

# Effectiveness of Midazolam Compared to Diazepam and Placebo For Reducing Anxiety after Premedication at Sylhet Women's Medical College

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## ABSTRACT

**Introduction:** Anxiolytic premedication is debated most of the time in the outpatient surgical community. The management of anxiety reducing medications may be considered unnecessary by anesthesiologists when anxiety rates are small in outpatients with minor operations. Thanks to its rapid onset and short half-life, intravenous (IV) midazolam is the most widely used premedicant in ambulatory environments, but its persistent effects in the prompt postoperative period may lead to postoperative sedation, as well as delayed recovery and discharge readiness after brief ambulatory surgery.

**Objective:** This research is carried out specifically to check whether the use of the medicine for preanesthesia midazolam quantifiably decreases pain as opposed to having no preanesthesia drug (placebo) or diazepam prior to medical procedures.

**Method:** The examination's inclusion requirements are patients aged between 18 and 68 years scheduled for elective surgery or diagnostic procedures involving anesthesia. An interventional (clinical trial) study with 160 patients scheduled for surgical or diagnostic procedures involving anesthesia techniques was performed at a neighbourhood emergency clinic called Sylhet Women's Medical College located in Sylhet, Bangladesh. Research length from Aug 2018 to Aug 2019.

**Results:** After multiple investigations of knowledge and analysis it was discovered that diazepam with little or no symptoms placed ahead of midazolam and placebo.

**Conclusion:** It can be clearly inferred that in case of a decrease in anxiety, diazepam ranks first compared to midazolam or placebo.

**Keywords:** Premedication, Midazolam, Placebo, Anesthesia, Diazepam.

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## INTRODUCTION

In case of the outpatient surgical population the role of anxiolytic premedication is addressed as much as possible.

When anxiety rates are small in outpatients presenting for minor surgery, anesthesiologists may find the administration of anxiety-reducing drugs superfluous. Be that as it may, the past study reveals that before medical treatment, up to 80 percent of outpatients expressed an propensity for a combination of anxiety reducing and hypnotic premedication.

Despite anxiolysis, anxiolytic premedication targets include sedation, amnesia, enhanced patient involvement, as well as enhanced patient fulfillment.

Due to its rapid onset and short half-life, intravenous (IV) midazolam is the most widely used premedicant in the outpatient environment, but its long-lasting effects in the prompt

postoperative period may lead to postoperative sedation, as well as delayed recovery and discharge readiness after a brief ambulatory medical procedure.

About the anxiolytic effect of procedure, little is understood. Specific forms of benzodiazepines are typically prescribed before a surgical procedure starts. Benzodiazepines enhance the influence of the natural gammaaminobutyric acid neurotransmitter at the receptor site in the head, which initiates a decrease in the excitability of the neurons with eventually anxiolytic, sedative and amnesic results.<sup>1</sup> The use of benzodiazepines as anxiolytic agents for patients undergoing medical procedure is supported by various evidence. There are also no guidelines that provide instructions in choosing pharmacological programs to alleviate procedural anxiety.

Therefore, the regular option of anxiolytic premedication is henceforth not evidence based, but rather dependent on the near tendency of the supervisor toward the house. As is appropriate, the impacts of benzodiazepines diazepam 5 mg/os and midazolam 7.5 mg / os contrasted and no premedication (fake treatment or placebo) on decreasing rates of anxiety in patients undergoing surgery were determined in this study.



Figure 1a and 1b: Midazolam and Diazepam

**OBJECTIVE**

The aim of this research is to estimate midazolam's sedative, and anxiolytic effect when administered for pre-operative treatment compared to diazepam and placebo.

