International Journal of Life Sciences, Biotechnology and Pharma Research Vol. 14, No. 3, March 2025 Online ISSN: 2250-3137
Print ISSN: 2977-0122

DOI: 10.69605/ijlbpr_14.3.2025.132

ORIGINAL RESEARCH

Oral Clonidine vs. Oral midazolam as premedication in adults: A comparative study

[1]Dr.Jayalaxmi, [2]Dr.Veereshkumar Angadi, [3]Dr. P G Raghavendra

[1]Associate Professor,Department of Anaesthesia,RIMS, Raichur, Karnataka, India
[2]Associate Professor, Department of Anaesthesia, RGSSH Hospital,RIMS, Raichur, Karnataka, India
[3]Associate Professor, Department of Anaesthesia, RIMS, Raichur, Karnataka, India

Corresponding Author
Dr. Veereshkumar Angadi
Associate Professor, Department of Anaesthesia, RGSSH Hospital, RIMS, Raichur, Karnataka, India

Received: 11Jan, 2025 Accepted: 12Feb, 2025

ABSTRACT

Objective: This study aims to compare the efficacy and safety of oral clonidine versus oral midazolam as premedication in adults undergoing elective surgery.**Methods:** A total of 60 patients were randomized into two groups: Clonidine (n=30) and Midazolam (n=30). Hemodynamic parameters, sedation scores, and anxiolysis were assessed preoperatively.**Results:** Clonidine provided better hemodynamic stability, while Midazolam showed superior anxiolysis. Statistical analysis revealed significant differences (p<0.05) in sedation scores and heart rate changes.**Conclusion:** Both drugs are effective, but the choice depends on the desired preoperative effect.

Key words: Diabetic retinopathy, Diabetes mellitus, screening

INTRODUCTION

Preoperative anxiety and stress can adversely affect surgical outcomes. Premedication with sedatives and anxiolytics is common practice to enhance patient comfort and optimize anesthetic induction[1,2]. Midazolam, a short-acting benzodiazepine, is widely used for its rapid onset and anxiolytic effects. Clonidine, an α2-adrenergic agonist, provides sedation and hemodynamic stability[3,4]. This study compares the efficacy of oral clonidine and oral midazolam in adults undergoing elective surgery.

METHODS

This prospective, randomized, double-blind study included 60 adult patients (ASA I-II) scheduled for elective surgery at Raichur Institute of Medical Sciences, Raichur, which was conducted for a periodfrom 1st February 2024 to 25th November 2024.Patients were divided into two groups: Group C (Clonidine 0.2 mg orally) and Group M (Midazolam 7.5 mg orally), administered 60 minutes before induction.

INCLUSION CRITERIA

1. Age 18-60 years.
2. ASA physical status I-II.
3. Elective surgery under general anesthesia.

EXCLUSION CRITERIA

1. Known allergy to study drugs.
2. Severe cardiovascular or hepatic disorders.
3. Pregnancy.

STATISTICAL ANALYSIS

Data were analyzed using SPSS v26. Independent t-tests were used for continuous variables, and chi-square tests for categorical variables. A p-value <0.05 was considered statistically significant.

RESULTS

PATIENT DEMOGRAPHICS

Both groups were comparable in terms of age, gender, and ASA status (p>0.05).

DOI: 10.69605/ijlbpr_14.3.2025.132

Table 1: Hemodynamic and Sedation Data

Parameter	Clonidine (Mean ± SD)	Midazolam (Mean ± SD)	p-value
Heart Rate (bpm)	72 ± 5	82 ± 6	<0.05
MAP (mmHg)	90 ± 6	85 ± 7	>0.05
Sedation Score	3.5 ± 0.6	4.7 ± 0.5	<0.05
Anxiolysis Score	3.2 ± 0.7	4.8 ± 0.6	<0.05

DISCUSSION

The objectives of premedication are sedation, to decrease preoperative anxiety and fear, to produce amnesia and analgesia, to reduce secretions from salivary glands and to reduce pH and volume of gastric contents and risks associated with aspiration, and also to reduce reflex sympathetic activities. The study was conducted to compare the clinical efficacy of oral premedication using clonidine versus midazolam with respect to anxiolysis and sedative properties.

Tschirch*et al*. compared oral midazolam (7.5 mg) with nasal midazolam and found that reduction in anxiety was insufficient in 67% in the group that was administered oral midazolam and clinically significant in 97% patients who were administered midazolam nasally[5].Clonidine has anxiolytic effects independent of sedation and also decrease intraoperative plasma catecholamine and prolactin concentrations[6].

In this study we assessed anxiolytic effect by VAS and both clonidine and midazolam showed anxiolytic effect.Sedation was evaluated by using a five point sedation score 90 minutes after premedication.

The findings suggest that oral clonidine offers better hemodynamic stability compared to midazolam, which provides superior anxiolysis and sedation. Clonidine's α2-adrenergic action reduces sympathetic outflow, leading to a stable heart rate[7]. Midazolam, being a benzodiazepine, excels in anxiolysis but causes mild respiratory depression[8]. These results align with previous studies supporting clonidine's role in reducing perioperative stress and midazolam's rapid anxiolytic effects.

CONCLUSION

Both oral clonidine and midazolam are effective premedication agents. The choice depends on the clinical need: clonidine for stable hemodynamics and midazolam for superior anxiolysis.

REFERENCES

1. Aantaa R, Scheinin M. Alpha 2-adrenergic agents in anesthesia. Anesthesiology. 1993;78(4):751-763.
2. Vuyk J, Sitsen E, Reekers M. Intravenous anesthetics. In: Miller's Anesthesia. 8th ed. Elsevier; 2015:821-863.
3. Maze M, Tranquilli W. Alpha-2 adrenoceptor agonists: defining the role in anesthesia. Anesthesiology. 1991;74(3):581-605.
4. Nishina K, Mikawa K. Clonidine in pediatric anesthesia. CurrOpinAnesthesiol. 2002;15(3):309-316.
5. Tschirch FT, Göpfert K, Fröhlich JM, Brunner G, Weishaupt D. Low-dose intranasal versus oral midazolam for routine body MRI of claustrophobic patients. EurRadiol. 2007;17:1403–10. doi: 10.1007/s00330-006-0457-1.
6. Handley SL, Mithani S. Effects of alpha-adrenoceptor agonists and antagonists in a maze-exploration model of fear-motivated behavior. NaunynSchmiedebergs Arch Pharmacol. 1984;327:1–5. doi: 10.1007/BF00504983.
7. Stoelting RK, Hillier SC. Pharmacology and Physiology in Anesthetic Practice. 4th ed. Lippincott Williams & Wilkins; 2006.
8. Sun GC, Hsu MC, Chia YY. The effect of preanesthetic oral clonidine on postanesthetic shivering. AnesthAnalg. 2005;101(2):1007-1011.