

Original Research

Efficacy of Clonidine & Midazolam as Premedication Agent- A Comparative Study

Meenakshi . K. Moorthy

Assistant professor , Department of Anaesthesia, Hind institute of Medical Sciences, Ataria, Sitapur, Uttar Pradesh, India

ABSTRACT:

Background: Premedication should yield a patient who is calm, free of anxiety and pain. The present study was conducted to compare the efficacy of midazolam with clonidine as a premedication agent. **Materials & methods:** This study was conducted in department of Anaesthesia. It consisted of 60 patients with ASA grade I and II. Patients were divided into 2 groups of 30 each. Group I received 4mcg/kg of oral clonidine and group II received 0.5mg/kg oral midazolam as a premedication about 1 hour before induction of anaesthesia. Drug acceptance and anxiety score was recorded. **Results:** Group I, score 1 was seen in 14, 2 in 10 and 3 in 6 children. In group II, score 1 was seen in 10, 2 in 12 and 3 in 8 children. The difference was significant ($P < 0.05$). The mean sedation score in group I was 2.8 and in group II was 1.2. The difference was significant ($P < 0.05$). **Conclusion:** Authors found that there was better sedation and drug acceptance score with clonidine which could be used as an alternative to midazolam as pre- anesthetic agent.

Key words: Clonidine, Drug acceptance, Sedation

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Corresponding author: Dr. Meenakshi . K. Moorthy, Assistant professor , Department of Anaesthesia, Hind institute of Medical Sciences, Ataria, Sitapur, Uttar Pradesh, India

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INTRODUCTION

Anxiety and fear of operation, injections, physicians, operation theater environment, and parental separation are all traumatizing experiences in patients resulting in postoperative maladaptive behavioral changes.¹ Premedication should yield a patient who is calm, free of anxiety and pain, sedated, but easily arousable and fully cooperative. Oral premedication is widely used to reduce preoperative anxiety and ensure smooth induction. Anxiety during the perioperative period has been described as a subjective feeling of apprehension, fear, and nervousness. In addition to facilitating the induction of anesthesia and providing a calm perioperative environment, the benefits of effective premedication may be long lasting.²

Administration of anesthesia in children is a tedious task. A variety of non pharmacological and pharmacological measures have been tried in reducing pre-operative anxiety. Pharmacological agents such as sedatives and non-pharmacological agents such as parental presence, behavioural preparation programs, music, acupuncture, etc are widely used in order to relieve pain and anxiety.³

Studies have revealed that midazolam which is a benzodiazepine which produces amnestic, hypnotic, anxiolytic and skeletal muscle relaxant effects. The route of administration is intranasal, sublingual, rectal and the oral routes. It has rapid onset and short half life. Clonidine is another effective agent.⁴ It has significant sedative and analgesic properties. It is another agent used in premedication in children. It has been shown that oral clonidine effectively produces pre-operative sedation and anxiolysis in children, it acts as an analgesic, it decreases the volatile anaesthetic agent requirement and also improves the peri-operative hemodynamic stability.⁵ The present study was conducted to compare the efficacy of midazolam with clonidine in children.

MATERIALS & METHODS

This study was conducted in department of Anaesthesia. It consisted of 60 patients with ASA grade I and II. An informed written consent was taken from all patients. The study design was approved by the institutional ethical committee.

Patients particulars such as name, age, sex etc was recorded. Pre -anaesthetic check up was done in all patients. Patients were divided into 2 groups of 30 each. Group I received 4mcg/kg of oral clonidine and group II received 0.5mg/kg oral midazolam as a premedication about 1 hour before induction of anaesthesia. Drug

acceptance and anxiety score was recorded. Drug acceptance was calculated as good, indifferent, bitter and unpleasant. Sedation level was calculated as 1 = awake, 2 = drowsy, and 3 = asleep. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I: Distribution of patients

Groups	Group I	Group II
Agent	4mcg/kg of oral	0.5mg/kg oral midazolam
Number	30	30

