versus post sternotomy CPB.

Methods

From 7/2005 to 7/ 2008, 249 patients underwent reoperative cardiac surgery, through median sternotomy. In 84(33%) patients, extrathoracic cannulation was performed, and CPB was initiated **prior to sternotomy**: Pre-ST group. In 165(67%) patients CPB was initiated **after sternotomy**: Post-ST group (144 thoracic cannulation; 18 peripheral arterial and right-atrium, and 3 emergency femoral cannulation after sternotomy). In general, higher risk patients (2nd time re-do, open IMA, LV dysfunction) were chosen to undergo pre-sternotomy CPB, (EuroScore 21±17 versus 16±13, p=0.03).

Results

In hospital death was similar between groups (10/84 and 18/165 death, p=0.83). Major adverse events (Coronary grafts/aorta/LV/RV injuries) tend to be less frequent in Pre-ST group (1/84 and 7/165, p=0.28).

Mean hospital stay, ICU and ventilation times were similar between groups. Operative and bypass time were longer in Pre-ST bypass group (337±127 versus 295±133; 145±66 versus 114±54, p<0.05). Post-operative bleeding tend to be higher in Pre-ST group (597 versus 469, p=0.07), and platelets/cryo transfusion was higher in Pre-ST group (p<0.05). Packed-cells and FFP transfusion were similar between groups. Groin complications occurred in 13/110 (12%) patients with femoral exposure.

Conclusions

Despite higher risk patient group, Pre-Sternotomy CPB provided lower in hospital major events compared with Post-sternotomy CPB in complex reoperative cardiac surgery.