ORIGINAL RESEARCH PAPER

Volume-7 | Issue-10 | October-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

# COMPARATIVE STUDY ON ANALGESIC EFFECTS OF 1 GM PARACETAMOL INFUSION ON THE TOTAL REQUIREMENT OF TRAMADOL IN THE POSTOPERATIVE PERIOD INCLUDING RESCUE ANALGESIA AT TERTIARY CARE CENTER.

Anesthesiology

**Dr Anivesh Jain** Post graduate Resident Department of anaesthesiology

**Dr. Mayank Chansoriya*** Associate Professor Department of Anaesthesiology *Corresponding Author

**Dr Rishabh Khandelwal** graduate Resident Department of anaesthesiology.

## ABSTRACT

Pain relief after surgical procedures continues to be a major medical challenge. The alleviation of pain is given a high priority by the medical profession and health authorities. However, although there is no reason why a pa¬tient should not receive appropriate analgesia, recent sur¬veys have revealed that the incidence of moderate or even severe postoperative pain may be as high as 30¬-70%. After institutional and ethics committee approval and informed consent 60 patient of either sex of ASA physical status I and II aged between 20-60 years undergoing elective abdominal surgery were enrolled for the study and were randomly assigned to 3 groups of 30 each. From the present study it is concluded that preemptively administered IV paracetamol 1gm in patients undergoing elective lower abdominal surgery has no adverse effect ensure effective analgesia post operatively decrease tramadol consumption, side effects and need for rescue analgesia.

## KEYWORDS

Pain Relief, Paracetamol, Analgesia, Tramadol

## INTRODUCTION

Pain relief after surgical procedures continues to be a major medical challenge. The alleviation of pain is given a high priority by the medical profession and health authorities. However, although there is no reason why a pa¬tient should not receive appropriate analgesia, recent sur¬veys have revealed that the incidence of moderate or even severe postoperative pain may be as high as 30¬-70%. Under treatment of pain has been determined to have a negative impact on short-term recovery and may even have a detrimental long-term effect on health. Three reasons for the under treatment of pain relate to fear of narcotic addic¬tion, poor communication among staff and perceptions by patients that medications for pain are neither necessary nor good.[1]

Preemptive analgesia is an antinociceptive treatment that prevents establishment of altered processing of afferent input, which amplifies postoperative pain.[2] The proposal is that the effect of the pre-emptive analgesia is to prevent or reduce the development of any " memory of the pain stimulus in the nervous system, and that the lesser subsequent analgesic requirement is a result of this prevention or reduction of the pain memory. There is both scientific and clinical interest in this effect. The scientific interest is in the mechanism underlying the effect; the clinical interest is in the potential for improving postoperative pain management[3].

Preemptive analgesia give rise to a subsiding pain pattern, a decrease in analgesic requirements, and a decline in morbidity, promoting wellness and shortening the length of hospital stays.[4]

Local anesthetics, opioids, non steroid anti-inflammatory drugs (NSAIDs) and acetaminophen group drugs can be delivered either alone or in combination for preemptive analgesia

In our study we take 1 gm iv paracetamol infusion as preemptive agent and assessed postoperative tramadol consumption, sedation,pain scores, side effects and patient satisfaction in elective abdominal surgery patients , who received intravenous (IV) paracetamol infusion 1g either preoperatively or intra operatively.

## MATERIALS AND METHODS.

The present study is under taken in indoor patients admitted in N.S.C.B. Medical College Jabalpur.

### Selection of Cases:

After obtaining institutional and ethics committee approval an informed written consent is taken from all 60 patients of ASA class I, II which includes adult patients of age group (20-60 years) undergoing elective abdominal surgeries.

A detailed history, thorough physical examination, routine investigation or any special investigation if required done for the study.

