

Original Research Article

A Study to Evaluate the Intubating Conditions Between Propofol-Sevoflurane and Propofol Alone Without Using Neuromuscular Blocking Agents

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Abstract

Aim: The present study was undertaken to observe the intubating conditions between propofol-sevoflurane and propofol alone without using neuromuscular blocking agents. **Material and Methods:** The study recruited 40 male and female patients with ASA grade score of 1 and 2 and undergoing different surgical procedures were recruited in the study. Patients within the age group of 20 to 60 years were included in the study. Demographic data of the patients were collected. Endotracheal intubation was performed using laryngoscope with Macintosh blade and appropriate sized cuffed endotracheal tube. The intubating conditions were assessed by using Copenhagen Consensus Conference (CCC) score. **Results:** Demographic data of participants was presented in Table 1. Weight and height of the participants was significantly different. Age of the participants was not significantly different. Table 2 presents the endotracheal intubation score in of the participants in group 2 (n=20). Endotracheal intubation score was easy in majority of the patients. Table 3 presents the endotracheal intubation score in of the participants in group 1 (n=20). On comparison group 2 patients scores were better than group 1. Table 4 presents the side effects during induction in both groups. On comparison, the participants in group 2 exhibit fewer side effects than group 1. **Conclusion :** The study results confirm that all propofol-sevoflurane combination was much more effective than propofol alone. The study recommends further detailed studies in this area.

Key words - Propofol, Intubation, Muscular Blockers.

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Introduction

In the clinical settings, the use of muscle relaxants has immense importance. It is known that muscle should be relaxed while administering the anesthesia [1]. When these relaxing agents are being used, they help to avoid using the blocking agents of neuromuscular junction. These blocking agents also cause negative effects like decrease in the blood pressure abnormally and also apnea [2]. These negative effects can be avoided using the muscle relaxants. Propofol is one such intravenous agent that relaxes muscles. Sevoflurane, is another potent inhalation agent, that can facilitate the endotracheal intubation [3]. It do not cause irritability to the airways and is non-pungent. It also has minimal effects on the blood pressure variations. Further, it was reported that the incidence of apnea also less. All these facilitate the endotracheal intubation. However, to achieve the beneficial effects, the concentration should be very high. This makes the drug costlier than others [4]. Hence, it was assumed that using the combination of low dose of propofol with a lower concentration of sevoflurane may provide adequate intubating conditions with minimum side effects [5]. Hence, the present study was undertaken to observe the intubating conditions between propofol-sevoflurane and propofol alone without using neuromuscular blocking agents.

Material and methods

Study design: Observational study

Sampling method: Convenient sampling

Study population: The study recruited 40 male and female patients with ASA grade score of 1 and 2 and undergoing different surgical procedures were recruited in the study. Patients within the age group of 20 to 60 years were included in the study. Participants who were willing

voluntarily were included in the study with proper informed consent. Those unwilling were not recruited in the study. Those with severe complications were also not included in the study. The selected participants were randomly assigned to two groups with 20 participants in each group. All the participants underwent thorough physical examination.

Group 1 (control) (n=20): Propofol group

Group 2 (oral) (n=20): Propofol and Sevoflurane group

Data collection: Demographic data of the patients were collected. Endotracheal intubation was performed using laryngoscope with Macintosh blade and appropriate sized cuffed endotracheal tube. The intubating conditions were assessed by using Copenhagen Consensus Conference (CCC) score [6]. Side effects were also noted.

Ethical considerations: The study proposal was approved by the institutional ethics committee after satisfying the queries adequately. The study followed all the guidelines as per the ICMR guidelines. Written informed consent was obtained from all the participants before the commencement of the study. Information related to the patients was kept confidential.

Data analysis: The statistical software SPSS 18.0 version was used to analyze the data. The significance of difference was tested using the student t test. The probability value less than 0.05 were considered significant.

