

To Study the Effect of Beta Antagonist Esmolol on Bispectral Index and Arm Movement During Intubation

Sudhir Gupta, Priyanka Goyal

Department of Anaesthesiology, Employee State Insurance-Postgraduate Institute of Medical Sciences and Research, New Delhi, India

Abstract

Background and Aims: Bispectral index response(BIS) reflects cerebral cortical activity and is an important pharmacodynamic parameter of anaesthetic effects on central nervous system. The prospective double blinded controlled study was undertaken to study effect of beta-1 antagonist esmolol on BIS, arm movement during intubation. **Methods:** Fifty adult patients aged 18 to 60 years scheduled for elective non-cardiac, non-cranial surgery under general anaesthesia were undertaken for the study. Randomisation was done using closed envelope method. Data was analysed with Stat-View (Version 18, SPSS). Chi-square test was used to compare percentage of patients with arm movement. **Results:** Demographic variables age, weight, intubation duration, sex had *P*-value greater than 0.05. Arm movement was observed in 40% of patients in Esmolol group against 84% patients in Control group. *T*-value was below 0.05. **Conclusion:** Addition of esmolol leads to attenuation of haemodynamic, arm movements and BIS increase in response to intubation.

Key words: Anesthetic depth, bispectral index, intubation

INTRODUCTION

Noxious stimulation during general anesthesia produces changes in vital signs which are used to monitor patient status, but they have poor predictive value for anesthetic depth. Limb movement is the end point used classically for the same.^[1] Bispectral index (BIS) reflects cerebral cortical activity and is a pharmacodynamic measure of anesthetic effect on central nervous system and is a predictor of limb movement after intubation.^[2] We aim to study effect of esmolol on BIS, arm movement during intubation.

METHODS

After taking approval from the Medical Ethics Committee, written informed consent from 50 American Society of Anesthesiologists I, II patients aged 18–60 years scheduled for elective noncranial, noncardiac surgery was taken for a prospective randomized, double-blinded controlled study from March 2011–2013. Patients with difficult airway, morbid obesity, asthma, on β blocker drugs were excluded. Randomization was done using closed envelope method.

Data were analyzed with StatView (version 18, SPSS, IBM). Physical characteristics, intergroup comparison of BIS, heart rate (HR), and mean arterial blood pressures (MAP) were evaluated with unpaired *t*-test. Chi-square test was used to compare percentage of patients with arm movement.

RESULTS

- Demographic variables age, weight, intubation duration, and sex had $P > 0.05$
- Both groups were statistically similar in baseline, prelaryngoscopic values of BIS, HR, and MAP
- Change in BIS in control group was 20.9, 17.90 in esmolol group

Address for correspondence: Dr. Priyanka Goyal,
D-9, Budh Vihar, Phase 1, New Delhi - 110 086, India.
E-mail: docpriya143@gmail.com

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- Arm movement was observed in 40% patients in esmolol, 84.0% in control group. $T < 0.05$
- Three patients developed complications in esmolol group.

CONCLUSION

Addition of esmolol leads to attenuation of hemodynamic, arm movement, and BIS increase in response to intubation.

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Conflicts of interest

There are no conflicts of interest.

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