

Coronary Artery Bypass Grafting Without Cardiopulmonary Bypass

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Citation

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Abstract

INTRODUCTION

Coronary-artery surgery (CS) without cardiopulmonary bypass (CPB) is a safe technique in terms of mortality and morbidity. (1) We present our anesthetic management and our findings concerning certain indices of morbidity after CS without CPB.

METHODS

76 patients were scheduled for a left mammary artery graft onto the left anterior descending artery without CPB: group A (n=46) through a sternotomy with grafting of diagonals if required ; group B (n=10) through a left minithoracotomy ; group C (n=20) through a sternotomy combined with a gastroepiploic artery grafting onto the right coronary artery. For 62 patients the anesthetic protocol was a continuous propofol infusion of 2 to 5 mg kg⁻¹ h⁻¹ until the end of surgery, a bolus of sufentanil (50 m g) and atracurium (0.5 mg kg⁻¹) for induction, sufentanil 0.3 m g kg⁻¹ h⁻¹ and atracurium 0.3 mg kg⁻¹h⁻¹ until completion of anastomosis. Postoperative analgesia was provided by (IV) morphine via a patient controlled analgesia device. 14 patients received thoracic epidural anesthesia (bupivacaine 0.25% 5 to 8 ml + sufentanil 10 m g) combined with a propofol infusion (same regimen) and postoperatively had patient controlled epidural analgesia (bupivacaine 0.12% + sufentanil). Intraoperative monitoring included 5-lead ECG, radial and pulmonary catheters and TEE. Heparin (10000 U) was administered before coronary clamping and a coronary clamping test was performed. Preoperative β -blockers and intraoperatively Esmolol, if needed, were used to slow the heart rate below 70/minute.

RESULTS

Demographic data are reported in table 1

Figure 1

Table 1	GROUP A	GROUP B	GROUP C
Age (yrs) (mean \pm SD)	62 \pm 10	62 \pm 10	64 \pm 9
Unstable angina (%)	39	46	25
COPD (%)	9	18	40
LVEF > 45% (%)	96	91	90

Intraoperatively, 11 patients presented an ischemic episode detected with a 5-lead ECG or TEE. All the episodes of ischemia resolved after the completion of anastomosis, one patient in group B had a non Q-wave myocardial infarct. Intraoperative arrhythmias occurred in 7 patients (supraventricular or ventricular), were transient and did not require treatment. 76% of patients were extubated at the end of surgery. There were no perioperative renal failure, sepsis, stroke, low cardiac output or hospital mortality. Pulmonary complications (atelectasis, hypoxemia, pneumonia) occurred in 10 patients. Other factors are reported in table 2.

Figure 2

Table 2	GROUP A	GROUP B	GROUP C
% of patients not transfused	74	90	55
% of postoperative supraventricular arrhythmias	31	11	35

CONCLUSION

Coronary surgery without cardiopulmonary bypass is safe, the overall morbidity being low. One of the main advantages is the decrease in the need for perioperative blood transfusions.

References

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