Results

Demographic data of participants was presented in [Table 1]. Weight and height of the participants was significantly different. Age of the participants was not significantly different. [Table 2] presents the endotracheal intubation score in of the participants in group 2 (n=20). Endotracheal intubation score was easy in majority of the patients. [Table 3] presents the endotracheal intubation score in of the participants in group 1 (n=20). On comparison group 2 patients scores were better than group 1. [Table 4] presents the side effects during

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induction in both groups. On comparison, the participants in group 2 exhibit fewer side effects than group 1.

Table 1: Demographic data of participants (n=40)

Parameter	Group-1 (n=20)	Group -2 (n=20)	P value
Age (years)	32±11	36±14	0.3214
Gender (M:F)	13:7	14:6	
Height (cm)	158±11	150±7	0.0092*
Weight (kg)	61±4.22	64±2.43	0.0090*
ASA grade 1 and 2	15/5	13/7	

Data was presented as mean and SD. (*P<0.05 was considered significant).

Table 2: Endotracheal intubation score in of the participants in group 2 (n=20)

Parameter	Easy	Fair	Difficult
Laryngoscopy	16 (80)	2 (10)	2 (10)
Vocal cords position	17 (85)	3 (15)	0 (0)
Vocal cords movement	18 (90)	1 (5)	1 (5)
Limb movement	16 (80)	4 (20)	0 (0)
Coughing	16 (80)	2 (10)	2 (10)
Quality of intubation	18 (90)	1 (5)	1 (5)

Data was presented as frequency and percentage.

Table 3: Endotracheal intubation score in of the participants in group 1 (n=20)

Parameter	Easy	Fair	Difficult
Laryngoscopy	12 (60)	6 (10)	2 (10)
Vocal cords position	14 (70)	3 (15)	3 (15)
Vocal cords movement	15 (75)	4 (20)	1 (5)
Limb movement	14 (70)	4 (20)	2 (10)
Coughing	14 (70)	3 (15)	3 (15)
Quality of intubation	15 (75)	4 (20)	1 (5)

Data was presented as frequency and percentage.

Table 4: Side effects during induction in both groups (n=40)

Side effects	Group 1 (n=20)	Group 2 (n=20)
Breath holding	6 (30)	0 (0)
Cough	4 (20)	1 (5)
Excitatory movements	2 (10)	0 (0)
Laryngospasm	4 (20)	1(5)
others	6 (30)	0 (0)

Data was presented as frequency and percentage

Discussion

The present study was undertaken to observe the intubating conditions between propofol-sevoflurane and propofol alone without using neuromuscular blocking agents. Demographic data of participants was presented in [Table 1]. Weight and height of the participants was significantly different. Age of the participants was not significantly different. [Table 2] presents the endotracheal intubation score in of the participants in group 2 (n=20). Endotracheal intubation score was easy in majority of the patients. [Table 3] presents the endotracheal intubation score in of the participants in group 1 (n=20). On comparison group 2 patients scores were better than group 1. [Table 4] presents the side effects during induction in both groups. On comparison, the participants in group 2 exhibit fewer side effects than group 1. Propofol is muscle relaxing agent that minimizes use of the neuro muscular agents. It offers fewer side effects and facilitates the intubation [7]. It has minimum effects on hemodynamic parameters and do not cause hypotension [8]. Further, it will not cause apnea and facilitates recovery process. It was reported that the propofol-sevoflurane combination has much more beneficial effects than propofol alone [9]. The combination has advantage that both can be administered in low dosages that reduces the cost [10-12]. Further, they offer anti emetic effects [13]. It was reported that the patients in combination group has ease while performing laryngoscopy. These patients exhibited less irritation and smooth process and also fewer side effects. The study agrees with earlier studies as we have observed fewer side effects and higher scores in the combination group than propofol alone. There is a strong need to undertake further detailed studies in this area to recommend the combination of propofol-sevoflurane in clinical setting.

Conclusion

The study results confirm that all propofol-sevoflurane combination was much more effective than propofol alone. The study recommends further detailed studies in this area.

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