### CRITERIA FOR EXCLUSION :

- History of allergic reaction of paracetamol
- Any history of usage of paracetamol, opiods, or NSAIDs in the last 48 hours of surgery.
- Chronic alcoholism, liver, kidney disease.
- Cardiovascular system illness.
- Bleeding diathesis.
- Any contraindication to tramadol use.
- American society of Anesthesiologist (ASA) class III and IV.

**DESIGN OF STUDY :** Patients divided into 3 group I, II and III. Each group includes 30 patients of different ages.

- Group (I): IV paracetamol infusion 1gm given for 15-20 minutes, 30 minutes prior to induction.
- Group (II): IV paracetamol infusion 1 gm given for 15-20 minutes prior to skin closure.
- Group (III) : serve as a control group and receive normal saline as placebo.

Postoperatively pain scores, sedation scores, and postoperative tramadol doses, side effects were recorded.

### Techniques:

The patient placed on operation table in supine position. Before starting the procedure all the monitoring equipments (NIBP cuff, pulse oximetry probe, ECG) attached to patient and baseline value of BP, HR, SPO2 and RR recorded. An IV cannula inserted.

Patients age, weight, ASA classification and operation period is recorded. The patients pre-oxygenated for 3 minutes with 100% oxygen. Patient induced with IV Propofol 2 mg /Kg and Fentanyl 3 mcg/Kg and then vecuronium 0.12 mg/Kg given. Following intubation maintenance of general anesthesia accomplished by using halothane and if required vecuronium 0.01 mg/Kg is given. No additional analgesic given over the entire course of the operation.

## RESULTS

Sixty patients were involved in the study. When the demographic data and operation values of the 60 patients included in the study were compared, no statistically significant differences were determined between groups

**TABLE 1 Demographic Data**

| | Group 1 | Group 2 | Group3 |
|---|---|---|---|
| Age (year) | 38.5±13.8 | 38.7±13.3 | 38.7±11.2 |
| Operation time(min) | 98±19.2 | 98±13.5 | 107±23.2 |
| Weight(kg) | 52.2±7 | 52.6±8 | 51.5±8.8 |

**TABLE 2 Postoperative Tramadol Consumption**

| | Group1 | Group2 | Group 3 |
|---|---|---|---|
| Total tramadol consumption | 118.73±24.50 | 135±23.30 | 163.33± |

The tramadol consumption of the cases is shown in Table 2. The tramadol consumption in Group III was found to be significantly higher ($p<0.01$) than that in Groups I and group II. When the total tramadol consumption amounts for 24 h were compared, those of the con¬trol group were significantly higher than of groups that received medication ($p<0.01$). In addition, when medication groups were compared, the total tramadol consumption of Group II was found to be significantly higher ($p<0.01$).. The incidence of side effects such as postopera¬tive nausea, vomiting, pruritus is shown in Table 3 according to patient groups. When the treatment-dependent side effect incidences were compared, nausea, vomiting, and itching were found to be higher in the control group . No respiratory depression requiring naloxone usage occurred in any patient.

When no. of patient requiring rescue analgesia were compared, those with control group were higher as shown in table 4

**TABLE 3 Side Effect**

| | Group1 | Group 2 | Group 3 |
|---|---|---|---|
| Side effect like nausea vomiting, pruritus, | 3 | 3 | 5 |

**TABLE 4 Patient Requiring Rescue Analgesia**

| | Group1 | Group 2 | Group 3 |
|---|---|---|---|
| Patient require rescue analgesia | 4 | 8 | 8 |

## DISCUSSION

In the present study, we used iv paracetamol 1gm and assessed its effects on postoperative analge-sia effectiveness, tramadol consumption, frequency of side effects, and deter¬mined that administration of paracetamol 1 g 30 min before induction resulted in decreased postoperative VAS values and total tramadol consumption over 24 h. Furthermore, we observed fewer side effects and the negative effects caused by postoperative pain can be diminished with good postoperative anal¬gesia.

