ISSN (Print): 2617-0817 ISSN (Online): 2789-5912

Original Article

Clinical Outcome of Ketofol and Propofol in Case of Minor Surgical Procedure in Bangladesh

DOI: dx.doi.org

Amin MN[1], Bhattacharjee R.[2], Rahman F.[3], Ferdous S.[4]

Received: 08 Aug 2022
Accepted: 13 Aug 2022
Published: 15 Aug 2022

Published by:
Sher-E-Bangla Medical College, Barishal

ABSTRACT

Introduction: *Outpatient anesthesia for the minor day-care surgical actions needs a safe anesthesia and anesthetic agents.* ***Aim of the study:*** *The aim of the study was to evaluate effectiveness between ketofol and propofol in minor surgical procedure in Bangladesh.* ***Methods:*** *This experimental study was conducted at the Department of Anesthesiology, Sylhet Women's Medical College Hospital, Bangladesh. The study duration was 15 months, from January 2019 to March 2020, with a total of 200 participants. Purposive sampling technique was used to select the participants following inclusion and exclusion criteria. Informed consent was obtained from each participant, and ethical approval was obtained from the ethical review committee of the study hospital. The participants were divided in two groups, with 100 participants in each group, where group A patients received 50 mg (5 ml) Ketofol, 25 mg ketamine and 25 mg propofol, while group B received 50 mg (5 ml) of propofol.* ***Result:*** *During the study, in group-A, duration of surgery was 16.21 ± 9.3 min whereas in group B it was 18.25 ± 9.5. According to intraoperative complication where in group-A, 14% had decreased level of SPO2<90% where as in group B it was 22% followed by 11% had apnea in group-A whereas in group B it was 9%. Also, in group A 3% had slow respiration, in group B it was 7%. Mean induction time for group-A was 30.20±4.17where as in group B it was 42.35±5.13.* ***Conclusion:*** *In mild surgical operations, mixing ketamin (ketofol) with propofol alone has some benefits relative to anesthesia. Because of the complementary action of reducing the dosage of both medications, the mixture has fewer antagonistic effects than each drug itself. For better outcomes, further analysis is needed.*

Keywords: *ketofol, propofol, surgical procedure*

(The Planet 2022; 6(1): 163-166)

1. *Associate Professor, Department of Anesthesiology, Sylhet Women's Medical College Hospital, Sylhet, Bangladesh*
2. *Junior Consultant, Department of Anesthesiology, Sylhet Women's Medical College Hospital, Sylhet, Bangladesh*
3. *Assistant Professor, Department of Anesthesiology, Sylhet Women's Medical College Hospital, Sylhet, Bangladesh*
4. *Consultant, Department of Anesthesiology, Sylhet Women's Medical College Hospital, Sylhet, Bangladesh*

INTRODUCTION

Sedative and analgesic drugs are commonly administered for procedural sedation. Titration of anesthetic doses must be performed with care and the patients must be permanently monitored. A combination of ketamine and propofol has many positive anesthetic characteristics. There is remarkable interest in ketofol as a drug for procedural sedation.[1] Ketamine and propofol has been used in separate syringes in the same patient successfully in variety of procedures including sedation of spinal anesthesia, minor ophthalmological procedures, gynecological and surgical procedures in children and adults.[2],[3] The main advantage of this combination is the opposing effect in the hemodynamic and respiratory effects of each drug. 5-7 In a prospective study carried in 1264 patients undergoing anesthesia for the surgical procedures with Ketofol (ketamine with propofol), concluded that this combination is safe and effective.[4] In this study our main goal is to evaluate efficiency between ketofol and propofol in case of minor surgical procedure in Bangladesh.

OBJECTIVE

General Objective

- To assess effectiveness between ketofol and propofol in minor surgical procedure in Bangladesh

Specific Objectives

- To detect anesthetic parameters of the patients.
- To identify postoperative complications.

