

A Comparative Study of Intravenous Paracetamol and Intravenous Tramadol for Postoperative Analgesia in Laparotomies



Medical Science

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Dr. Supriya. B

Post graduate, Department of General Surgery

Dr. Rajeshwara. K. V

Associate Professor, Department of General Surgery, Father Muller Medical College, Mangalore, Karnataka, India

ABSTRACT

Background: Pain in the perioperative setting or thereafter plays a significant role in delaying an otherwise successful recovery. Hence, mitigation of such postoperative pain assumes importance. Among the various agents employed for such mitigation, opioids and non-steroidal anti-inflammatory drugs have for some time taken center stage. However, alas they are not without their share of adverse effects. This study was undertaken with the purpose of elucidating the efficacy of intravenous (IV) paracetamol as compared to IV tramadol in mitigating postoperative pain while observing its effect on hemodynamic stability and the presence of adverse drug reactions, if any.

Materials and Methods: A total of 60 randomized cases aged ranges from 20 to 60 years of both sexes divided into two groups (each for paracetamol and tramadol) scheduled for laparotomies were administered IV paracetamol and tramadol for postoperative pain relief and assessed with visual analog scale (VAS) score and variations in vital parameters to ascertain extent of pain relief and post-operative nausea vomiting (PONV).

Results: Data so collected was statistically interpreted, and observations extrapolated. Save for a perceptible decline in PONV with paracetamol group compared with tramadol group with a statistically significant $P < 0.001$, nothing statistically significant was observed in any other parameter, including VAS scores between either group.

Conclusion: IV paracetamol is a safer alternative to tramadol with lesser PONV in the postoperative period translates into the lesser duration of hospitalization and hence earlier discharge.

INTRODUCTION

Pain is a predictable component of any surgical procedure, and postsurgical pain is commonly treated ineffectively. Inadequately treated postoperative pain may result in pain and suffering, as well as multiple physiological and psychological consequences (e.g., splinting, impaired gastrointestinal motility, and impaired wound healing) which may adversely affect perioperative outcomes and contribute to increased length of stay. Successful recovery from surgery includes comprehensive management of post-operative pain.[1] Postoperative pain paves the way for a host of complications in major surgeries like laparotomy, which can deleteriously impact convalescence.[2] For decades now, opioids and nonsteroidal anti-inflammatory drugs (NSAIDs) have been used and have not been entirely devoid of undesirable effects like postoperative nausea and vomiting (PONV), respiratory depression, sedation, gastrointestinal bleeding and renal injury among others.[3] With the advent of intravenous (IV) paracetamol, interest is now being shown as to its efficacy in mitigating pain especially against the backdrop of commonly used analgesics.[4] IV paracetamol was approved and made available in united states in 2010. IV paracetamol is an analgesic and antipyretic agent, recommended worldwide as a first-line agent for the treatment of pain and fever in adults and children. Paracetamol (acetaminophen), now also available for IV use, is not an NSAID and interferes neither with platelet nor kidney functions nor does it present the unwanted side effects of NSAIDs. Adverse reactions emerging from the use of the IV formulation of paracetamol are extremely rare (<1/10,000).[5] Tramadol has been shown to provide effective analgesia after both intramuscular and IV administration for the treatment of postoperative pain. While it is not recommended as a supplement to general anesthesia because of its insufficient sedative activity, tramadol has been successful in the treatment of postoperative pain.

Therefore this prospective, randomized double-blinded study was designed to compare IV paracetamol and tramadol for postoperative analgesia in laparotomies. Our outcomes of study is to assess statistically for difference in visual analog scale (VAS) score and vital parameters as

reflective of extent of pain relief in the post-operative period and PONV in two groups of patients receiving paracetamol and tramadol.

AIMS AND OBJECTIVES

1. To compare the efficacy of intravenous (IV) paracetamol as compared to IV tramadol in mitigating postoperative pain in patients undergoing laparotomies.
2. To assess duration of post operative nausea and vomiting.

MATERIALS AND METHODS

This prospective randomized clinical study was carried out on 60 patients admitted to FMMCH who underwent elective or emergency laparotomy from April 2016 to July 2016.

Patients were divided into two groups:

Group I received IV paracetamol 1 g in 100 ml vial infused over 15 min before 30 min completion of surgery

Group II received IV tramadol 2 mg/kg slow IV before 30 min completion of surgery.

The dose was repeated 6th hourly. The maximum total dose for paracetamol and tramadol are 4 g/day and 400 mg/day respectively.

Anesthetic protocol is similar for all patients. Postoperatively pain score will be assessed using VAS scale. Visual analog scale was obtained at 30 min, 1, 2, 4, 6, 8, 10, 12, 15, 18, 21, and 24 h.

Postoperative nausea and vomiting was assessed using PONV scoring: No nausea (0) to severe nausea and vomiting (10), was evaluated at regular intervals at 0 min, 30 min, 1 h, 2 h, 4 h, 6 h, 8 h, 10 h, 12 h, 15 h, 18 h, 21 h and 24 h.

RESULTS

The mean VAS scores at 30 min in group I was 5.86 and in group II was 6.13. The mean VAS scores at 24 h in group

I was 1.73 and in group II was 2.15. As per above graph, the gradual fall of the VAS scores are comparable, and the decrease in VAS scores showed no statistical significance between two groups with a P - 0.653 (FIG.1.1)

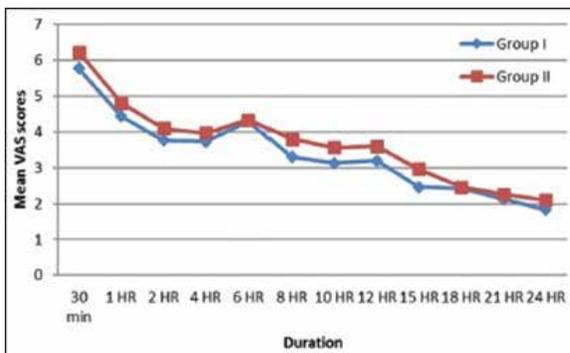
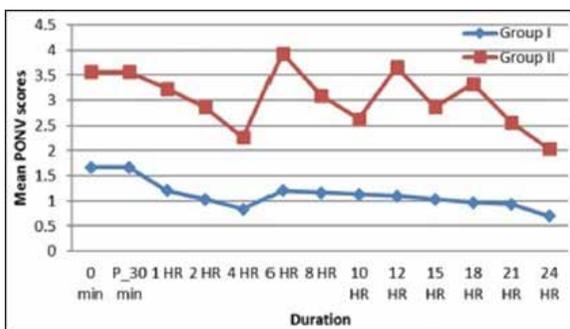


FIG 1.1

Distribution of visual analogue scale grades between groups

In group I, 3.33% of patients had PONV scores more than 5, but in group II 43.33% patients had PONV scores more than 5, suggesting group II has significant PONV compared to group I. As per the graph below, on comparison of the mean PONV scores, statistically significant difference between the groups with a P - 0.001 was observed.



CONCLUSION

From the different parameters compared and outlined in our study, following inferences could be drawn IV paracetamol and tramadol tends to offer adequate post-operative analgesia. IV paracetamol is a safer alternative to tramadol with less PONV in the postoperative period, which translates into the lesser duration of hospitalization and hence earlier discharge.

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