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OFF PUMP MYOCARDIAL REVASCLARIZATION AND TRANSFUSION PRACTICES IN CARDIAC SURGERY

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Introduction. Off-pump coronary artery bypass (OPCAB) surgery is considered as an alternative to conventional technique with utilization of cardiopulmonary bypass (CPB). Current evidence suggests that OPCAB surgery may reduce perioperative morbidity.(1) The purpose of this study was to evaluate the impact of intraoperative conversion from OPCAB to conventional technique with CPB (ONCAB) on perioperative coagulation profiles and transfusion requirements.

Methods. Following IRB approval, we examined data collected prospectively on 268 patients scheduled for OPCAB surgery as part of the Cardiovascular Anesthesia and Surgery Outcomes Database. Data was collected between January '00 and December '01. On the basis of type of surgery, patients were divided into two groups; OPCAB and ONCAB. The reasons for conversion were identified. Outcome measures included perioperative hemoglobin (Hb), platelet count, coagulation parameters, chest tube losses, and transfusion requirements. Both groups received similar anesthetic management.(2) A full sternotomy approach was utilized in all patients. ACT was maintained > 300 in OPCAB and > 450 in ONCAB groups. All patients in ONCAB group received tranexamic acid. Data was analyzed with paired T-test, chi-square test and Mann-Whitney U test as appropriate. A p value < 0.05 was considered significant. Data is expressed as mean ± SD.

Results. A total of 106 patients (39%) were converted to ONCAB. The reasons for conversion included hemodynamic instability and intramyocardial position of LAD. Demographic data and surgical characteristics are reflected in table 1.

Patients in OPCAB group had preferential coagulation profiles. There was no difference with respect to perioperative Hb. Transfusion rates were higher in the ONCAB group.(Table 2) Hospital length of stay was similar between the two groups.

Conclusion: Patients undergoing OPCAB surgery have lower transfusion rates possibly due to better preservation of platelets and lesser degree of dilutional coagulopathy.

References: (1). Sabik et al. *J Thorac Cardiovasc Surg* 2002; 124: 698-07 (2). Cheng DCH, et al. *Anesthesiology* 1996; 85: 1300-10

Table 1.	OPCAB (n = 162)	ONCAB (n = 106)	P value
Age (yr)	61 ± 15	60 ± 14	0.67
Male (%)	70	82	0.027
Left ventricular grade (1-4)	1.8 ± 0.8	1.9 ± 0.8	0.12
Number of Grafts	2.8 ± 0.9	3.4 ± 1.0	0.0016
Urgent Surgery (%)	43	52	0.2
OR time (h)	3.7 ± 1	3.7 ± 1.3	0.89

Table 2.	OPCAB (n = 162)	ONCAB (n = 106)	P value
Preop Hb (g.L ⁻¹)	131 ± 16	132 ± 16	0.73
INR	1.07 ± 0.17	1.05 ± 0.14	0.52
Platelets 10 ³ /mm ³	235 ± 76	236 ± 66	0.90
Postop Hb (g.L ⁻¹)	92 ± 14	90 ± 13	0.3
INR	1.35 ± 0.18	1.48 ± 0.18	0.004
Platelets 10 ³ /mm ³	170 ± 57	147 ± 46	0.0001
24 chest tube loss (ml)	838 ± 548	560 ± 332	0.0001
Transfusion rate (%)	37	50	0.019
RBC (n)	0.78 ± 1.3	0.75 ± 1.0	0.8
FFP (n)	0.29 ± 0.9	0.22 ± 0.8	0.72
Platelets (n)	0.18 ± 0.95	0.38 ± 1.5	0.31
OR Fluid Balance (ml)	1530 782	2555 957	0.0001
24 h Fluid Balance (ml)	921 848	700 869	0.04
Chest re-exploration n (%)	8 (4.9)	6 (5.6)	0.79