COMPARISON OF MYOCARDIAC PROTECTION OF ISOFLURANE VERSUS SEVOFLURANE IN ULTRA FAST TRACK ANESTHESIA IN OFF-PUMP AORTO-CORONARY BYPASS GRAFTING (OPCAB) – A PILOT STUDY

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INTRODUCTION: Volatile anesthetics provide protection against myocardial ischemia by pharmacologic preconditioning. So far, studies have focused on the effects and outcome of volatile anesthetics and not on comparing different agents. In this randomized, prospective study, we compare the cardioprotective propensities of sevoflurane versus isoflurane OPCAB with the hypothesis that sevoflurane offers superior myocardial protection.

METHODS: Forty patients undergoing OPCAB with TEA and ultra-fast-track anesthesia were randomized in this pilot study in two groups of 20 patients. Anesthesia was maintained with either 1 MAC of sevoflurane or 1 MAC of isoflurane. Troponine-T, CK-MB, regional wall motion abnormalities and ejection fraction, time to extubation, respiratory functions and hemodynamic stability were compared.

RESULTS: All patients were successfully extubated in the operating room with minimal post-operative pain up to 72h after surgery. Troponine-T and CK-MB levels, immediately after surgery, 3, 12, 24, 48 and 72h after surgery, were not statistically different between the two volatils agents. (Table 1) Hemodynamic stability during surgery and preservation of ejection fraction were equally not different between the two groups. Time to extubation was significantly shorter with sevoflurane 10 min (4) than with isoflurane at 18 min (5).

DISCUSSION: Our pilot study shows that sevoflurane and isoflurane protect the heart against ischemic damage in the same way during OPCAB. They do not differ in providing hemodynamic stability or maintenance of contractile function during and after aortocoronary grafts. As expected, recovery from anesthesia was quicker with sevoflurane, without causing any difference in post-operative respiratory function.

CONCLUSION: Sevoflurane and isoflurane provide equal myocardial protection during OPCAB. Both volatile agents can be used to immediate extubation, keeping in mind that isoflurane has to be stopped earlier because of its longer washout period. A larger study with higher Power should be conducted to confirm these previous findings.

	Sevoflurane (N=20)		Isoflurane (N=20)	
	Troponine-T	CK-MB	Troponine-T	CK-MB
Immediately	0 (0.08)	-	0 (0.03)	-
3h post-op	0.03 (0.09)	21.55 (7.47)	0.03 (0.05)	20.70 (10.12)
12h post-op	0.08 (0.10)	18.25 (14.45)	0.07 (0.85)	22.80 (53.25)
24h post-op	0.19 (0.30)	19.90 (11.64)	0.15 (1.43)	19.10 (81.96)
48h post-op	0.11 (0.21)	16.70 (4.20)	0.12 (1.50)	15.90 (54.15)
72h post-op	0.29 (0.45)	15.20 (3.82)	0.09 (0.17)	16.75 (18.18)

*Values are presented as median (SEM).