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**ORIGINAL ARTICLE**

# Comparative analysis of post tooth extraction pain control by lysine and Paracetamol

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***ABSTRACT*:**
**Background:** Post operative pain is one of the most common complication following minor oral surgical procedure. Many drugs have been used to minimize postoperative discomfort. Some protocols include medication after surgery. **Aim of the study:** To comparatively analyze the post tooth extraction pain control by lysine and paracetamol. **Materials and method:** The study was conducted in the department of Oral and Maxillofacial surgery o the dental institution. The patients were randomly grouped into two groups, Group 1 and Group 2 with 25 patients in each group. Patients in Group 1 were prescribed Paracetamol 325 mg as pain control medication whereas patients in Group 2 were prescribed Lysine as pain control medication. After 24 hours, other investigator has evaluated the analgesic efficacy of the drug by the 10-cm visual analog scale (VAS) were zero means no pain and 10 unbearable pain. **Results:** A total of 50 patients were included in the study. 28 were male and 22 were female. The age ranged from 19-67 years with mean age 32.47 years. We observed that postoperative pain was more severe in patients taking Paracetamol as compared to patients taking Lysine. **Conclusion:** Both lysine and paracetamol were effective to control post tooth extraction pain. Lysine may be considered a good option for patients who cannot use other analgesic drugs.
**Keywords:** Post-extraction pain, paracetamol, lysine, oral surgery.

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## INTRODUCTION

Post operative pain is one of the most common complication following minor oral surgical procedure. Many drugs have been used to minimize postoperative discomfort. Some protocols include medication after surgery. The best moment for its effective use is still not totally explained.[1, 2] Paracetamol is a very important non-opioid analgesic, in general prescribed for the post tooth extraction period. The dose of 1000 mg of paracetamol induces efficient analgesia after oral surgeries. Adequate plasma concentration level is established 90 minutes after oral administration. It should be prescribed in the dose of 60 to 90 mg/kg every six hours.[3, 4] Lysine is an anti-inflammatory analgesic of the carboxylic acids group, characterized by strong central and peripheral analgesic power and low anti-inflammatory action3. It acts by reversibly inhibiting cyclooxygenase, blocking prostaglandin synthesis and antagonizing prostaglandins.[5] Orally administered, lysine has excellent biological tolerance and low incidence of side effects in the treatment of painful syndromes, such as renal pain, neurogenic pain, muscle pain, tooth pain6,7 and migraine.[6] Hence the current study is planned to comparatively analyze the post tooth extraction pain control by lysine and paracetamol.

## Materials and method:

The study was conducted in the department of Oral and Maxillofacial surgery o the dental institution. The protocol of the study was approved from the ethical committee of the institute. The selection of the subjects was done from the outpatient department who were scheduled for tooth extraction. We included 50 patients in the group. An informed written consent was obtained from the participants after explaining them about the procedure of study. The patients were randomly grouped into two groups, Group 1 and Group 2 with 25 patients in each group. The tooth extraction procedure was done by same operator to avoid any clinical bias. Patients in Group 1 were prescribed Paracetamol 325 mg as pain control medication whereas patients in Group 2 were prescribed Lysine as pain control medication. After extraction, patients received all information about

postoperative care and were oriented to return 24 hours later for follow up.

After 24 hours, other investigator has evaluated the analgesic efficacy of the drug by the 10-cm visual analog scale (VAS) were zero means no pain and 10 unbearable pain. Eight days after the first procedure, patients returned for stitch removal and VAS scoring. The data was tabulated for further evaluation.

The statistical analysis of the data was done using SPSS program for windows. The significance of the data was checked using Student's t-test and Chi-square test. Statistically significant p value was predetermined to be less than 0.05.

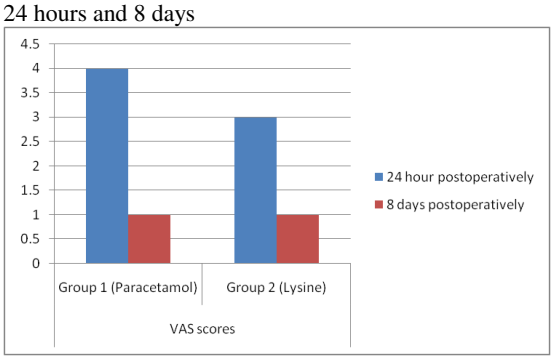
**Results:**

A total of 50 patients were included in the study. 28 were male and 22 were female. The age ranged from 19-67 years with mean age 32.47 years. **Table 1** shows VAS scores for Group 1 and Group 2 at 24 hours and 8 days postoperatively. We observed that postoperative pain was more severe in patients taking Paracetamol as compared to patients taking Lysine. The results were statistically non-significant (p>0.05) **[Fig 1].**

