



## A Comparative Study on Efficacy of Analgesic (Diclofenac) Injection versus Suppository in the Post-Operative Patient- A Systematic Review

Authors

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### Abstract

*The ultimate goal of the postoperative management is to be elimination or reduction of pain and discomfort with less side effects as costeffective as possible. This study is to review the analgesic efficacy of diclofenac intramuscular injection Vs diclofenac suppositories in the post operative management. The articles published form 2000 to 2018 in MEDLINE; EMBASE from 2004- 2018 was searched. The studies were selected irrespective of type of surgery meanwhile study on postoperative management only considered. The main outcomes assessed were the Visual analogue score and adverse effect of the two different formulation of the diclofenac. Totally, 15 randomised control trial (n=1132) were considered eligible for the study as per the inclusion criteria. The VAS (Visual Analog Score) For 1, 2, 4 and 8 hours were analysed. The incidences of the Adverse effects were higher in Patients who were administered with the Intramuscular injection. On comparing the efficacy by assessing the pain score both suppositories and intramuscular injection show similar score with mild variation and suppositories have lesser adverse effect.*

### Introduction

Surgery is a vital part of the medical care system. It was found from various studies that over billion surgeries take place every year throughout the world. In such a case post operative management has become an essential aspect and pain is the major challenge during and after surgery. Patient may suffer from both psychological and physiological pain. So, monitoring of the pain management is as important as monitoring of vital such as blood pressure, Heart rate etc.,. Nowadays pain becomes a most important factor determining when a patient can be discharged safely.

Diclofenac belongs to the carboxylic class of NSAID's and phenyl acetic acid derivative. Its mechanism of action mainly lies on blocking the COX enzyme which further inhibits the Prostaglandin synthesis. It is administered by various routes namely intravenous, intramuscular, oral, cutaneous patch and rectal route (suppositories). However, still question rises which route is better in which situation.

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efficacy of diclofenac intramuscular injection Vs diclofenac suppositories in the post operative management.

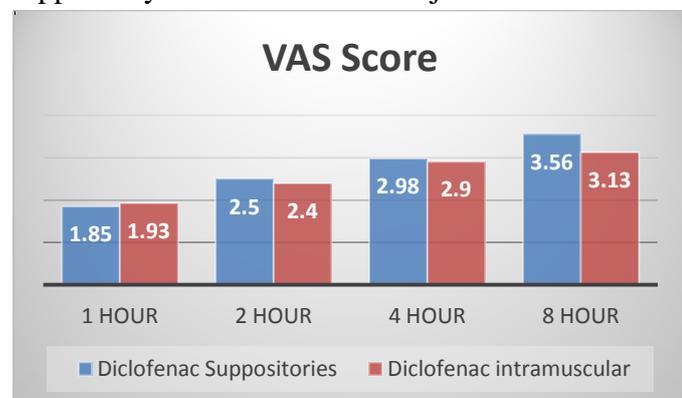
**METHODOLOGY**

The articles published from 2000 to 2018 in MEDLINE, EMBASE from 2004- 2018 were searched using the keywords ' NSAIDs', 'Non steroidal anti-inflammatory drugs, 'Diclofenac suppositories', Diclofenac Intramuscular Injection'. Search was also conducted with the individual drug name in addition with 'post-operative', 'intramuscular', 'suppositories', 'rectal' and combinations of these words.

The published randomised controlled trials of direct comparison of diclofenac suppositories and Intramuscular injection, Intramuscular injection alone and Suppositories alone were considered. The study was selected irrespective of type of surgery meanwhile study on postoperative management only considered. The main outcomes assessed were the Visual analogy score and adverse effect of the two different formulation of the diclofenac.

**Results**

Totally, 15 randomised control trial (n=1132) were considered eligible for the study as per the inclusion criteria. From the above taken randomised control trials 560 patients were given diclofenac suppositories and 572 were given intramuscular injection. The mean pain scores of the trials were analysed to review the efficacy of diclofenac suppository and intramuscular injection.



**Fig 1:** Visual Analog Score for 1 hour, 2 hour, 4 hour, 8 hour for diclofenac suppositories vs diclofenac Intramuscular injection

The VAS (Visual Analog Score) For 1, 2, 4 and 8 hours were analysed. The Mean VAS score after 1 hour was slightly higher in the Intramuscular injected people. But the VAS score after 2, 4, 8 were higher in suppositories.

The Adverse effects studied in the review.

**Table 1:** Incidence of adverse effects

|                              | Suppositories group | Intramuscular group |
|------------------------------|---------------------|---------------------|
| Incidence of Adverse effects | 12(2.14%)           | 22(3.84%)           |

The Adverse effects include Nausea, vomiting, respiratory distress. The incidence of the adverse effects was higher in Patients who were administered with the Intramuscular injection.

**Discussion**

Diclofenac is the well established and common drug for management of the pain. NSAID's have been shown to be efficient analgesics, as considered by either pain score reduction and/ or sparing the opioid effects. The studies using rectal diclofenac 75mg suppositories and 50-100 mg intramuscular injection were only considered.

The Visual analogue score was used to measure the pain in the selected studies. Elimination half-life of the diclofenac is 2 hours. So, the VAS scores of 1, 2, 4 and 8 hours have been interpreted and analysed. The mean VAS score after 1 hour was 1.85 in Patient taking suppositories and 1.93 in patients given Intramuscular Injection. After 1 hour of administration the VAS score was higher in the patients receiving intra muscular Injection. After 2,4 and 8 hours of administration the VAS scores were 2.5, 2.98, 3.96 and 2.47, 2.9, 3.13 for diclofenac suppositories and diclofenac Intramuscular injection. The VAS scores after 2, 4, 8 hours were higher in the Suppositories group.

The adverse effects of the diclofenac suppositories and Intramuscular injection were compared in this review. Despite of various clinical backgrounds, site of the study, study population types of surgery the adverse event were considered. Out of 560 patients treated with diclofenac suppositories 12 patients were recorded with adverse drug effect and out of

572 patients treated with Intramuscular injection 22 were reported with adverse drug effect. So, it was found that suppository has advantage compared to Intramuscular Injection as it has decreased adverse effects.

The study by sonali mahendra Khobragade *et al*, found that Diclofenac suppository is cost effective compared to the Intramuscular Injection of Diclofenac among the commonly used post-operative analgesic<sup>[3]</sup>. However, the few people felt obsessed with route of administration of the suppositories.

One of the most important factors in determining when the patient can be safely discharged and can resume the normal activity depends on the postoperative pain. In treating post operative pains diclofenac proved to be effective in similar manner with the opioid analgesics. The route of administration is also significant.

### Conclusions

The postoperative treatment plays the vital role in the surgical outcoming patients. On assessing the published randomised control trials based on the inclusion criteria it was able to found that suppositories have lesser adverse effect. On comparing the efficacy by assessing the pain score both suppositories and intramuscular injection show similar score with mild variation.

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