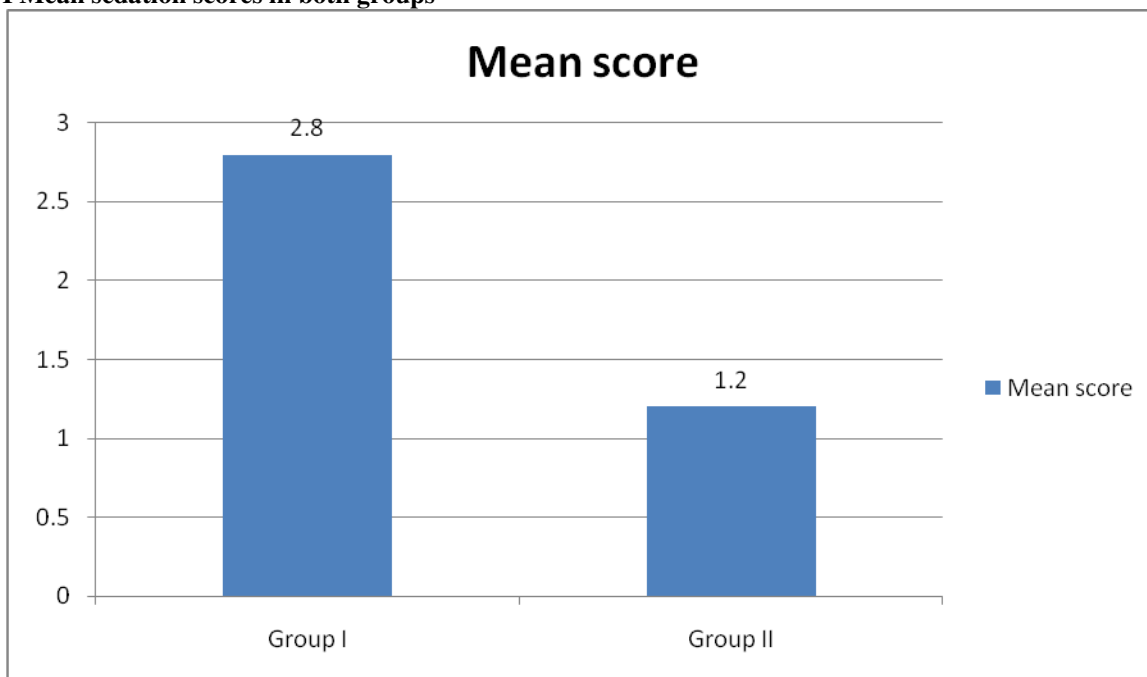
Table I shows that patients were divided into 2 groups of 30 each. Group I received 4mcg/kg of oral clonidine and group II received 0.5mg/kg oral midazolam.

Table II: Drug acceptance score

Score	Group I	Group II	P value
1	14	10	0.01
2	10	12	0.3
3	6	8	0.21

Table II shows that in group I, score 1 was seen in 14, 2 in 10 and 3 in 6 children. In group II, score 1 was seen in 10, 2 in 12 and 3 in 8 children. The difference was significant (P< 0.05).

Graph I Mean sedation scores in both groups



Graph I shows that mean sedation score in group I was 2.8 and in group II was 1.2.

DISCUSSION

Sedation and anxiolysis are the essential components of anesthesia before surgery in patients. Currently, the most

commonly used sedative premedicants in the preoperative holding area is midazolam (85%), followed by ketamine (4%), fentanyl (3%), and meperidine (2%) with oral route being used most commonly. Clonidine, α_2 -adrenergic agonist is an upcoming preanesthetic agent in patients and hence has been compared with midazolam, the most common premedication used in patients.⁶ The present study was conducted to compare the efficacy of midazolam with clonidine as a premedication.

In present study, patients were divided into 2 groups of 30 each. Group I received 4mcg/kg of oral clonidine and group II received 0.5mg/kg oral midazolam. Debnath et al⁷ conducted a study in sixty patients belonging to the American Society of Anesthesiologists class I and II between the age group of 2-12 years scheduled for elective surgery were randomly allocated to receive either oral midazolam (group I) 30 min before induction or oral clonidine (group II) 90 min before induction of anesthesia. The children were evaluated for levels of sedation and anxiety at the time of separation from the parents, venepuncture, and at the time of mask application for induction of anesthesia. After premedication, the percentage of children who were sedated and calm increased in both the groups. The overall level of sedation was better in the children in the clonidine group, but children in the midazolam group had a greater degree of anxiolysis at times of venepuncture and mask application. In addition, midazolam did not cause significant changes in hemodynamics unlike clonidine where a significant fall in blood pressure was noted, after premedication, but pre-induction.

We found that in group I, drug acceptance score 1 was seen in 14, 2 in 10 and 3 in 6 children. In group II, score 1 was seen in 10, 2 in 12 and 3 in 8 children. The mean sedation score in group I was 2.8 and in group II was 1.2. Fazi et al.⁸ conducted a study and they achieved a significantly better level of sedation with oral clonidine than with oral midazolam, but clonidine needed to be administered at least 45 minutes prior to the induction for an optimum sedation, which could be achieved in 30 minutes with oral midazolam.

Trevor et al.⁹ provide additional information comparing clonidine with the commonly used pre-medication oral midazolam. The authors compared premedication with standard doses of oral midazolam (0.5 mg/kg) and clonidine (4 μ g/kg) in a cohort of 60 pediatric patients (ASA I-II) undergoing elective surgery. Additionally, one of the major drawbacks to clonidine use was noted as the authors administered clonidine 90 min prior to anesthetic induction given its slow onset of action.

CONCLUSION

Authors found that there was better sedation and drug acceptance score with clonidine which could be used as an alternative to midazolam as pre-anesthetic agent.

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