

Comparison of the Frequency of Hypotension with Propofol and mixture of Propofol-Ephedrine during induction of general anesthesia

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ABSTRACT

Background: Propofol is a short-acting drug which is used for the start and maintenance of general anesthesia and sedation.

Aim: To compare the frequency of hypotension with propofol and mixture of propofol-ephedrine during the induction of general anesthesia.

Study design: Randomized controlled trial.

Methods: One hundred patients undergoing general anesthesia for elective surgeries were enrolled and were divided into two groups "A" (propofol) and "B" (propofol-ephedrine) by using random number table. Each group comprised of fifty patients each. In group A dose of propofol was 2.5mg per Kg and in group B dose of propofol was same (2.5mg per kg) and dose of ephedrine was 0.1mg per kg. Time of drug delivery to patients was 60 sec in both groups.

Results: The frequency of hypotension in group A was 37(74%) and in group B it was 15(30%)

Conclusion: Propofol-ephedrine mixture is associated with lesser frequency of hypotension than propofol alone.

Keywords: Propofol, Ephedrine, Hypotension, General anesthesia.

INTRODUCTION

Cardiovascular effect are the most important physiological changes at the time of inductions¹. Marked Hypotension and hypertension are associated with adverse outcome in patients. Propofol is a phenol derivative². Propofol became available in 1986³. Propofol is 1% aqueous solution (10mg/ml) as an oil-in-water emulsion⁴. Propofol is a popular medicine and due to its rapid recovery it is also used in post anesthesia care units and intensive care units⁵. Propofol does not trigger malignant hyperthermia⁶. Excretion of propofol is mainly in urine⁷. 10% higher infusion rate required in female patients⁸. Propofol is commonly used in day-case surgeries⁹. Propofol can cause hypotension, pain and severe bradycardia¹⁰. Ephedrine is a naturally occurring sympatho- mimetic amine which act as an agonist at Alpha, B₁ and B₂ receptors¹¹.

MATERIAL AND METHODS

After the approval of study form the ethical and research committee of Services hospital Lahore, 100 patients fulfilling the criteria were enrolled. After an informed consent patients were divided into two equal groups A and B by random number table. Each group was comprised of 50 patients. In group A patients were induced with propofol 2.5mg per kg in 60 seconds. In group B patients induced with propofol 2.5mg per kg and ephedrine was 0.1mg per kg. Two intravenous line were maintained with 18 G cannulas and judicious amount of Ringer solution was given to all patients. Both group received 100% oxygen, four liter per minute with face mask with a circle system, muscle relaxant atracurium 0.5mg per kg was given and for analgesia nalbuphine 0.1mg per kg was given. Intubation was done after six minutes of time noted. No surgical

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stimulus was permitted during study period. Blood pressure was noted before induction at 1,2,3,4 and 5 minutes with NIBP. All information was collected through a specially designed profoma. The study design was randomized controlled trial and sampling technique was non-probability purposive sampling.

RESULTS

All the data was analyzed by SPSS version 17. Chi-square test was used to compare frequency of hypotension in both group. The frequency of hypotension in group A was 37(74%) in group B it was 15(30%). In group A 33(66%) were male and 17(34%) were female, while in group B 29(58%) were male and 21(42%) were female. Similarly mean age of patients in group A was 34.76±4.87 years and in group B it was 36.21±5.35 years.

Table 1: Age Distribution of the Patients (n=100)

Age (years)	Group A	Group B
18-30	12(24%)	16(32%)
31-40	24(48%)	19(38%)
41-50	14(28%)	15(30%)
Total	50(100%)	50(100%)

Table 2: Gender Distribution of the patients (n=100)

Gender	Group A	Group B
Male	33(66%)	29(58%)
Female	17(34%)	21(42%)
Total	50(100%)	50(100%)

Table 3: Comparison of frequency of hypotension in both groups (n=100)

Hypotension	Group A	Group B
Yes	37(74%)	15(30%)
No	13(26%)	35(70%)
Total	50(100%)	50(100%)

P value=0.00

DISCUSSION

Propofol is a intravenous anesthetic agent used for induction of anaesthesia¹². Propofol causes decrease in arterial pressure¹³. Propofol causes venous and arterial vasodilation¹⁴. Propofol also depress the myocardial contractility to some extent^{15,16}. Propofol also reduce peripheral vascular resistance^{17,18}. In our study these is a significant difference in two groups. In group A 74% patients were recorded with hypotension as in group B only 30% patients were recorded with hypotension. The results of the study of El-Beheiry et al also favors this study¹⁹. Similarly the results of the study of Dhugana Y also favors the results of our study. In his study the incidence of hypotension was significantly less in ephedrine group²⁰. In the study of Gamlin F et al they compared two different doses of ephedrine (10mg and 20mg) and observed that 20mg has better effect regarding prevention of hypotension²¹.

CONCLUSION

Propofol-ephedrine mixture is associated with lesser frequency of hypotension than propofol alone in elective surgeries and mixture of propofol -ephedrine is better inducing agent than propofol alone.

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