**Table 1:** VAS scores for Group 1 and Group 2 postoperatively at 24 hours and 8 days

| Post-operative day | VAS scores | | p-value |
|---|---|---|---|
| | Group 1 (Paracetamol) | Group 2 (Lysine) | 0.771 |
| **24 hour postoperatively** | 4 | 3 | |
| **8 days postoperatively** | 1 | 1 | |

**Fig 1:** VAS scores for Group 1 and Group 2 postoperatively at 24 hours and 8 days




**Discussion:**

Most common VAS for postoperative pain evaluation is a 100 mm long line representing the continuum of the pain experience. Its edges have the anchor words no pain and worst possible pain. Participants are oriented to mark their pain intensity on a point of this line and scores may vary from zero to 10. Scores are obtained by measuring, in millimeters, the distance between the edge anchored by the words no pain and the point marked by the participant. This scale has the advantage of being easy to apply14. Pain evaluation by VAS is well accepted, including to evaluate postoperative patients' pain15. Our study has used VAS without pre-existing marks to prevent any type of bias when patients marked their pain intensity.

Our results have not shown statistically significant differences between paracetamol and lysine to control post alveolar tooth extraction pain3. Lysine action on the central nervous system is suggested by the presence of major analgesic effect, similar to opioids. Strong central nociceptive action does not depend on the presence of inflammatory or hyperalgic process, which is still not totally explained. It seems that there is interaction of lysine with central opioid receptors, although the action mediated by such receptors has not been evidenced.[7, 8] This study has shown good analgesic action of this drug, which is confirmed by the presence of mild pain only. Different from other findings pain intensity was not statistically significant 24 or 48 hours after surgery. Similarly to previous studies, patients receiving lysine did not report undesirable effects, showing the good tolerability of the drug.[9, 10]

Noronha VR et al compared the analgesic effect of lysine clonixinate, paracetamol and dipyrone after lower third molar extraction. The sample consisted of 90 individuals with clinical indication for inferior third molar extraction. The mean age of the sample was 22.3 years (DP +/-2.5). The individuals received the medication in unidentified bottles along with the intake instructions. The postoperative pain parameters were measured according to the Visual Analogical Scale (VAS) and the data was evaluated using the Kruskal-Wallis Test and Friedman Test, with the latter used to test different time intervals for each one of the drugs. The final sample consisted of 64 individuals, including 23 males (45.9%) and 41 females (64.1%) The mean age of the entire sample was 22.3 years (+/-2.5). The average length of the procedures was 33.9 minutes (+/-9.8). The distribution of mean values for this variable showed little variance for the different drugs. It was concluded that Lysine Clonixinate did not show any substantial impact on the postoperative pain control when compared to other drugs.[11]

Gazal G et al compared the effectiveness of different oral analgesics for relieving pain and distress in adults following the extraction of teeth and deep cavity preparations under local anesthesia. This randomized controlled study was conducted between November 2015 and May 2016. One hundred and twenty patients were randomly allocated to 3 groups. Forty patients were in the paracetamol (1 gram) group, 40 in the ibuprofen (400 mg) group and 40 in the diclofenac potassium (50 mg) group. Evaluation of the post extraction and deep cavity preparations pain was made by patients immediately postoperatively, 2, 4 and 6 hours postoperatively on standard 100 mm visual analogue scales (VAS). Furthermore, each patient was observed preoperatively and immediately postoperatively for signs of distress by using a 5 point face scale. There were significant decreases in mean pain VAS scores for diclofenac potassium group compared to paracetamol and ibuprofen groups at 4 hours postoperatively and 6 hours postoperatively. Changes in distress scores from the

preoperative score to the postoperative score were made using the paired sample t-test. There were significant decreases in distress scores between the preoperative and postoperative scores. Diclofenac potassium was more effective than paracetamol or ibuprofen for reducing postoperative pain associated with tooth extraction and deep cavity preparation. Patients' distress levels can be alleviated by using preemptive analgesics.[12]

**Conclusion:**

Both lysine and paracetamol were effective to control post tooth extraction pain. Lysine may be considered a good option for patients who cannot use other analgesic drugs.

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