

# Analgesic efficacy of lornoxicam compared to paracetamol in the treatment of post-extraction pain

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## ABSTRACT

**Aim and Objective:** This study aims to compare the efficacy and rapidity of the action of lornoxicam and paracetamol in the management of post-extractive extraction pain. **Background:** Pain is a common experience following post-operative dental extractions. Post-operative dental pain may occur due to a non-isotonic solution, adrenaline in the solution, trauma, surgical interference, marked tissue destruction, acute inflammatory conditions, and infections. Many nonsteroidal anti-inflammatory drugs (NSAIDs) been in practice to manage the dental pain. Paracetamol and lornoxicam are also one of the most commonly used NSAIDs in dental practice. **Materials and Methods:** Patient seeking dental extraction without any periapical changes in the tooth was included in this study. The study consisted of 30 patients grouped into A and B with 15 in each group. The drug paracetamol and lornoxicam were given to 15 patients in Groups A and B, respectively, along with antibiotic (amoxicillin 500 mg) after extraction of the tooth. The patient was followed up for 3 consecutive days to review on pain. After extraction, patients were asked to score the pain range for 3 consecutive days in the form provided, while they are under the prescribed medications. Higher scores indicate worse, and lower scores indicate better efficacy of drug in post-extraction pain. **Results:** Patients under lornoxicam had less post-operative dental pain when compared to patient under paracetamol. Hence, lornoxicam proved to an effective analgesic for treating moderate-to-severe pain. **Conclusion:** Within the limitation of this study, it has been reported that lornoxicam has better efficiency in managing post-operative extraction pain and this will help the clinicians to treat the patients effectively and reduce their pain.

**KEY WORDS:** Analgesics, Extraction, Lornoxicam, Paracetamol, Post-operative pain

## INTRODUCTION

The removal of tooth has become popular with patients, health-care trusts, and oral surgeons. As well as alertness and rapid recovery from anesthesia, well-controlled pain is another indication for discharging a patient home.<sup>[1]</sup> Post-operative analgesia may be achieved by the use of local anesthesia or by giving nonsteroidal anti-inflammatory drugs (NSAIDs), opioids, or a combination.<sup>[2]</sup> Dental surgeries can vary in difficulty depending on the trauma caused to the surrounding tissue. As the oral and maxillofacial surgeon performs more invasive procedures, there will be an increased amount of trauma to the surgical site as well as to the surrounding tissues. Greater the amount of tissue injury, there will be greater amount

of inflammation in the perisurgical area. Swelling may be significant when the surgery is prolonged and when large amounts of bone, gingiva, and oral mucosa are manipulated or damaged. Surgical technique with limited damage to tissues is effective in limiting the swelling. Hence, attention should be taken to avoid prolonged periods of tissue elevation and retraction.<sup>[3]</sup> The classic signs of inflammation, which include pain, edema, erythema, and loss of function, commonly occur after routine or difficult surgical procedures. The inflammatory process is important for healing process to occur, but often excessive inflammation causes the patient unnecessary pain and discomfort. There are many mediators of inflammation, which include prostaglandins (PGs), histamine, bradykinin, and serotonin. PG and histamine levels are known to become elevated during inflammation.<sup>[4]</sup> Bradykinin has a wide spectrum of pro-inflammatory pharmacology, including potent pain-producing properties.<sup>[5]</sup> NSAIDs decrease inflammation and

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fever while providing analgesia by inhibiting the cyclooxygenase (COX) enzymes COX-1 and COX-2, important enzymes which are needed for the production of inflammatory mediators such as PGs, prostacyclins, and thromboxanes.<sup>[6]</sup> The analgesic effects of NSAIDs such as naproxen, meloxicam, rofecoxib, acetaminophen, diflunisal, ibuprofen, and ketorolac have been reported using this pain model.<sup>[7-9]</sup> In this study, comparison of the efficacy and rapidity of the action of lornoxicam and paracetamol in the management of post-extractive extraction pain was discussed.

### Inclusion Criteria

The following criteria were included in the study:

- Each patient must be medically and mentally fit.
- Patients without periapical lesions.
- Patients undergoing traumatic extractions.
- Cooperative patients in the age group of 25-35 years.
- No history of allergies.

## MATERIALS AND METHODS

A total number of 30 healthy patients were selected grouped into A and B. The drug paracetamol and lornoxicam are given to 15 patients in Groups A and B, respectively, along with antibiotic (amoxicillin). Each patient was given a brief explanation about the study, and informed consent was obtained from each patient before inclusion in the study.

After extraction, patients were asked to score the pain range for 3 consecutive days in the form provided. The score indicates 0 (no hurt), 1 (hurts little bit), 2 (hurts little more), 3 (hurts even more), 4 (hurts whole lot), and 5 (hurts worst). Higher scores indicate worse, and lower scores indicate better efficacy of drug in post-extraction pain.

## RESULTS

The mean pain scores were calculated for both A and B group patients under lornoxicam and paracetamol, respectively, for 3 consecutive days as shown in Table 1 and figure 1.

Patients under lornoxicam had less post-operative pain when compared to patient under paracetamol. Lornoxicam proved to an effective analgesic for treating moderate-to-severe pain.

