September 1995

Evaluation of oral midazolam as pre-medication in day care surgery in adult Pakistani patients

N Ahmed

F A. Khan

Aga Khan University, fauzia.khan@aku.edu

Evaluation of Oral Midazolam as Pre-Medication in Day Care Surgery in Adult Pakistani Patients

Pages with reference to book, From 239 To 241

Nauman Ahmed, Fauzia A. Khan (Department of Anaesthesia, Aga Khan University Hospital, Karachi.)

Abstract

A placebo controlled randomized double blind study was designed to assess the suitability of oral Midazolam as a premedication in day care surgery in adult Pakistani patients. Fifty ASA I and H patients aged between 20-60 years received either Midazolam 7.5 mg or a placebo approximately one hour prior to surgery. Midazolam 7.5 mg produced significant anxiolysis and sedation ($p<0.001$) in comparison to placebo after one hour of premedication. There was a significant difference ($p<0.001$) in the mean heart rate and blood pressure in both groups after 1 hour of premedication with a lesser rise in blood pressure and heart rate in the Midazolam group. Psychomotor performance assessed by 'n' deletion test was impaired by Midazolam ($p<0.001$) and recall of pictures revealed differences ($p<0.05$) in the groups at one hour after premedication. However, at four hours after surgery there were no differences in both groups. These findings indicate that rapidly acting oral Midazolam in doses of 7.5 mg provided safe and effective premedication in terms of anxiolysis, sedation, amnesia and psychomotor performance and is suitable for day surgery (JPMA 45:239,1995).

Introduction

Many surgical procedures are now performed on a day stay basis and it is common anaesthetic practice to avoid premedication in these patients, in the belief that recovery is prolonged. However, a high level of anxiety is encountered at the time o induction, suggesting a need for an oral premedicant drug with rapid onset and short duration of action. Among the clinically available benzodiazepines, Midazolam possesses the shortest elimination half life, a feature which makes it potentially useful for short acting day case anxiolysis. Oral Midazolam also provides rapid sedation and amnesia when administered to adults in day care surgery in western countries. This trial was designed to test the suitability of oral Midazolam, as a premedication for day care surgery in Pakistani patients.

Patients and Methods

The study was approved by the Human Ethics Committee of the Aga Khan University Hospital and informed patient consent was obtained. Fifty ASA I(nb organic, psychologic or psychiatric disturbance with a localised pathological lesion) and II (mid to moderate systemic disturbance) patients aged between 20 to 60 years, scheduled for day care surgery were randomly allocated to receive either Midazolam 7.5 mg or a placebo approximately one hour prior to surgery. All patients were proxy generated for 3 minutes prior to induction of anaesthesia. Induction was with intravenous thiopentone 4 mg/kg given over 15 seconds and anaesthesia was maintained on a mask and Magills circuit with 33% 02, 66% nitrous oxide and 2 to 3% enflurane. Data was recorded before giving premedication, one hour after premedication i.e., before the start of surgery and at one and four hours after surgery. At each time, the systolic and diastolic blood pressure, heart rate, respiratory rate, anxiety score[1], sedation score[2], amnesia score, performance at letter deletion test and any side effects were noted. Patients were rated on a scale of 0 (calm) to 3 (very anxious) for anxiety and on a scale of 0 (wide awake) to 5 (unarousable) for sedation. Amnesia was tested by picture card test[3] in which the subject was shown a

card with nine objects on it and was asked to memorize them. After 30 minutes distraction, the number of objects correctly recalled were scored. The subject recalled these pictures at each scoring. Psychomotor performance test[4] comprised of 25 lines of randomly typed letters. The subject was asked to delete as many letters "n" in a 2 minutes interval. The test score was taken as the number of lines completed minus the number of errors. The study was done in a double blind manner. The anaesthetist involved in recording observations was unaware of the patient grouping. All results were statistically analyzed using" Chi square test" and "Z test".

Results

Table shows the demographic data. There was no

Table. Demographic Data (Mean±SEM)

Group	Age (years)	Weight kgs	Sex Male/Female
Midazolam	35.20±1.66	65.34±2.69	10/15
Placebo	36.32±1.78	66.22±2.35	15/1

Table shows the demographic data. There was no significant difference in the age, sex and weight of the two groups.

Anxiolysis

The change in anxiety levels from the preoperative values is shown in Figure 1 (A-D).