METHODS

This experimental study was conducted at the Department of Anesthesiology, Sylhet Women's Medical College Hospital, Bangladesh. The study duration was 15 months, from January 2019 to March 2020, with a total of 200 participants. Purposive sampling technique was used to select the participants following inclusion and exclusion criteria. Informed consent was obtained from each participant, and ethical approval was obtained from the ethical review committee of the study hospital. The participants were divided in two groups, with 100 participants in each group, where group A patients received 50 mg (5 ml) Ketofol, 25 mg ketamine and 25 mg propofol, while group B received 50 mg (5 ml) of propofol. After data collection was done, data were entered into a personal computer and were edited, analyzed, plotted in graphs and tables. Data were analyzed by chi square test, Mann Whitney U tests, using the statistical package for social sciences (SPSS) version 20.

Inclusion Criteria

- Age between 21-50 years
- ASA physical status class I and II
- Patients who had given consent to participate in the study.

Exclusion Criteria

- Mentally ill.
- ASA Physical status III-VI
- Age <20 years of >50 years
- Unable to answer the criteria question.
- Exclude those affected with other chronic diseases etc.

RESULTS

Table-1 shows the age distribution of the patients where most of the patients in both groups belonged to the 31-40 years age group (54% and 65%), followed by 38% and 28% in the 21-30 years age group, 8% and 7% in 41-50 years age group.

Table-1: Age distribution of the patients

Age group	Group-A, %	Group B, %
21-30	38, 38%	28%
31-40	54, 54%	65%
41-50	8, 8%	7%

Figure-1 shows the gender distribution of the patients where in group-A 44% were male, and 56% were female. Whereas in group B, 38% were male and 62% were female. The following figure is given below in detail:

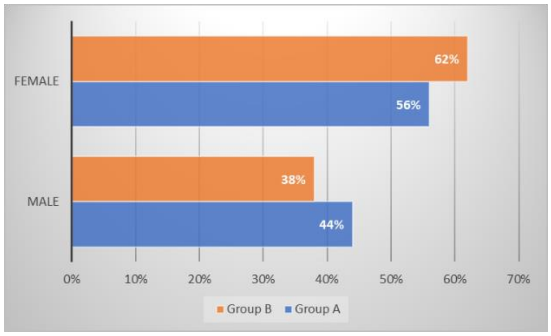

Figure-1: Gender distribution of the patients

In table-2 shows the duration of the surgery where in group-A, it was 16.21 ± 9.3 min whereas in group B it was 18.25 ± 9.5.

Table-2: Duration of the surgery

Duration of surgery	Group-A	Group B
	16.21 ± 9.3 min	18.25 ± 9.5 min

Figure-2 shows intraoperative complications where in group-A, 14% had decreased level of SPO2<90% whereas in group B it was 22% followed by 11% had apnea in group-A whereas in group B it was 9%. Also, in group A 3% had slow respiration, in group B it was 7%. The following figure is given below in detail:

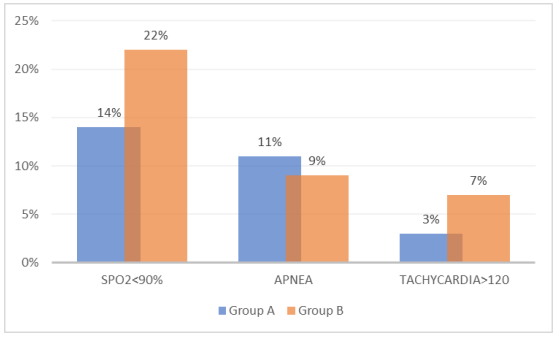

Figure-2: Intraoperative complication

Table-3 shows a comparison of anesthesia parameters where the mean induction time for group-A was 30.20±4.17where whereas in group B it was 42.35±5.13. The following table is given below in detail:

Table-3: Comparison of anesthesia parameters

Age group	Group-A, %	Group B, %
Mean induction time	30.20±4.17	42.35±5.13
Mean recovery time (min)	4.26±2.21	5.15±3.50
Study solution	9.19±4.35	13.43±3.26

Figure-3 shows postoperative complications where in group-A, 9% had postoperative pain whereas in group B it was 16%. Not all participants had complications.