**METHOD**

**Study Type:** This is an Interventional (Clinical Trial) study.

**Inclusion Criteria:**

- Is allowed and able to sign an informed consent document
- No Midazolam Allergies
- 18 - 68 years of age
- American Association of Anesthesiologists (ASA), Class I-III adults of both sexes

**Exclusion Criteria:**

- Patients who misuse sedative, anxiolytic medications regularly until surgery
- Pregnant and/or lactating women
- Patients with documented allergy, midazolam contraindications or hypersensitivity, anesthetic or analgesic Drugs
- Morbid obesity
- Patients agitated and/or disturbed before sedatives are administered

**Study Area:** A local hospital named Sylhet Women's Medical College located in Sylhet, Bangladesh. A descriptive interventional study was conducted. 160 patients scheduled for surgical or diagnostic procedures needful of anesthesia techniques. The study duration was from August 2018 to August 2019.

**Study Procedure:** Efficacy of 10 mg oral midazolam was measured by administering a dose to patients 30 to 60 minutes before the treatment (approximate time to peak effect1); Along with a standard medication regimen of ibuprofen and PCB, In decreased anxiety and pain associated with placebo and regular treatment.

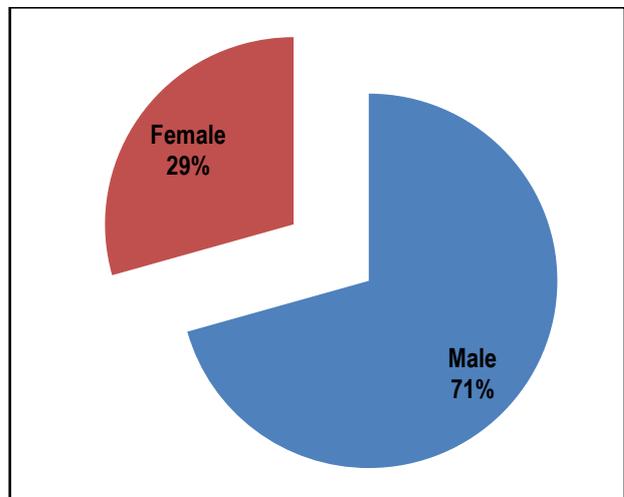


Figure 1: Gender distribution of the Patients

Table 1: Demographic Characteristics and Procedural Data

Description	No Premedication (Placebo)	Diazepam	Midazolam
<b>Demographics</b>	n=52	n=55	n=53
Age (years)	68±12	66±12	65±11
Male	36 (69.23%)	44 (80%)	33 (62.26%)
Female	16 (30.77%)	11 (20%)	20(37.74%)
<b>Medical history</b>			
CAG or PCI	24 (46.15%)	24(43.63%)	27 (50.94%)
<b>Risk factors</b>			
Diabetes mellitus	26 (50%)	42 (76.36%)	17 (32.07%)
Current cigarette smoking	9 (17.30%)	12 (21.81%)	20 (37.73%)
Known hypertension	2 (3.84%)	13 (23.63%)	14 (26.41%)
<b>Follow-up</b>			
1 years mortality	2 (3.84%)	6(10.90%)	3 (5.66%)

Note: Data are articulated as number (%), mean±SD.

**Table 2: Prevalence of Anxiety in Different Premedication Segments**

Dose	No premedication	Diazepam	P values*	Midazolam	P values*
	(Placebo)	5 mg/os		7.5 mg/os	
<b>Tmax</b>					
<b>T<sub>1/2</sub></b>					
<b>VAS intake</b>	3.8 ± 2.7	4.2 ± 2.5	0.34	4.3 ± 2.7	0.24
<b>VAS pre-procedure</b>	4.2 ± 2.5	4.3 ± 2.5	0.06	4.4 ± 2.9	0.23
<b>VAS post-procedure</b>	2.5 ± 2.3	2.3 ± 2.4	0.02	2.3 ± 2.7	0.46
<b>VAS at discharge</b>	1.5 ± 1.7	1.6 ± 1.7	0.6	1.43 ± 1.9	0.36

## RESULTS

Among the 160 patients most 113 (70.62%) patients were male and rest 47 (29.38%) were female (Figure 1).