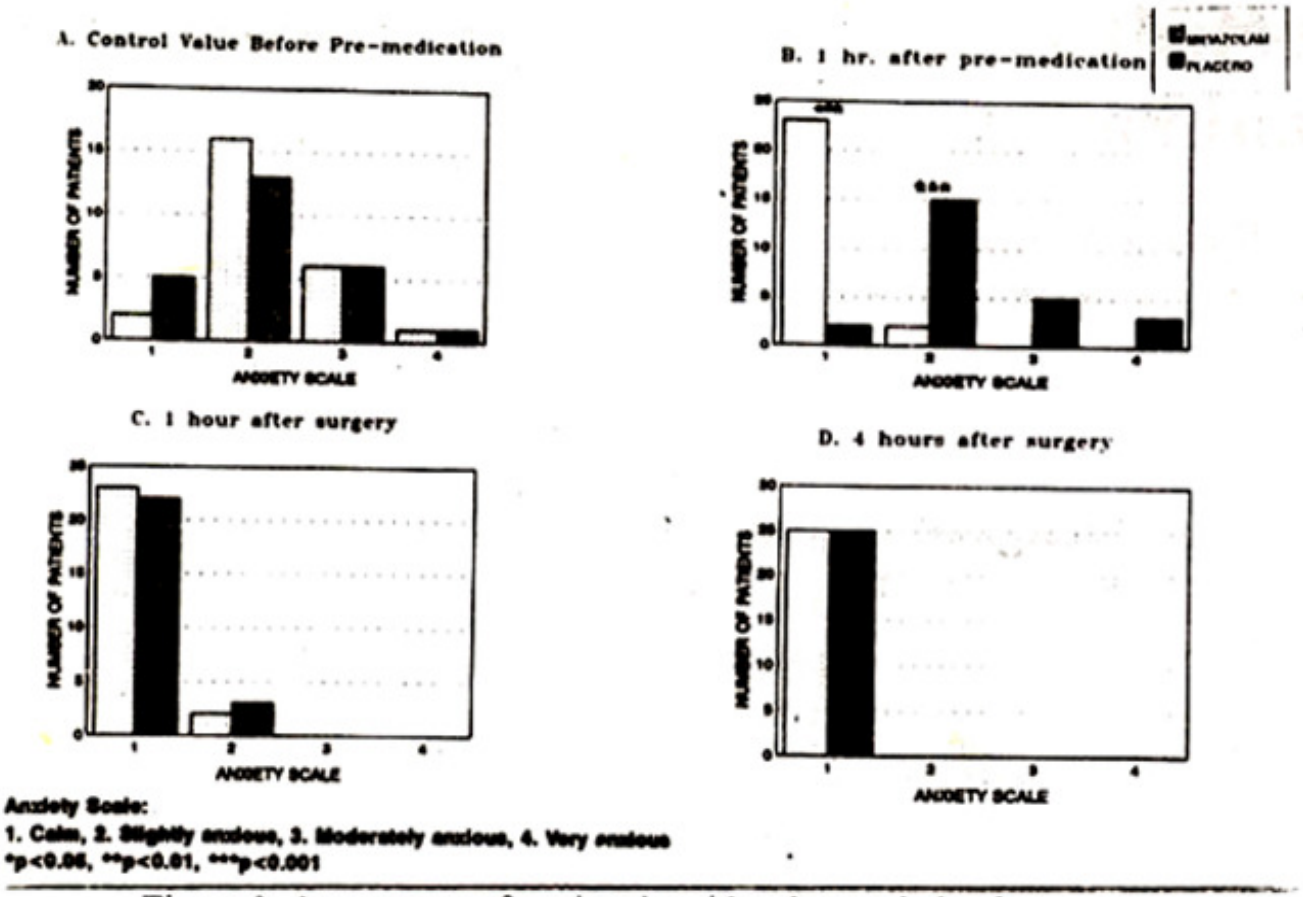

Figure 1. Assessment of anxiety in midazolam and placebo groups.

Assessment at 1 hour after premedication showed significant decrease in anxiety level in the Midazolam group compared with the placebo group ($p<0.001$).

Sedation

After premedication Midazolam group was moderately sedated compared to the placebo group, ($p<0.001$) {Figure 2 (A-D)}.

