

SCA 3

**PERIOPERATIVE PREDICTORS OF DELAYED EXTUBATION AFTER FAST TRACK CARDIAC ANESTHESIA**

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**Introduction:** Prolonged mechanical ventilation contributes to increased morbidity and increased resource utilization after cardiac surgery. Fast track cardiac anesthesia employs an anesthetic management that aims to facilitate tracheal extubation of patients within 6 h after cardiac surgery.(1) The purpose of our study was to examine perioperative predictors of delayed extubation in patients undergoing fast track cardiac anesthesia.

**Methods:** With institutional ethics committee approval, we analyzed data collected prospectively on 1286 consecutive patients, as part of the Cardiovascular Anesthesia Database. Data was collected from January '01 to August '01. All patients underwent fast track cardiac anesthesia and were extubated according to previously described criteria.(2) With respect to extubation time, patients were divided into two groups: ≤ 6 hours (Early Extubation) and > 6 hours (Late Extubation). Two groups were compared using ANOVA for continuous variable and Chi-square test for categorical data. Multivariate logistic regression analysis was performed on significant variables. Interactions were investigated for significance. A p value of less than 0.05 was considered statistically significant. Data is expressed as mean ± SD and 95% confidence intervals as appropriate or median (range).

**Results:** A total of 986 patients had coronary bypass surgery, and 300 had other cardiac surgery. Duration of extubation was 4.7(1.75-6.0) hours in the Early Extubation group, and 8.6 (6.08-732) hours in the Late Extubation group. There was no difference between the type of surgery or urgency of surgery between the two groups.

**Conclusions:** This study confirms the multifactorial nature of delayed extubation after cardiac surgery. Patients, who are older, have lower intraoperative Ht, and longer CPB times are more likely to require prolonged ventilation. Furthermore, delayed extubation was associated with delayed emergence from anesthesia, excessive bleeding, hemodynamic instability, poor arterial blood gases, and arrhythmias requiring treatment with amiodarone, confusion, delirium and low body temperature in the early postoperative period. Further risk stratification should be applied to optimize resource utilization and planning of surgical procedures.

**References:**

- (1) Cheng DCH. *Anesthesiology* 1998; 88: 1429-1433
- (2) Cheng DCH, et al. *Anesthesiology* 1996; 85: 1300-1310

**Significant preoperative and intraoperative variables.**

Variable	Early Extubation group (n = 578)	Late Extubation group (n = 708)	P value
Age (years)	58.2 ± 12.8	64.2 ± 11.6	0.0001
Lowest Ht on CPB	.24 ± 0.034	.22 ± 0.035	0.0001
CPB time	92 ± 28	99 ± 29	0.03

*CPB, cardiopulmonary bypass; Ht, hematocrit.*

**Postoperative predictors of delayed extubation.**

Variables of logistic regression	Odds Ratio (95% CI)	P value
Delayed emergence from anesthesia	2.36 (1.8 - 3.1)	0.0001
Excessive bleeding	6.6 (3.7 - 11.7)	0.0001
Hemodynamic instability	4.0 (2.2 - 8.2)	0.0001
Poor arterial blood gases	4.2 (2.2 - 8.2)	0.0001
Confusion/Delirium	3.4 (1.7 - 6.5)	0.0001
Low temperature	3.9 (1.8 - 8.5)	0.001
Arrhythmias requiring use of amiodarone	3.23 (1.8 - 8.4)	0.04