The descriptive summary of the demographic, procedural factors are grouped by the sedatives or non-sedatives used are thoroughly described in the Table 1.

Anxiety reduction considerably improved in patients whom undertook benzodiazepines (Midazolam and Diazepam) as premedication ( $\Delta$ VAS=-1.7±2.8) compared to patients who did received placebo ( $\Delta$ VAS=-1.2±2.5, p=0.02). The use of diazepam generated the highest anxiety reduction ( $\Delta$ VAS=-2.0±2.6, p=0.03). The use of midazolam ( $\Delta$ VAS=-1.9±3.3, p=0.12) did not lead to a significant anxiety reduction compared to placebo (no premedication).

Mean reduction of VAS scores in the samples split for the use of premedication. Absolute reduction of VAS score pre-procedure compared with post-procedure is defined as the reduction of anxiety. Premedication with diazepam (P= 0.02) resulted in significant anxiety reduction compared to either midazolam or placebo.

## DISCUSSION

Oral and IV midazolam has been considered and observed to be sheltered and powerful in lessening perioperative agony and additionally nervousness for adults experiencing outpatient dermatologic surgery<sup>2</sup>, flexible sigmoidoscopy<sup>3</sup>, diagnostic upper endoscopy<sup>4</sup>, and dental surgery.<sup>5</sup> Oral midazolam has additionally been observed to be protected and successful as a premedication before general anesthesia or IV conscious sedation.<sup>6-14</sup> While no major unfriendly occasions were accounted for in these examinations, oral midazolam has realized symptoms including paradoxical reactions, nausea, or excessive sedation with potential to cause oxygen desaturation or delayed discharge and can cause allergic reactions. Oral midazolam is an engaging alternative as it has a fast onset, wide safety margin, and short duration of action when contrasted with other benzodiazepines.<sup>15</sup> Midazolam has a place with a more up to date class of benzodiazepines called "imidazobenzodiazepines." as such, there is a receptor antagonist, flumazenil accessible for reversing midazolam.<sup>16</sup> Moreover, in contrast to oral lorazepam or diazepam, midazolam has a solid dose-dependent amnesic impact that is seen with both oral and intravenous (IV) routes of administration.<sup>16-21</sup>

However, this study shows that the use of diazepam generated the highest anxiety reduction. The use of midazolam did not lead to a significant anxiety reduction compared to placebo (no

premedication). Additionally, anxiety reduction considerably improved in patients whom undertook benzodiazepines (Midazolam and Diazepam) as premedication compared to patients who received placebo. Premedication with diazepam (P= 0.02) resulted in significant anxiety reduction compared to either midazolam or placebo. Thusly, the use of diazepam ranks ahead of Midazolam in this study.

In the investigation by Woodhead et al.<sup>22</sup>, (n=144) the frequency of access site related complications as pseudo aneurysms, haematomas, and arterial bleedings was equivalent in patients premedicated with diazepam or without premedication. Nervousness was expressed to be equivalent in all gatherings. By the by, this was estimated with a solitary inquiry that did not evaluate anxiety levels. Second, Kazemisaieid et al.<sup>23</sup> (n=151) directed a placebo controlled, double blind, randomized controlled trial, which demonstrated a noteworthy increment in anxiety reduction that was measured in vas score, in patients premedicated with intravenous midazolam contrasted and both diazepam with intramuscular promethazine and a placebo. In any case, this could be credited to the way that patients with higher pre-procedural tension were premedicated with midazolam, instead of the anxiolytic impact of midazolam itself. As opposed to our present investigation, the post-procedural anxiety levels of their examination did not vary among the diverse groups.

## CONCLUSION

From the result and discussion of the study, it can be clearly concluded that diazepam ranks ahead in case of anxiety reduction compared to midazolam or placebo. However, in increased use, diazepam may affect the patient's memory as it has some amnesic property. In moderate use, midazolam is comparatively a safer option.

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