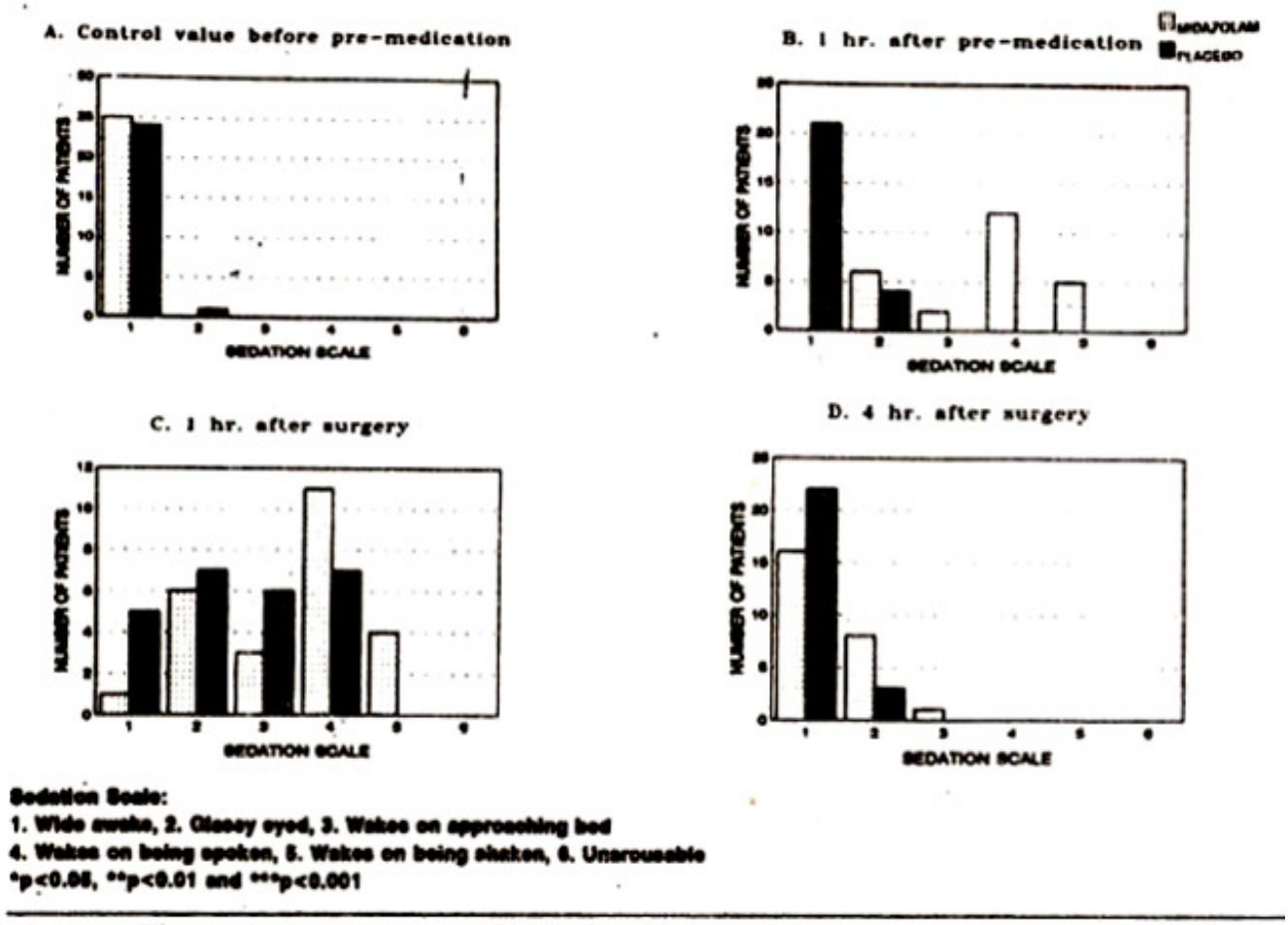

Figure 2. Assessment of sedation in midazolam and placebo groups.

In the Midazolam group five patients at one hour after premedication and four patients at one hour after surgery were only rousable after being shaken. However, at four hours after surgery almost all patients in both groups were awake.

Amnesia

Recall of pictures revealed significant differences ($p<0.05$) in the amnesic effects of Midazolam at one hour after premedication compared to the placebo (Figure 3).

