

# International Journal of Research in Health and Allied Sciences

Journal home page: [www.ijrhas.com](http://www.ijrhas.com)

Official Publication of "Society for Scientific Research and Studies" [Regd.]

ISSN: 2455-7803

Index Copernicus value [ICV] = 68.10;

## Original Research

### A comparative study of diazepam and lorazepam in mandibular third molar surgery

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#### ABSTRACT:

**Background:** The present study compared lorazepam and diazepam as sedative agent in oral surgical procedures. **Materials & Methods:** The present study was conducted on 76 patients having bilaterally impacted mandibular third molar. Patients were divided into 2 groups of 38 each. Group I were given diazepam 10 mg and group II patients were given lorazepam 2.5 mg. In all patients, Pittsburg sleep quality index and Ramsay sedation score was recorded and compared. **Results:** In group I there were 18 males and 20 females and in group II there were 19 males and 21 females. The mean sleep value in group I was 4.52 and was 3.06 in group II. The difference was significant ( $P < 0.05$ ). The mean sedation score in group I was 3.54 and in group II was 3.78. The difference was non-significant ( $P > 0.05$ ). The mean cooperation scale in group I was 1.03 and in group II was 0.74. The difference was non-significant ( $P > 0.05$ ). **Conclusion:** Authors found that lorazepam was better as compared to diazepam in mandibular third molar surgery.

**Key words:** Diazepam, Lorazepam, third molar surgery.

**Received:** 22/06/2020

**Modified:** 18/08/2020

**Accepted:** 22/08/2020

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**This article may be cited as:** Gulati R, Hamdan, Sharma S, Manglam K, Verma P. A comparative study of diazepam and lorazepam in mandibular third molar surgery. Int J Res Health Allied Sci 2020; 6(5):90-93.

#### INTRODUCTION

Conventional behavioral conditioning techniques are usually sufficient for management of patients with fear and anxiety during dental treatment. When such techniques do not produce the expected results, dental anxiety can be managed using drug-based treatments known as conscious sedation.<sup>1</sup> Anxiety can complicate dental procedures because of effects such as increased blood pressure, hyperventilation, and fainting. Medications such as benzodiazepines can be used to avoid these complications. When used properly, dental

procedures are safer and there are fewer difficulties for both patient and clinician.<sup>2</sup>

Dentistry and anxiety are always closely associated with each other. Oral surgical procedures specifically have long been associated with pain and thus provoke fear leading to lowering the demand for subsequent oral and maxillofacial surgery procedures. Intravenous sedation has been a well-established and a suitable method for the relief of anxiety associated with oral surgical procedures.<sup>3</sup>

Lorazepam is a relatively new benzodiazepine which is claimed to be about five times as potent as diazepam.

Patients about to undergo elective surgery very often show varying degrees of apprehension.<sup>4</sup> Agents possessing hypnotic or sedative properties with amnesic and minimal side effects are of value for patients undergoing surgery under regional anaesthesia. Diazepam produces sedation which lasts for 30–45 min as compared to lorazepam in which sedative effect last for 10–12 h because of high protein binding of lorazepam.<sup>5</sup> The present study compared lorazepam and diazepam as sedative agent in oral surgical procedures.

ranged 17-26 years of both genders in the department of Oral & Maxillofacial surgery. The approval for the study was obtained beforehand. All patients were informed about the study and their written consent was obtained.

Demographic profile of the patients was recorded. A thorough oral examination was performed. Patients were divided into 2 groups of 38 each. Group I were given diazepam 10 mg and group II patients were given lorazepam 2.5 mg. In all patients, Pittsburg sleep quality index and Ramsay sedation score was recorded and compared. Results thus obtained were tabulated and subjected to statistical analysis. P value less than 0.05 was considered significant.

