



## Original Article

## Comparison of Diclofenac Suppository with Injection Tramadol in Postoperative Pain

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## ABSTRACT

Pain and damage to tissue structure is frequently observed after surgical procedures. Management of postoperative pain has always been remained a challenge to surgeons because of its detrimental effect on patient's satisfaction, early mobilization and regaining of functionality. **Objective:** To compare the analgesic efficacy of diclofenac suppository with injection tramadol 100 mg for postoperative pain relief after abdominal surgeries. **Methods:** This Randomized Double-Blind Controlled Trial was conducted upon a sample of 98 patients, aged 12 to 60 years and undergoing abdominal surgery (elective and emergency) divided into two groups (Group A: Diclofenac Suppositories 100 mg, and Group B: Injection Tramadol 100 mg), of 49 patients each. Visual Analogue Scale (VAS) was used for measuring the severity of pain at 0, 1, 6, 12, 18 and 24 hours, following surgeries. **Results:** The mean age of the sample stood at 31 (SD ± 03) years, with most of the sample comprising of males (72.45%). Postoperative pain was experienced by patients in both groups, with group A reporting less severe pain than group B but no statistical difference was found between the severity. **Conclusion:** After careful consideration, it may be concluded that both agents, namely Diclofenac Suppositories 100 mg, and Injection Tramadol 100 mg are efficacious at managing the postoperative pain hence both may be used interchangeably or in conjunction among patients undergoing abdominal surgeries.

## INTRODUCTION

Trauma elicited by surgical incisions nearly always manifests pain and managing that postoperative pain effectively has remained a challenge for healthcare professionals around the world. Much emphasis is laid onto effective management of postoperative pain which has always been remained a challenge to surgeons because of its detrimental effect on patient's satisfaction, early mobilization and regaining of functionality [1]. Ineffective relief from pain is known to adversely impact patient health in various ways. Firstly, the pain causes acute distress, and secondly, it hampers the mobility thereby leading to complications associated with delayed mobility. The incumbent anxiety and psychological distress have

profound impact on the general health and wellbeing of the individuals [2,3]. Certain factors play a role in determining the extent and duration of pain that follows a surgery, namely the incision (type, site, size, and closure technique), the surgery (type, level of invasiveness, and the duration) and underlying health conditions [4,5]. Attempts to modulate the factors and prevent postoperative pain are made routinely in many forms especially the administration of pre-emptive analgesia [6]. "However, it is not clear how successful preventative methods may be in preventing severe and prolonged pain. but it is highly probable that early intervention (when early signs are first noticed) is more likely to be advantageous [7,8]. Opioids have been

used since long to prevent postoperative pain but the associated adverse events such as nausea/vomiting, respiratory depression, and ileus, have forced healthcare professionals to reconsider the choice of analgesia [9]. Alternatives to opioids, include "systemic analgesics tramadol and ketamine as well as regional analgesia techniques like neuraxial and peripheral blocks". Tramadol is a synthetic 4-phenyl-piperidine analogue of codeine. It is a central analgesic with a low affinity for opioid receptor. It inhibits serotonin and norepinephrine neuronal reuptake [10]. Tramadol is "increasingly used for the treatment of acute post-operative and chronic pain of intermediate or severe intensity. One of the NSAIDs used for acute pain management is diclofenac in suppository form. Many studies have been conducted to compare NSAIDs with opioids, but there have been no studies to determine the efficacy of suppository diclofenac and injection Tramadol after abdominal surgery. This study was designed to evaluate this idea in postoperative pain relief" after abdominal surgery[11].