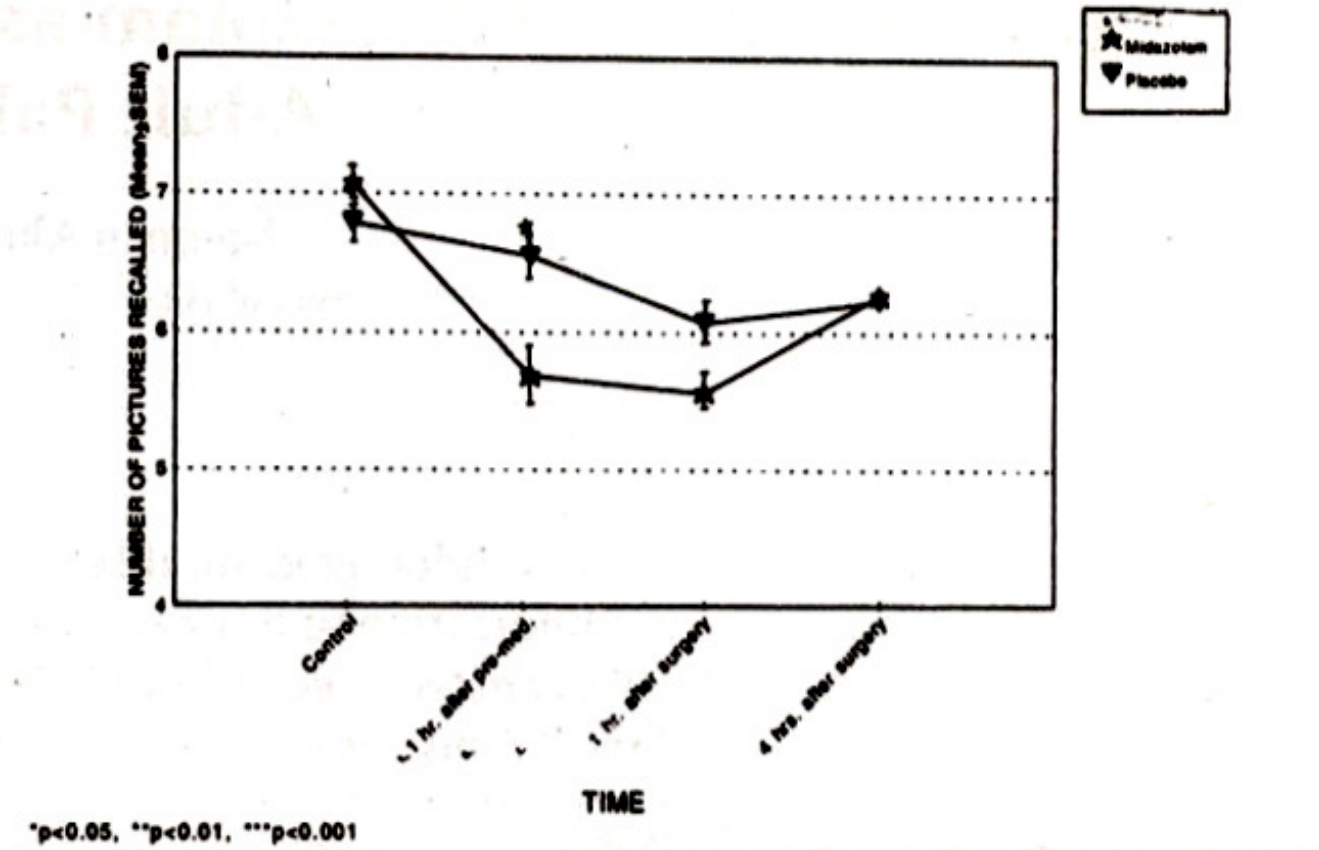

Figure 3. Assessment of amnesia scores in midazolam and placebo groups (Mean ± SEM).

Psychomotor performance

The psychomotor performance after one hour of premedication was impaired in the Midazolam group ($p<0.001$). The reduced scores were seen after one hour of surgery in both groups but the psychomotor performance in the Midazolam group was significantly impaired. After four hours of surgery the mean values were almost similar to the base line values in both groups (Figure 4).

