



## Effects of Local Tramadol in Oral and Maxillofacial Surgery

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### ABSTRACT

Tramadol has been used as an analgesic for a very long time, most commonly employed as a safe, well tolerated drug. Lately, submucosal application of tramadol has proven to be effective in reducing post-operative edema and pain after traumatic surgical procedures like third molar extraction and alveolectomy. Minimizing the pain does not necessarily mean, expanding the index of complication. Such a step must only be employed in the presence of positive physiological and anatomical indications.<sup>[1]</sup> Any deviation from normal conditions must be taken into consideration before incorporating a new drug. With the increasing demands of the modern life, patients have lesser down time to invest in recuperating and healing.<sup>[2]</sup> Hence, surgeons have to ensure minimum post-surgical discomfort and adequate healing after surgical procedures. . Employing local application of Tramadol is one such step in this direction and this article aims to explore its effects and prospects in Oral Surgery.

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### I. INTRODUCTION

The management of pain during and after surgery performed in the oral cavity has been a point of contention for a very long time in the field of Oral surgery. Newer and safer drugs have revolutionized the way we operate and handle post-surgical pain and edema.<sup>[3]</sup> Tramadol is a well-tolerated and heavily prescribed centrally acting atypical opioid known to produce anesthetic and analgesic effects based on the amount of dosage administered. Tramadol has been heavily used in the treatment of a plethora of painful conditions such as terminal cancer pain, pain of coronary origin, neuropathic pain. Tramadol is especially prescribed for third molar surgery which happens to be one of the most commonly done surgical procedures of the oral cavity. In this manner Tramadol stands to be a very versatile drug.

### II. MECHANISM OF ACTION

Tramadol modulates the descending pain pathways within the central nervous system through the binding of parent and M1 metabolite to opioid receptor and the weak inhibition of the reuptake of norepinephrine and serotonin.<sup>[4]</sup> Tramadol may produce a similar reaction to other opioids like dizziness, somnolence, nausea, constipation, sweating and pruritus. Orthostatic hypotension may be observed. Other effects may involve respiratory depression, miosis. A modulation in dosage administration of the drug may induce different reaction as in the case of an antitussive effect when a lowered dosage compared to the recommended dosage is administered.<sup>[5]</sup>

### III. DISCUSSION

Tramadol is effective in reducing post-operative pain and swelling. When administered locally it has also been reported to enhance and elongate anesthesia during surgery and also shows improved analgesia post operatively. Collins et al performed a study to evaluate the effects of Tramadol in oral surgery.<sup>[6]</sup> They reported complete pain relief for two days following the procedure.

Ong et al performed a comparative study of intravenous and oral tramadol. Performed on patients under sedation, following third molar surgery using Midazolam.<sup>[7]</sup> Here, a significant change was observed. The VAS score was lowered, the analgesic was taken after a longer period of time with an overall improvement in the IV group in terms of post-operative comfort in the subsequent 48 hours following the procedure. Pozos et al performed another study wherein the effect of preoperative and post-operative administration of Tramadol on muscle pain was observed. It was revealed that the administration of Tramadol pre operatively reduced muscle pain post-operatively.<sup>[8]</sup>

Another study was performed to analyse the effects of Tramadol as adjuvant to mepivacaine with epinephrine in inferior alveolar nerve block by Islordia Espinoza MA et al. The study showed an increased efficacy of mepivacaine with epinephrine due to the administration of local tramadol in soft tissues of the inferior alveolar block. Another study was performed wherein 10mg oral Ketorolac with 50mg submucosal tramadol and saline were administered 30-35 minutes before a third molar extraction. Showing consistent results, there was a marked improvement in post-operative pain.<sup>[9]</sup>

### IV. CONCLUSION

There are quite a few excellent studies and compelling data to advocate the local application of Tramadol indicating enhancement in operative anesthesia and post-operative analgesia. However a more comprehensive study needs to be made regarding the wider spectrum of effects and drug interactions of tramadol when employed locally in oral surgery. Only then can this be undertaken as a routine practice in dentoalveolar surgeries.<sup>[10]</sup>

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