SCA 41

EFFECTS OF A STEROID-BASED INDUCTION AGENT ON LEFT VENTRICULAR FUNCTION: COMPARISON WITH THIOPENTAL

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Thiopental is frequently avoided in patients with cardiac disease. Steroid-based induction agents are preferred in these patients owing to their published lack of significant cardiac deleterious effects [1, 2]. We compared the effects of thiopental and a novel steroid-based induction agent, eltanolone, on myocardial function and cardiovascular stability in patients undergoing elective coronary artery bypass graft surgery.

Methods: 62 patients, aged 18-75 years, received lorazepam (2 mg) 2 h prior to induction of anesthesia. Radial arterial and pulmonary artery catheters were inserted prior to anesthesia induction. Patients were randomized to receive eltanolone or thiopental for induction of general anesthesia. Anesthesia was maintained by intravenous fentanyl (2 mcg/kg followed by 0.1 mcg/kg/min), vecuronium (0.1 mg/kg); patients underwent endotracheal intubation, and enflurane 0.4% (inspired fraction) was administered. A transesophageal echocardiographic probe was inserted, and patients received an additional dose of eltanolone (0.3 mg/kg) or thiopental (2.0 mg/kg) intravenously. Systemic hemodynamics, cardiac output, and left ventricular function was assessed at 2 min and 5 min after dosing.

Results: There were no demographic differences between the two groups. Systolic, diastolic, and mean pressures decreased in both groups at 2 and 5 minutes after study drug administration, but no significant differences between the two groups were observed. Pulmonary artery pressures exhibited similar decreases, with no difference between the two groups. Cardiac output decreased insignificantly in both groups (see table). Left ventricular ejection fraction, estimated by fractional area of shortening in the short axis crossectional view of the left ventricle at the mid-papillary muscle point, did not change in either group (fig).

Conclusions: Injection of an induction dose of eltanolone, a steroid-based induction agent, did not offer significant advantages over thiopental in preserving left ventricular function or systemic hemodynamics. These drugs may have different effects when used as induction agents; the present study sought to examine their effects with maximal hemodynamic monitoring to detect differences in myocardial performance. While the background anesthetic technique may alter some responses, it is likely the absence of a significant difference between the two drugs indicates no significant myocardial performance preservation is offered by steroid-based anesthetic induction agents.

References:

1. De Hert, S.G.,Acta Anaesthesiol Belg, 1991. 42: p. 3-39.
2. De Hert, S.G., K.M. Vermeyen, H.F. Adriaensen, Anesth Analg, 1990. 70: p. 600-7.

Cardiac Output

	Eltanolone	Thiopental
Pre-Dose	3.9 ± 0.2 L/min	4.0 ± 0.2 L/min
2 Min Post Dose	3.8 ± 0.2 L/min	3.8 ± 0.2 L/min
5 Min Post Dose	3.5 ± 0.2 L/min	3.8 ± 0.2 L/min