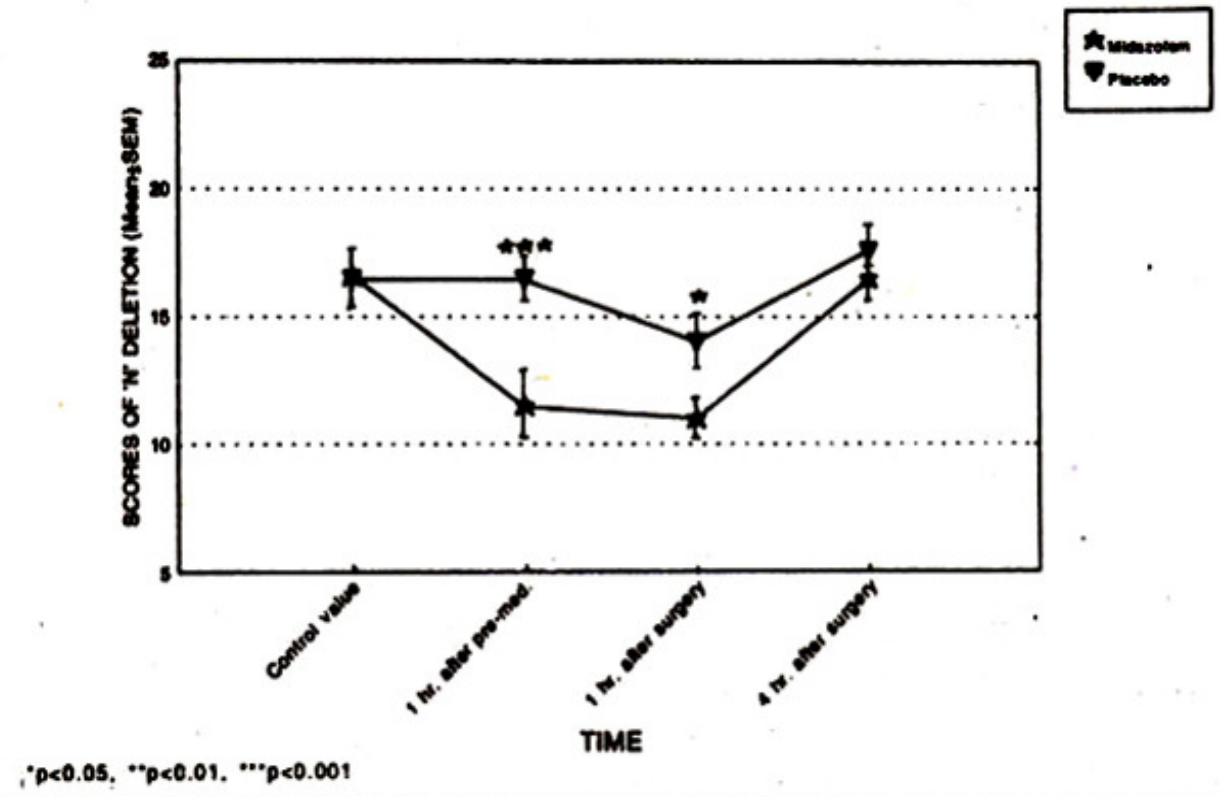

Figure 4. Assessment of psychomotor performance in midazolam and placebo groups (Mean ± SEM).

Cardiovascular data

There was an increase in the mean heart rate before induction ($p<0.001$) which decreased in both groups at one hour after surgery, although it was lower in the Midazolam group (not significant). The difference in mean systolic and diastolic blood pressure was significant at one hour after preniedication ($p<0.0O1$) (Figures 5 and 6).