In one study, the authors preoperatively dispensed either oral oxycodone in one group (n=10) or 1,000 mg oral paracetamol in another group (n=10) of fe¬male cholecystectomy patients and evaluated post¬operative pain and side effects in each group; they found similar postoperative pain scores and side effects, with no difference determined between the groups [6]

Varanasi and colleagues assessed the relative mor¬phine consumption in a combined analgesic regi¬men after gynecologic surgery with iv doses of propacetamol 2 g or ketorolac 30 mg. Patients were assessed regarding total dose of morphine, pain in¬tensity and global efficacy. They established that total morphine requirements were not significantly different between the propacetamol (10.6±4.8 mg) and ketorolac (10.2±4.4 mg) groups. [7]

In our study, total tramadol consumption for 24 h in the preemptive Groups I and II was lower as compared to Group III. We believe that since the preemptively delivered paracetamol prevents central sensitization, its analgesic effect continues to be longer than its effect period. As in many studies carried out with iv paracetamol usage, our study did not encounter any negative effects in hemodynamic parameters, such as intraoperative and postoperative SpO2, HR, and MAP., complications such as respiration depression, sedation, nausea, vomiting, urine retention, and itch may develop.[8,9,10,11]

In our study, we asked the patients if they were satisfied with the present postoperative pain management at 24 h and whether or not they would desire the same pain management to be applied in the future. We determined from the responses given that the gratification rate was high in all groups. The major¬ity of the patients emphasized that would like the same pain management to be applied in the future as well.This finding suggests that pa¬tients who received paracetamol were more satisfied than those with iv tramadol alone.

**CONCLUSION :** From the present study it is concluded that: Preemptively administered IV paracetamol 1gm in patients undergoing elective lower abdominal surgery

- has no adverse effect
- Ensure effective analgesia post operatively
- Decrease tramadol consumption and side effects
- Decrease need for rescue analgesia

## REFERENCES


1. Pramila Bajaj: postoperative pain management; organization and audit IJA 2007; 51 (5): 441-443.
2. H.J.Mcquay:Preemptive analgesia Editorial,BJA 1992;69: No.1
3. Jørgen B. Dahl and Steen Møiniche:Preemptive analgesia, British Medical Bulletin 2004;71:13-27
4. Semih Arici, Alp Gurbet, Gürkan Turker, Belgin Yavaskagolu, Şükran Sahin: Preemptive Analgesic effect of iv paracetamol in TAH, AGRI 2009; 21(2):54-56
5. Bonica JJ. Postoperative pain. In: Bonica JJ, (editors.) The management of pain. 2nd edition. London: Lea & Febiger;. 1990. p. 461-2.
6. Speranza R, Martino R, Laveneziana D, Sala B. Oxycodone versus paracetamol in oral premedication in cholecystec¬tomy. [Article in Italian] Minerva Anestesiol 1992;58:191-4. [Abstract]
7. Varrassi G, Marinangeli F, Agrò F, Aloe L, De Cillis P, De Nicola A, et al. A double-blinded evaluation of propacetamol versus ketorolac in combination with patient-controlled analgesia morphine: analgesic efficacy and tolerability after gyneco¬logic surgery. Anesth Analg 1999;88:611-
8. Dahl V, Ernø PE, Raeder JC. No analgesic effect of ibuprofen or paracetamol vs placebo for hysterectomies. Eur J Pain 1997;1:31-5.
9. Avellaneda C, Gómez A, Martos F, Rubio M, Sarmiento J, de la Cuesta FS. The effect of a single intravenous dose of met¬amizol 2 g, ketorolac 30 mg and propacetamol 1 g on hae¬modynamic parameters and postoperative pain after heart surgery. Eur J Anaesthesiol 2000;17:85-90.
10. Zhou TJ, Tang J, White PF. Propacetamol versus ketorolac for treatment of acute postoperative pain after total hip or knee replacement. Anesth Analg 2001;92:1569-75.
11. Macintyre PE. Safety and efficacy of patient-controlled anal¬gesia. Br J Anaesth 2001;87:36-46.