

COMPARATIVE STUDY OF THiopENTONE AND PROPOFOL INDUCING AGENTS IN DAY CARE SURGERIES

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ABSTRACT: Successfulness of day surgery depends upon the quality of anaesthesia and recovery from it. Because of poor psychomotor recovery and subjective feeling of tiredness and drowsiness limits thiopentone usefulness in day care surgery. A new era has been started in history of induction agents with the advent of propofol in 1970 Propofol has rapid psychomotor recovery and few post operative side effects. The present study was undertaken to compare the induction, recovery characteristics and haemodynamic stability of inducing agents, thiopentone and propofol along with Ketamine in day care surgery with following objectives.

- 1] Haemodynamic stability with the addition of ketamine.
- 2] Assessment of recovery in the groups of propofol and thiopentone.

The conclusion of my study is the propofol is better than thiopentone. Cardio-vascular and respiratory stability due to addition of Ketamine as premedicant.

Key words: Propofol, Thiopentone, Daycare surgeries

INTRODUCTION

The popularity of surgery depends upon patients comfort, convenience, minimum hospital stay and cost. Development of new drugs reduced wound infection.

Successfulness of day surgery depends upon the quality of anaesthesia and recovery from it. It is important in day surgical work to ensure a rapid recovery with swift return to "street fitness".

General anaesthesia remains the most widely used techniques for day stay patients because of its popularity with patients, surgeons and anaesthesiologist. The delivery of safe and effective general anaesthesia with minimal side effects and a rapid recovery is essential in a busy out patient's surgery unit. Induction of general anaesthesia is usually accomplished with a rapid acting intravenous anaesthetic agents like popularly used Thiopentone. However, poor psychomotor recovery and subjective feeling of tiredness and drowsiness limits its usefulness in day care surgery.

A new era has been started in history of induction agents with the advent of propofol in 1970 Propofol has rapid psychomotor recovery and few post operative side effects.

So its routine use has been advocated for day care surgery.

Richard Johnston (1987), Mayer M. (1990), Hernandez (1999) did comparative studies between propofol and thiopentone for day care surgeries.

Considering the advantages and favourable results. The present study was undertaken to compare the induction, recovery characteristics and haemodynamic stability of inducing agents, thiopentone and propofol along with Ketamine in day care surgery with following objectives.

- 1] Haemodynamic stability with the addition of ketamine.
- 2] Assessment of recovery in the groups of propofol and thiopentone.

The study was carried out in two groups each consisting 75 patients. In all 150 patients of ASA grade were selected for the present study.

Group I: Received Propofol (2mg/kg) as an inducing agent

Group II: Received thiopentone (4-5 mg/kg) as an inducing agent. Premedication Glycopyrrrolate 0.2 mg IV, Midazolam 0.03 mg/kg IV, Ketamine 0.5 mg/kg IV with propofol or thiopentone.

Loss of eyelash and eyelid reflex was considered as an end point of induction.

METHODOLOGY

Patients underwent various gynaecological, obstetric, surgical and orthopaedic either elective or emergency day care surgeries, in the age group of 18-65 years either of sex of which majority were female included in the study. The study was carried out in two groups each consisting 75 patients. In all 150 patients of ASA grade were selected for the present study.

Group I: Received Propofol (2mg/kg) as an inducing agent

Group II: Received thiopentone (4-5 mg/kg) as an inducing agent.

Pre operatively baseline haemodynamics parameters were recorded in the form of pulse rate, blood pressure and respiratory rate.

Premedication Glycopyrrolate 0.2 mg IV, Midazolam 0.03 mg/kg IV, Ketamine 0.5 mg/kg IV with propofol or thiopentone.

Loss of eyelash and eyelid reflex was considered as an end point of induction.

RESULTS AND DISCUSSION

Majority of patients in Group I received upto 100 mg propofol where as in Group II majority of patients required upto 250 mg of thiopentone. (Table-1).

Table 1: Dose for induction (mg)

S. No.	Dose	Grade I	Grade II
1	50 – 100	61	-
2	110-150	14	3
3	160-200	-	16
4	210-250	-	42
5	260-300	-	14
	Total	75	75
	Mean \pm SD	91.93 \pm 16.94	240.73 \pm 37.02

There was increase in mean pulse rate in both the groups after premedication which was statistically significant when compared with pre operative mean pulse rate. At the end of induction mean pulse rate in both groups showed fall which continued till 1 minute after induction it was statistically significant. (Table-2).

At 5 and 10 minutes change in pulse rate was non significant and remained stable.

