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Dexmetomidine, fentanyl and esmolol on prevention of the hemodynamic effects of laryngoscopy and endotracheal intubation. a prospective, randomized, double-blind study

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Intr

The hemodynamic effects of laryngoscopy and endotracheal intubation are well known. A variety of drugs, like fentanyl, esmolol and lately dexmetomidine, have been used in order to attenuate the stress response to laryngoscopy and endotracheal intubation. Esmolol is an ultrashort acting beta 1 selective adrenergic antagonist, while dexmetomidine is an alpha 2 adrenergic receptor agonist. Fentanyl is a short-acting opioid.

Objectives

The scientific objective of this study, was to compare the efficacy of dexmetomidine, fentanyl and esmolol for attenuation of sympathetic response during laryngoscopy and endotracheal intubation.

Methods

The present study included sixty (60) elective surgery patients with ASA 1 and 2, aged 20-60 years, who needed endotracheal intubation. Patients were randomly allocated into 3 groups. Each group included twenty patients (n = 20). Patients in group D (Dexmetomidine) received 1mcg/kg dexmetomidine with infusion in 10 min, patients in group F (Fentanyl) received 2 mcg/kg fentanyl, while in group E (Esmolol), patients received 2 mg/kg esmolol two min before induction. All patients had Mallampati and Cormack-Lehane Grades 1 or 2. All patients were intubated in less than 30 sec. Systolic, diastolic, mean arterial pressures and heart rates were measured before induction, before intubation and 1, 2, 4 and 10 min after intubation.

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Results

When recorded values before induction and intubation were compared to the measurements of the groups, it was found that 4 and 10 min after intubation, heart rate in group D and systolic, diastolic and mean arterial pressures in group E, were lower than the other measurements. ($p < 0.05$).

Conclusions

Dexmedetomidine was superior than the other drugs in preventing laryngoscopy and intubation-related tachycardia. On the other hand, esmolol was superior in preventing systolic, diastolic and mean arterial pressure increases following laryngoscopy and intubation.

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