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Diltiazem and vecuronium: neuromuscular and cardiovascular effects

It is well known that calcium channel blockers augment the action of neuromuscular relaxants.¹⁻³ Additionally, calcium channel blockers attenuate increases in blood pressure (BP) and heart rate (HR) at the tracheal intubation.^{4,5} However, no previous studies investigated both the calcium channel blocker-induced effect on the time to the onset of neuromuscular blockade and its attenuating effect on undesirable increases of BP and HR at the tracheal intubation. Forty-five adult patients were studied. Diltiazem 0.1 mg·kg⁻¹, 0.2 mg·kg⁻¹, and normal saline were administered in group 1 (n=15), group 2 (n=15), and control group (n=15), and thereafter, 5 mg·kg⁻¹ thiopentone and 0.2 mg·kg⁻¹ vecuronium were administered to facilitate tracheal intubation. Anaesthesia was maintained with nitrous oxide 66 %, oxygen 33 %, and sevoflurane 2.0 %.

Times to onset of neuromuscular blockade in groups 1, 2, and control were 86.4 ± 20.2, 84.7 ± 25.9, and 115.7 ± 24.4 sec, respectively (mean ± SD, *P* < 0.05 for group 1 and group 2 *vs* control group). During induction of anaesthesia, changes in SBP and DBP in group 2 were less than those in groups 1 and control. However, changes in the HR did not differ (Figure).

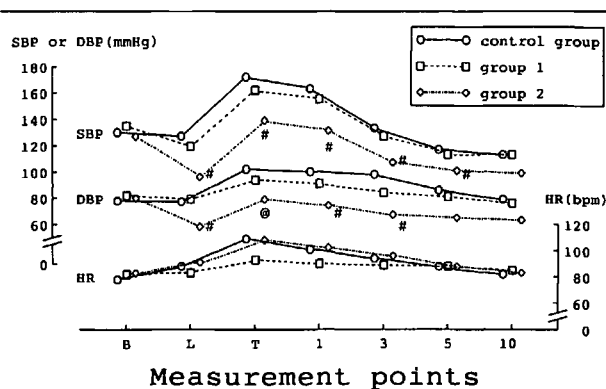


FIGURE Changes in systolic blood pressure (SBP), diastolic blood pressure (DBP), and heart rate (HR) in the group 1 (□), group 2 (◇), and control group (o). Measurement points: B, baseline value; L, just before the start of laryngoscopy; T, tracheal intubation; 1, 1 min after tracheal intubation; 3, 3 min after tracheal intubation; 5, 5 min after tracheal intubation; 10, 10 min after tracheal intubation. Values are mean. SD bars are omitted for clarity. # *P* < 0.05 as compared to group 1 and control group; @ *P* < 0.05 as compared to control group.

Administration of diltiazem prior to tracheal intubation reduces time to onset of vecuronium-induced neuromuscular blockade, and attenuates changes in blood pressure caused by tracheal intubation.

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Using continuous pressure monitoring to aid central vein cannulation

Morbidity associated with central vein cannulation includes accidental arterial puncture which can result in fatality.¹ If the artery is punctured, then the pulsatile flow of blood, its colour and blood gas analysis will usually provide adequate evidence of misplacement of the introducer needle. If, however, the patient is severely shocked, haemodiluted and well oxygenated and a blood gas analyser is not readily available then the diagnosis of arterial puncture may be difficult to make. Measurement of the blood pressure and its