**MATERIALS & METHODS**

The present study was conducted on 76 patients having bilaterally impacted mandibular third molar in the age

**RESULTS**

**Table I Distribution of patients**

Groups	Group I	Group II
Agent	10 mg diazepam	2.5 mg lorazepam
Male	18	19
Female	20	21

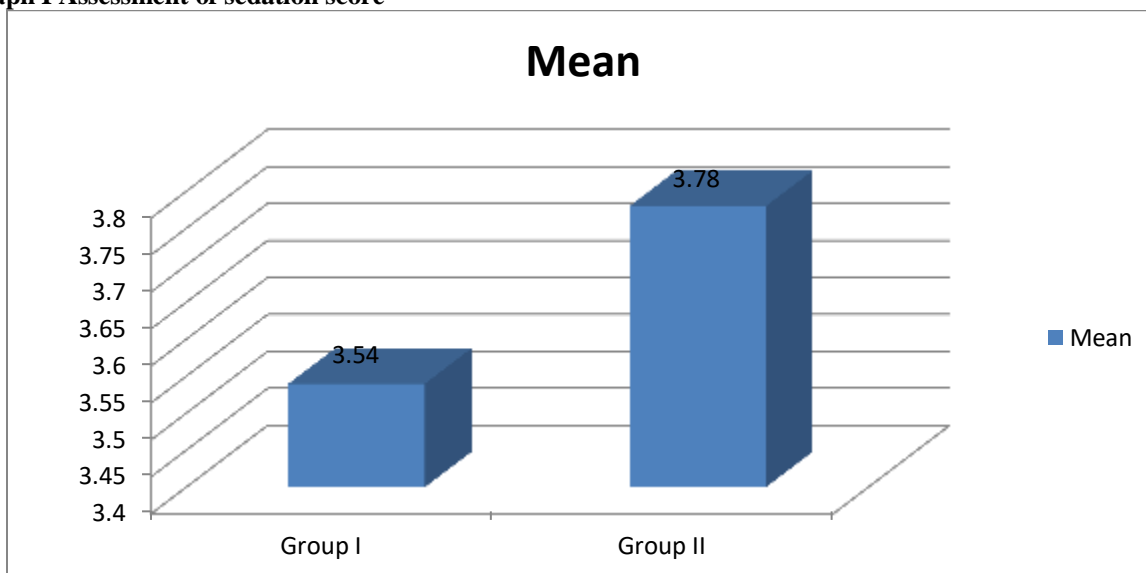
Table I shows that in group I there were 18 males and 20 females and in group II there were 19 males and 21 females.

**Table II Assessment of quality of sleep**

Quality of sleep	Group I	Group II	P value
Mean	4.52	3.06	0.05

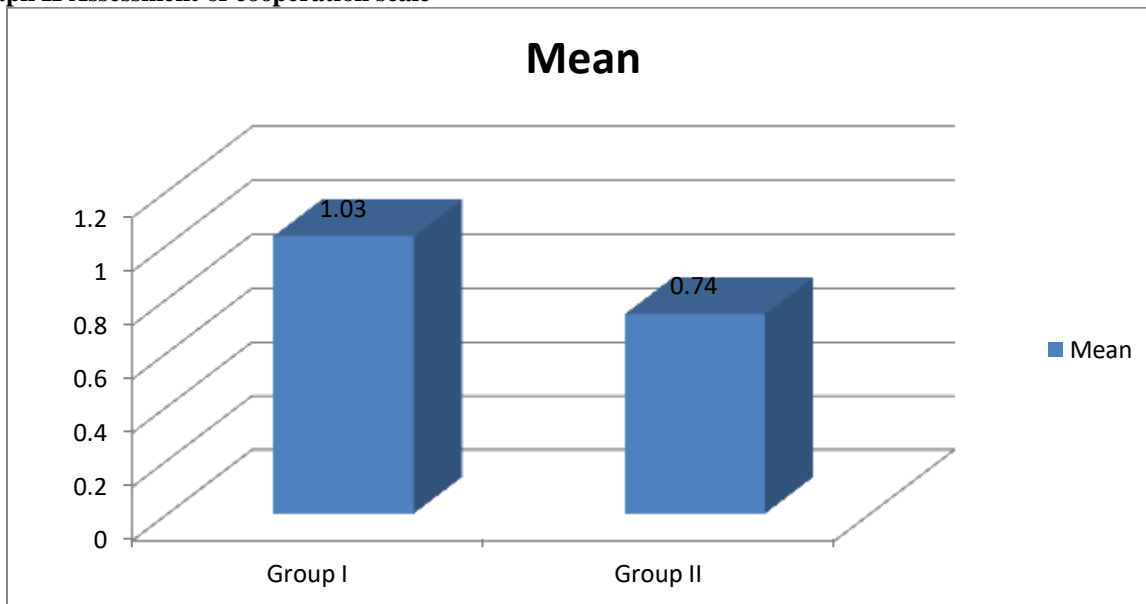
Table II shows that mean sleep value in group I was 4.52 and was 3.06 in group II. The difference was significant (P< 0.05).