Table 2: Mean pulse rate

	Preoperative	After premedication	At end point of induction	After induction (minutes)		
				1	5	10
Group I	***82.21 \pm 3.44	***90 \pm 3.24	***85.65 \pm 3.36	83.76 \pm 3.15	85.56 \pm 2.77	85.56 \pm 2.77
Group II	***88.64 \pm 4.51	***96.13 \pm 4.42	***91.83 \pm 4.50	90.65 \pm 4.56	93.20 \pm 4.13	93.26 \pm 4.13

Table 3: Change in systolic blood pressure

	Preoperative	After premedication	At end point of induction	After induction (minutes)		
				1	5	10
Group I	***122 \pm 10.39	***131.78 \pm 10.21	***122.34 \pm 10.31	122.74 \pm 10.61	122.4 \pm 10.16	122.4 \pm 10.15
Group II	***121.86 \pm 10.28	***130.72 \pm 9.99	***123.36 \pm 9.93	122.02 \pm 9.95	122.08 \pm 9.65	122.08 \pm 9.65

The change in systolic blood pressure after premedication and at the end point of induction in both groups was statistically significant. (Table-3).

After 5 minutes of induction mean systolic blood pressure remained same. These were no hypotension in propofol group.

There was increase in mean respiratory rate after premedication in both the groups. After induction fall was observed in both the groups. Fall in Group I was more than that in Group II. (Table-4).

Table 4: Change in Mean Respiratory Rate

S. No.	Dose	Grade I	Grade II
1	Preoperative	20.41 ± 2.71	20.64 ± 2.94
2	After premedication	23.25 ± 2.44	23.54 ± 3.01
3	After induction	20.75 ± 2.41	22.49 ± 3.31
4	Post operative	21.04 ± 2.26	22.34 ± 2.80

Nine patients (12%) of group I showed involuntary limb movements, where as in group II intra-operatively 2 patients (2.66%) had bronchospasm and 8 patients (10.66%) suffered from post-operative nausea vomiting, but no patient in propofol group had post-operative nausea-vomiting. (Table-5).

Table 5: Side Effects and Complications in Both the Groups

Side Effects & Complications	Number of Patients	
	Group I	Group II
Pain on injection	-	-
Involuntary limb movements	09(12%)	-
CVS : Hypotension, severe tachycardia	-	-
Respiratory system : Respiratory depression, Bronchospasm, Laryngospasm & Apnoea		2 (2.66%)
Post operative nausea vomiting	-	8(10.66%)
Excessive salivation	-	-
Dreaming	-	-
Emergence delirium	-	-

CONCLUSIONS

1. Mean dose for induction was higher in group II over group I.
2. Pre-operative pulse rate in group I and group II were. 82.21 ± 3.44 and 88.64 ± 4.51 per minute. At the end point decrease in mean pulse rate in both groups was significant.
3. After premedication systolic B.P. increased significantly in both groups. At the end point of induction systolic B.P. decreased significantly in both groups. There was no hypotension with propofol. This cardiovascular stability was because of opposing effects of Ketamine and Propofol.
4. After induction fall in mean respiratory rate in group I was greater as compared to group II.
5. Cardio-vascular and respiratory stability due to addition of Ketamine as premedicant.

REFERENCES

- Cheng Kl. (1999). Total intravenous anaesthesia using propofol and ketamine for ambulatory gynecologic laparoscopy. 15(9): 536-41.
- Edelist Gerald. (1987). A comparison of propofol and thiopentone as induction agents in outpatient surgery. Canadian Journal of Anaesthesia; 34(2): 110-6.
- Hui T W. (1995). Additive interactions between propofol and ketamine when used for anaesthesia induction in female patients. American Society of Anaesthesiologists. JB Lippincott Company, Philadelphia. Anaesthesiology 82; 641-648
- Hernandez C. (1999). Comparative study of 3 techniques for total intravenous anaesthesia: Midazolam-Ketamine, propofol-ketamine and propofol- fentanyl. Rev EspAnestesiolReanim Apr. 46(4): 154-8.
- Khandelwal PC, Gairola RL, Lai A. (1995). Comparison of induction characteristics of propofol with thiopentone. Ind J Anaesth. 43: 243.
- Mackenzie N and Grant IS. (1985). Comparison of the new emulsion formulation of propofol with methohexitone and thiopentone for induction of anaesthesia in day cases. Ind J Anaesth; 57: 725-731.
- Mayer M (1990). The effect of propofol-ketamine anaesthesia on haemodynamics and analgesia in comparison with propofol-fentanyl. Anaesthesist Dec. 39(12): 609-16.
- Rolly G and Versichelen L (1985). Comparison of propofol and thiopentone for induction of anaesthesia in premedicated patients. Anaesthesia. 40; 945-948.
- Reder JC and Misvaer G (1988). Comparison of propofol induction with thiopentone or methohexitone in short outpatient general anaesthesia. Acta Anaesthesiol Scand. 32: 607-613.
- Tan CH, Onsiong MK and Kua SW. (1998). The effect of ketamine pretreatment on propofol injection pain in 100 women. Anaesthesia, 53:296-307.
- Vickers MD, Morgan M, Spencer PSJ. Drugs in anaesthetic practice (seventh edition)

ISSN : 0976-4550

INTERNATIONAL JOURNAL OF APPLIED BIOLOGY AND PHARMACEUTICAL TECHNOLOGY



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