## METHODS

This Randomized Double-Blind Controlled Trial was conducted upon a sample of 98 patients, aged 12 to 60 years and undergoing abdominal surgery (elective and emergency) divided into two groups (Group A: Diclofenac Suppositories 100 mg, and Group B: Injection Tramadol 100 mg), of 49 patients each. Visual Analogue Scale (VAS) was used for measuring the severity of pain at 0, 1, 6, 12, 18 and 24 hours, following surgeries. "Scores were recorded by making a handwritten mark on a 10-cm line that represents a continuum between no pain and worst pain." All consecutive patients presenting to the ward 3, Jinnah Postgraduate Medical Centre, Karachi, from November 2020 to November 2021 and meeting the eligibility criteria were allocated to either of the groups (A or B) using computer generated simple randomized numbers. Data was analyzed using the IBM SPSS v. 21.0 and M.S Excel 2013. "Descriptive statistics such as mean  $\pm$  standard deviation (SD) was used for continuous variables such as age and VAS Score. Numbers and percentages were used to describe the proportion of categorical variables such as sex".

## RESULTS

The mean age of the sample stood at 31(SD  $\pm$  03) years, with most of the sample comprising of males (72.45%). The summary of descriptive statistics is tabulated below:

Variable	Group A	Group B	Cumulative	
Mean Age	31.5 (SD $\pm$ 03)	30.5 (SD $\pm$ 03)	31 (SD $\pm$ 03)	
Gender	Male	35 (71.43%)	36 (73.47%)	71 (72.45%)
	Female	14 (28.57%)	13 (26.53%)	27 (27.55%)
Type of Surgery	Elective	37 (75.55%)	41 (83.67%)	78 (79.59%)
	Emergency	12 (24.49%)	08 (16.33%)	20 (20.41%)
Mean Duration of Surgery (mins)	61 (SD $\pm$ 7.7)	60 (SD $\pm$ 5.3)	60.5 (SD $\pm$ 6.1)	

Postoperative pain was experienced by patients in both groups, with group A reporting less severe pain than group B. There was no statistical difference between the severity of the pain though.

Postoperative Pain	Group A	Group B	P Value
0 Hours	1.61	2.21	0.081
1 Hour	2.19	2.43	0.093
6 Hours	2.66	2.91	0.131
12 Hours	2.95	3.68	0.064
18 Hours	2.87	3.59	0.059
24 Hours	2.71	3.40	0.061

## DISCUSSION

The analgesic regimen needs to meet the goals of providing safe, effective analgesia, with minimal side effects. However, most new analgesic agents are not available in many hospitals since they are expensive and require trained personnel and special equipment. The age-old agents, namely diclofenac and tramadol are thus commonly employed and need to be researched well enough [12,13]. Tramadol is known to be a potent analgesic however, when administered intravenously (and even orally) the peak concentrations of the drug are reached rapidly and oftentimes lead to severe post-operative nausea and vomiting. Rectal administration of Tramadol may be an alternative in this situation, but that too yields uncomfortable side effects. Diclofenac is believed by many to be a better choice for suppository [14-17]. Joshi et al, compared diclofenac suppository with tramadol suppository. It was noted that "in diclofenac group at 4 hours mean VAS score 2.1, at 6 hours it was 2.63 and at 8 hours mean VAS was 2.07, after that rescue analgesia was given. After 8 hours 60% patients needed first rescue analgesia in diclofenac group. While when compared compared diclofenac suppository with tramadol suppository, it was found mean VAS was less in diclofenac group and this difference was statistically significant. Also no side effect was found in diclofenac group. Thus, rectal suppository of diclofenac is better alternative for postoperative analgesia in as compared to tramadol" [18-20]. Sahil et al, too compared the same and it was noted that "mean VAS score showed significantly better pain relief with diclofenac suppository compared to tramadol group over a period of 12 hours after surgery (for e.g., mean VAS score for diclofenac group at 4 and 6 hours was 2.6 and

2.83 as compared to 3.12 and 3.36 of tramadol group. Better pain relief with diclofenac suggests better efficacy as compared to tramadol injection [21-22]. This research however, had a few limitations; the first being the absence of a control / placebo group and the second being the small sample size and single study setting. In future, the research may be replicated with a more extensive sample and a control group for greater methodological rigor.

## CONCLUSION

After careful consideration, it may be concluded that both agents, namely Diclofenac Suppositories 100 mg, and Injection Tramadol 100 mg are efficacious at managing the postoperative pain hence both may be used interchangeably or in conjunction among patients undergoing abdominal surgeries.

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