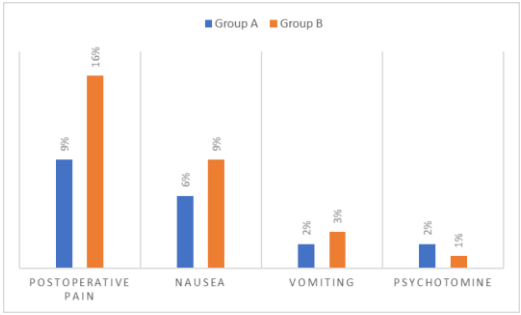

Figure-3: Postoperative complications.

DISCUSSION

Propofol is an IV anesthetic drug used to cause intravenous anesthesia and retain it. The recovery from anesthesia caused by propofol is usually fast with lower side effects compared to other inductors. This mixture has the property of the opposite respiratory and cardiovascular effects of each drug4. This combination also decreases the dosage of costly medication propofol to meet the desired result.

Ketamine and propofol have been successfully used in combination with divided syringes for small procedures in adults and children by many authors.[4]-[5] As a consequence of the additive effects of both treatments, the cumulative outcome is less harmful than that of both narcotics alone. There were a variety of different levels of ketamine-propofol formulations used for sedation in women who were undergoing breast biopsy with no serious air problems.[6] After four hours of the procedure, both patients were relaxed in a postoperative room and released, and because of postoperative problems, no patient was admitted. Pressure, nausea, and vomiting and both successfully treated and released in one day were the only postoperative complications seen. Nineteen (19%) patients had shallow and slow respiration and 5 patients had apnea in propofol group whereas 13 patients had shallow and slow respiration and 7 had apnea in ketofol group reported in one study.[7] Where as in our study in group-A(ketofol), 14% had decreased level of SPO2<90% where as in group B it was 22% followed by 11% had apnea in group-A whereas in group B it was 9%. Also, in group A 3% had slow respiration, in group B it was 7%. The mean induction time required for the Ketofol group was 32.18±4.17 sec and for propofol group it was 39.34±5.12sec was noted in one study.[8] which was quite similar to our study where mean induction time for group-A(ketofol) was 30.20±4.18, where as in group B (propofol) it was 42.35±5.13.

Limitations of The Study

The study was conducted in a single hospital with small sample size. So, the results may not represent the whole community.

CONCLUSION

In mild surgical operations, mixing ketamin (ketofol) with propofol alone has some benefits relative to anesthesia. Because of the complementary action of reducing the dosage of both medications, the mixture has fewer antagonistic effects than each drug itself. For better outcomes, further analysis is needed.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. *Bahn EL, Holt KR. Procedural sedation and analgesia: a review and new concepts. Emerg Med Clin North Am. 2005;23(2):503-17.*
2. *Ketofol :a combination of ketamine and propofol.J of anesthesia and critical care 2014;1(5).*
3. *The Association of Obstetric Anaesthesiologists Guidelines forAnaesthetic Management of Patients Undergoing Tubal Ligation:Editorial. J Obstet Anaesth Crit Care 2011;1:1-2.*
4. *Wang Y, Jiang X, PangL, et al. A randomized doubleblind controlled study of the efficacy of ketofol with propofol-fentanyland propofol alone in termination of pregnancy. Afr J Pharm Pharmacol 2012;6:2510-4.*
5. *Saeed E. Ketofol infusion as a procedural sedation and analgesia modality for minor orthopedic surgeries: Evaluation of dose-outcome relation.Ain Shams J Anaesthesiol 2011;4:63-74*
6. *Kurdi MS, Theerth KA, Dewa RS. Ketamine: current application in anesthesia, pain and critical care. Anesth Essays and Res. 2014 Sep-Dec; 8(3): 283-290.*
7. *Isik y, Kurdoglu Z, Goktas U,Kati I, Sozen D. Comparison of propofol and ketofol in minor gynecological interventions. J Clin Exp Invest. Vol 6, No 3, Sep 2015: 244-249.*
8. *Montero RF, Clark LD, Tolan MM et al. The effects of small dose ketamine on propofol sedation: respiration, postoperative mood, perception, cognition and pain. Anesthesia Analgesia. 2001;92:1465-1469.*