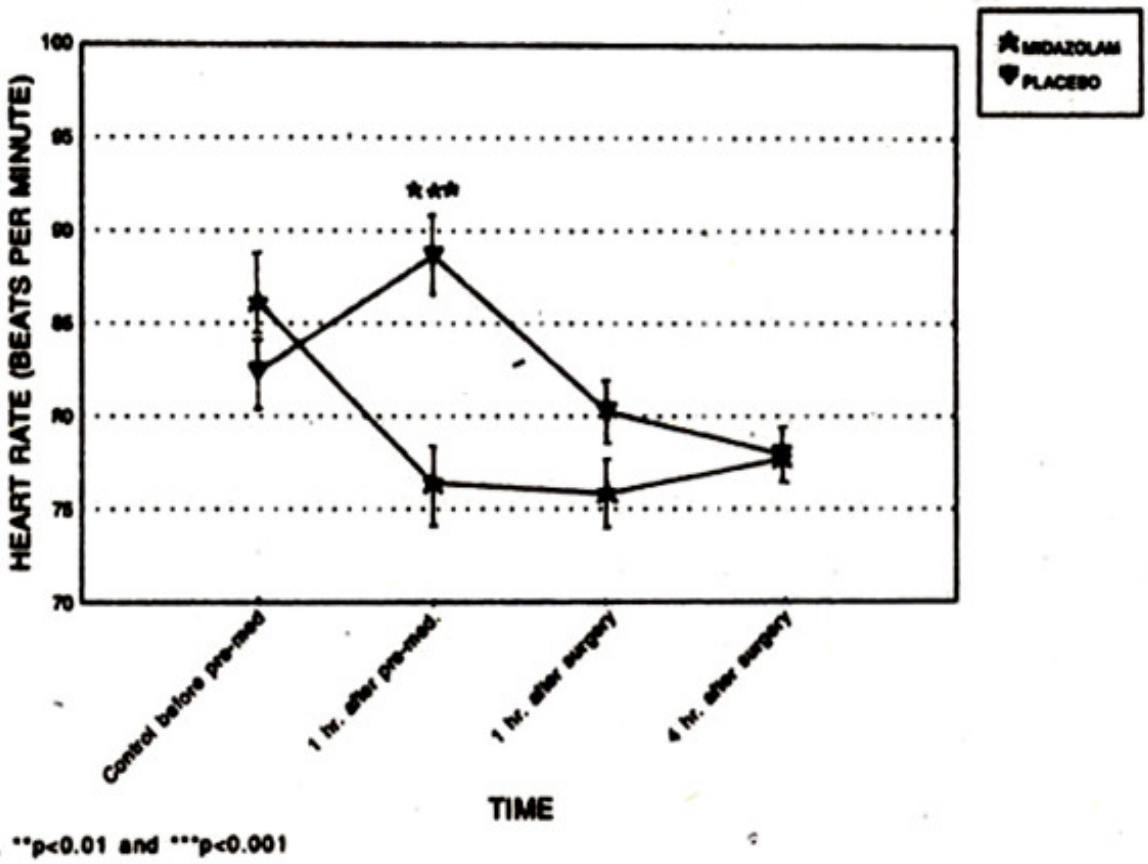

Figure 5. Changes in heart rate in midazolam and placebo groups (Mean ± SEM).