## DISCUSSION

Dental extraction has a psychological influence on the patients both before and after the surgery. It is always a delicate task in the hands of dentists to prepare the patients before any dental extraction procedure and it is also critical to provide appropriate expectations

**Table 1: The mean pain scores in Groups A and B under lornoxicam and paracetamol, respectively, for 3 consecutive days**

Day	Mean pain score under lornoxicam	Mean pain score under paracetamol
1	3.2	3.4
2	1.2	2.8
3	0.4	0.9

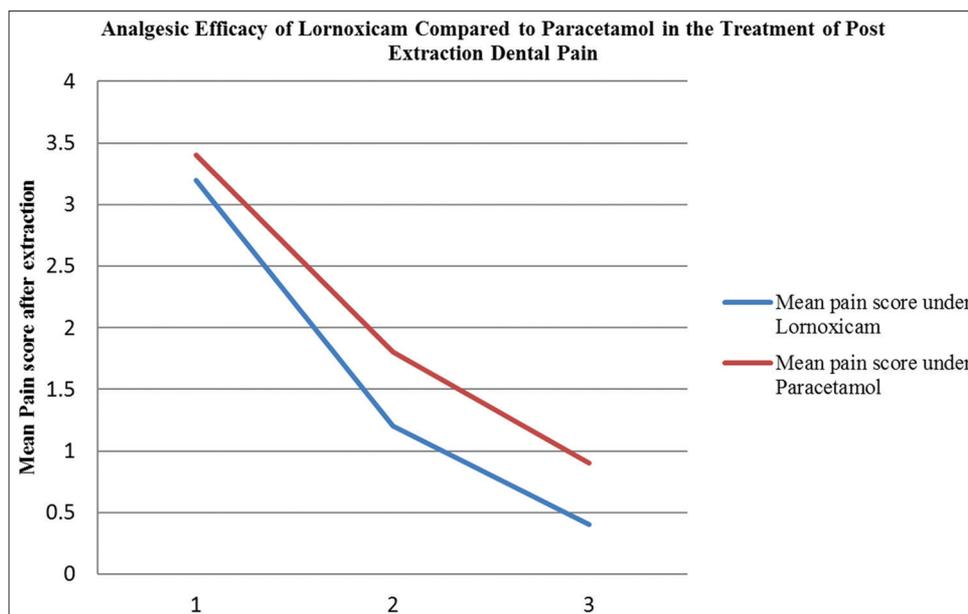
of the discomfort the patients would experience and the oral hygiene process that they should follow. Post-operative pain is one of the two most common complications of this surgery, along with dry socket<sup>[10]</sup>

Dental pain is largely inflammatory and evidence-based medicine has shown that NSAIDs are the best analgesics for dental pain.<sup>[11]</sup> The most commonly used post-operative dental pain model includes patients who have undergone surgical removal of impacted third molar teeth.

Lornoxicam is widely recommended for the symptomatic treatment of pain and inflammation in patients with osteoarthritis and rheumatoid arthritis, as well as pre-operative and post-operative pain associated with gynecologic, orthopedic, abdominal, and dental surgeries. As lornoxicam shows a half-life of 3–5 h and poor solubility in acidic conditions, it has been found to be an ideal candidate for floating sustained-release dosage forms.<sup>[12-15]</sup> It has also revealed good clinical efficacy in the treatment of post-operative pain.<sup>[16]</sup>

Paracetamol is a mild analgesic. It is used for the relief pains and is a major ingredient in numerous cold and flu remedies. In general, paracetamol is 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 min after oral administration. It should be prescribed in the dose of 60–90 mg/kg every 6 h.<sup>[17]</sup> Paracetamol appears to be safe during pregnancy and breastfeeding. It can be prescribed to patients with liver disease but at low dosages.<sup>[18-21]</sup>

This study consisted of 30 patients grouped into A and B with 15 in each group. The drug paracetamol and lornoxicam were given to 15 patients in Groups A and B, respectively, along with antibiotic (amoxicillin 500 mg) after extraction of the tooth. The patient was followed up for 3 consecutive days to review on pain and the patients were asked to score the pain range for 3 consecutive days in the form provided, while they are under the prescribed medications. Higher scores indicate worse, and lower scores indicate better efficacy of drug in post-extraction pain. The score indicates 0 (no hurt), 1(hurts little bit), 2 (hurts little more), 3 (hurts even more), 4 (hurts whole lot), and



**Figure 1:** Analgesic efficacy of lornoxicam compared to paracetamol in the treatment of post extraction dental pain

5 (hurts worst). Higher scores indicate worse, and lower scores indicate better efficacy of drug in post-extraction pain. The mean pain score was calculated on all 3 days for both the groups. The pain seemed to be reduced more effectively in Group B when compared to Group A, as the score is lesser in Group B. From this study, it was concluded that lornoxicam has better efficacy in managing post-operative extraction pain than paracetamol.

## CONCLUSION

Within the limitations of this study, administration of paracetamol or lornoxicam decreased the post-operative pain intensity for patients undergoing removal of tooth. It has been reported that lornoxicam has better efficacy in managing post-operative extraction pain and this will help the clinicians to treat the patients effectively and reduce their pain. Further, investigations with more specific dental treatment and increased number of subjects are needed to compare the efficacy of these drugs with other preemptive analgesic medications.

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