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Impact of prophylactic intra-aortic balloon counter-pulsation on postoperative outcome in high-risk cardiac surgery patients: a multicentre, propensity-score analysis.

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Source

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Abstract

OBJECTIVE:

The aim of this multicentre study was to determine whether the prophylactic use of intra-aortic balloon pump (IABP) translates into better early and long-term results in high-risk patients undergoing cardiac surgery.

METHODS:

From January 2000 to March 2009, 6121 high-risk patients (EuroSCORE >8), at six different institutions, underwent cardiac surgery. Propensity-score computer matching was performed, based on 10 variables representing patients characteristics and preoperative risk factors to correct for and minimise selection bias (Hosmer-Lemeshow goodness of fit, p=0.3; c=0.94). A total of 956 patients were successfully matched and consisted of 478 pairs either undergoing preoperative IABP (group A) or not receiving IABP preoperatively (group B).

RESULTS:

Multivariate logistic regression (odds ratio) revealed that group B had a 64% higher risk of in-hospital mortality (p=0.001), 57% higher risk of 30-day mortality (p=0.003), 45% higher risk of perioperative myocardial infarction (p=0.01), 57% higher risk of postoperative low-output syndrome (p=0.003), 45% higher risk of intensive care unit (ICU) length of stay (p=0.001) and 44% higher risk of hospital length of stay (p=0.001). Patients in group A showed, at follow-up, significant improvements in left ventricular (LV) ejection fraction (p<0.001), wall-motion score index (p<0.001) and LV dimensions (p<0.001). Five- and 8-year survivals did not differ between groups (5-year survival: 91.7 ± 3.1% vs 95 ± 2.1% in groups A and B, respectively, log-rank p=0.34; 8-year survival: 84.3 ± 5.5% vs 85.9 ± 6.1% in groups A and B, respectively, log-rank p=0.2).

CONCLUSIONS:

Prophylactic IABP support, in this multicentre experience, was showed to enhance perioperative management and outcome of high-risk cardiac surgery patients.