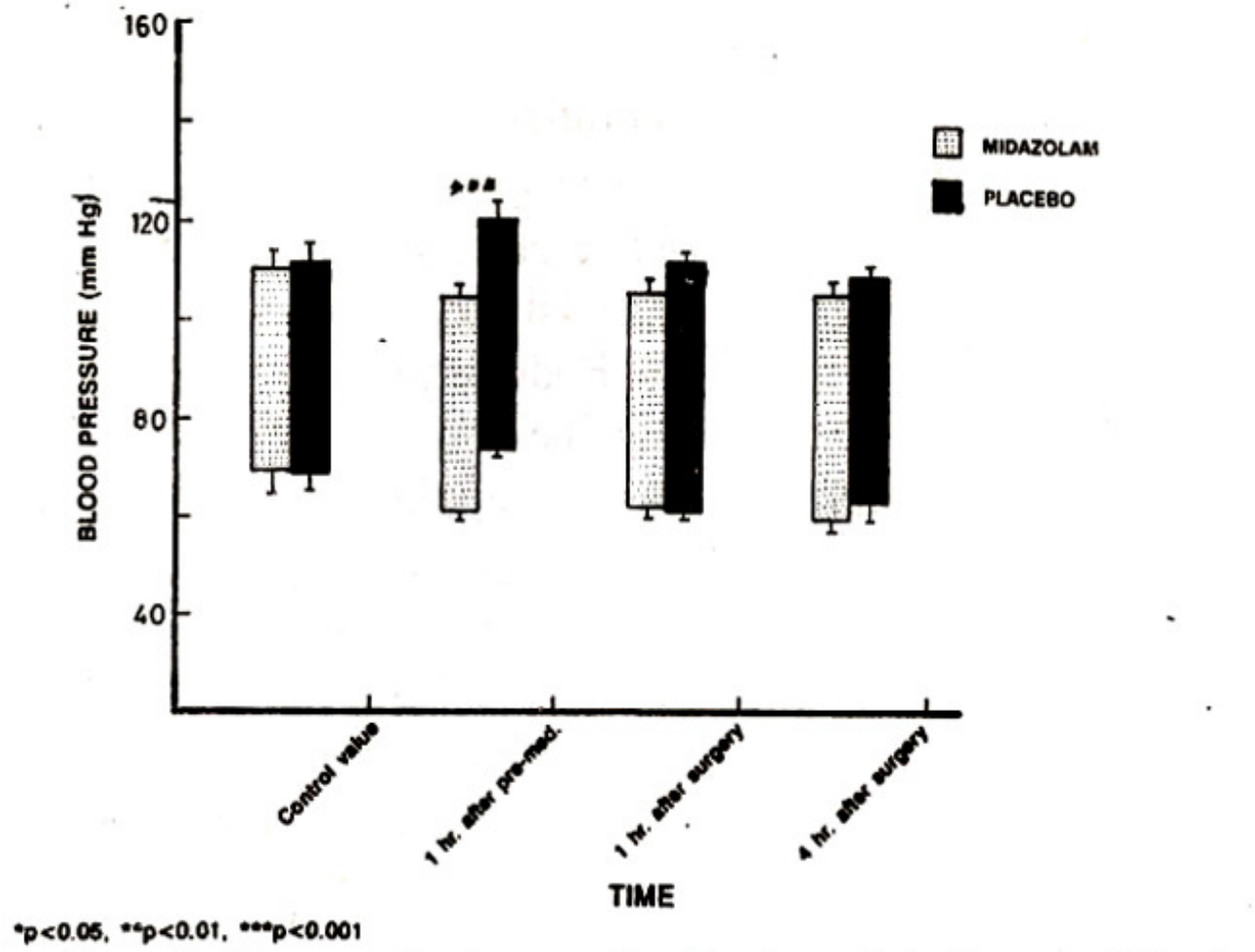

Figure 6. Changes in blood pressure in midazolam and placebo groups (Mean ± SEM).

Respiratory rate

There was no difference in the respiratory rate measured after premedication and after surgery.

Side effects

Five patients in the Midazolam group and three in the placebo group suffered from vomiting in the post-operative period.

Discussion

With the rising cost of medical care, day care surgery is gaining popularity in Pakistan. Midazolam was first introduced in Pakistan in 1991. Its rapid onset of action and short half-life has proven useful as a premedication in the day care surgery in Caucasian patients[5]. Other desirable features are anxiolysis, sedation, amnesia and haemodynamic stability. Our results show a significant decrease in the anxiety level and a higher number of sedated patients in the Midazolam group compared to the placebo. Amnesic effect of Midazolam prevented anxiety. Some patients in the placebo group also showed sedation and anxiolysis. This effect was attributed to the repeated visits of the observer which could have been reassuring to the patients. Excessive sedation and impaired psychomotor performance seen in 20% of the Midazolam patients is an undesirable effect. In hospitals where beds are available for

patients undergoing day surgery and stretchers for transportation, excess sedation is not a problem, but in centers where patients walk in and out, this effect can be troublesome. The results of the study are comparable with those of other workers[2,6]. Raybould et al[2] compared 7.5mg and 15mg of Midazolam with a placebo and found 7.5mg dosage to be an effective anxiolytic whereas 15mg produced prolonged sedation and recovery period thus being undesirable in day care patients. Peach et al[6] showed that Midazolam up to 10mg significantly increased sedation and provided anxiolysis without resulting in clinically evident prolonged recovery. In conclusion, we found Midazolam a promising day care premedicant and 7.5mg of oral Midazolam given one hour before surgery was associated with preoperative anxiolysis, sedation and amnesia without affecting the quality of recovery or the discharge time after ambulatory surgery and with no significant untoward effects.

References

1. Nightingale, J. J. and Norman, 5.5. A comparison ofmidazolam and temazepam for premedication of day care patients. Anesthesia, 1988;43: 111.13.
2. Raybould, D. and Bradshaw, E. G. Premedication for day care surgery. A study of oral Midazolam. Anesthesia, 1987;42:591.95.
3. Cooper, G. Recovery from anaesthesia. Anaesthesia Rounds 1986; 19:10.12.
4. Forrest, P.. Galletly, D. C. and Yec, P. Placebo controlled comparison of Midazolam, Triazolam and Diazepam as oral premedicant as out-patient anaesthesia. Anaesth. Intensive Care, 1987; 15:296.304.
5. Hargreaves, J. Raizodiazepines premedication in minor day care surgery, comparison of oral Midazolam and Temazepam with placebo. Br. J. Anaesth.. 1988;61:611.16.
6. Turner, G. A. and Peach, M A comparison of oral Midazolam solution with temazepam ass day care premedicant. Anaesth. Intensive Care, 1991; 19:365.68.