**Graph I Assessment of sedation score**



Graph I shows that mean sedation score in group I was 3.54 and in group II was 3.78. The difference was non-significant (P> 0.05).

**Graph II Assessment of cooperation scale**



Graph II shows that mean cooperation scale in group I was 1.03 and in group II was 0.74. The difference was non-significant ( $P > 0.05$ ).

## DISCUSSION

The management of impacted mandibular third molar is frequently performed procedure in oral surgery. The reduction in pain and anxiety is done by use of various agents. Diazepam is the benzodiazepine most frequently used in dentistry because it is the safest member of this class of drugs for use by clinicians with little experience in conscious sedation techniques. Lorazepam is another agent frequently employed in dentistry.<sup>6</sup> The present study compared lorazepam and diazepam as sedative agent in oral surgical procedures.

In this study we divided 78 patients into 2 groups of 38 each. Group I patients were given diazepam and group II patients were given lorazepam. In group I there were 18 males and 20 females and in group II there were 19 males and 21 females. The mean sleep value in group I was 4.52 and was 3.06 in group II.

With diazepam, the normal administration protocol is 5 or 10 mg orally, 1 hour before the procedure and, for more severe cases of anxiety, 5 or 10 mg administered orally the night before the procedure and another 5 or 10 mg administered orally 1 hour before the dental procedure.<sup>7</sup> Sedation varies from mild to moderate and its anxiolytic property is greater than its capacity for sedation. Onset of action is from 30 to 45 minutes after administration and its clearance half-life is from 24 to 72 hours, due to production of active metabolites, although the clinical effects disappear from 2 to 3 hours after administration.<sup>8</sup>

Generally used as a premedication, lorazepam also has a long period of latency, which makes use in the dental office problematic. Doses range from 1 to 2 mg, with

onset of action from 1 to 2 hours later.<sup>9</sup> It has slow induction and the clearance half-life varies from 10 to 20 hours and, even though it is more liposoluble than diazepam, it does not produce active metabolites. The effects pass after an interval ranging from 6 to 8 hours after administration has elapsed and one of its principle characteristics is the possibility of inducing anterograde amnesia, defined as forgetting events after a certain point in time taken as a reference. For elderly patients the dose varies from 1 to 4 mg and it is not recommended for use with pediatric patients.<sup>10</sup>

We found that mean sedation score in group I was 3.54 and in group II was 3.78. The mean cooperation scale in group I was 1.03 and in group II was 0.74. Sharma et al<sup>11</sup> compared the efficacy of oral lorazepam as night sedation and premedication with diazepam in 50 healthy patients in each drug group. The study concluded that lorazepam showed more advantages than diazepam as well as patient's preference and satisfaction. However, postoperative recovery with lorazepam was longer than diazepam.

Magbagbeola et al<sup>12</sup> compared lorazepam 2 mg with diazepam 10 mg as oral premedicants for patients undergoing different types of surgical procedures is reported. Both lorazepam and diazepam have been shown to possess adequate hypnotic-sedative properties with no side effects in the doses employed. Lorazepam has been shown to produce a higher incidence of anterograde amnesia than diazepam. Although the study was carried out on a small number of patients, the findings suggest that lorazepam would be more

acceptable than diazepam as a premedicant for surgery under regional anaesthesia.

The shortcoming of the study is small sample size. Only 2 drugs were compared.

### CONCLUSION

Authors found that lorazepam was better as compared to diazepam in mandibular third molar surgery.

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