

Effect of Preemptive Intravenous Paracetamol on Post-Operative Analgesic Requirement in Subjects Undergoing Laparoscopic Cholecystectomy Under General Anaesthesia with Placebo Controlled Trial

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Abstract

Background: Present study was done to assess the outcome of preemptive intravenous paracetamol on post-operative analgesic necessity in subjects undergo laparoscopic cholecystectomy undergoing General Anaesthesia (GA) through placebo controlled trial. **Subjects and Methods:** Current research performed in the Department of Anesthesiology, at Tertiary care institute of India for the period of 1 year. 150 subjects undergo laparoscopic cholecystectomy underneath GA by period of fewer than or equivalent to 90 mins were incorporated in research. Subjects were arbitrarily allocated into 3 groups: Group I: Got IV paracetamol 1 g (100 ml) 30 min earlier to beginning, with Hundred ml of IV normal saline earlier to closure of skin. Group II: got hundred ml IV normal saline 30 min prior to introduction, and IV paracetamol 1 g previous to closure of skin. Group III: Getting hundred ml IV normal saline 30 min prior to introduction, and previous to shutting of skin. All groups comprise of 50 subjects each. **Results:** Mean VAS scores were considerably superior in group II (2.84 ± 0.85) at 2 hours as contrast to Group I (2.46 ± 0.30). Mean pain score was considerably superior in Group III at 15 minutes and 2 hours compare evaluate to Group I. **Conclusion:** Preemptive organization of 1 gram of IV paracetamol in subjects undergo laparoscopic cholecystectomy offer superior eminence analgesia with reduced pain scores through the postoperative era, improved subject approval and reduced post-operative Fentanyl use.

Keywords: Analgesia, General anaesthesia, Laparoscopic cholecystectomy, Paracetamol.

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Introduction

Pain is a public health concern all through earth, which is main clinical, social, and financial difficulty.^[1] Even though laparoscopic surgery consequences in considerably not as much of severe and extended distress contrast with equivalent open process, post-operative pain is yet substantial and requests to be managed to decrease postoperative impediments and hospital reside.^[2]

Although opioids are extensively utilized for postoperative analgesia they have unfavorable side effects, that might edge their utilization.^[3,4] Narrative pain organization approach, so center on dipping opioid-related side effects and provided that extra effectual pain release, together which can influence subject approval.

The expansion of austere minimal surgery has not merely transformed method of surgical events in the current era; bar has also prejudiced the live out of anesthesiology. Even

though laparoscopic surgery consequences in considerably not as much of strict and less protracted uneasiness contrast with the equivalent open procedure, postoperative pain is still substantial and requests to be treated efficiently with negligible side effects, to decrease post-operative complications and hospital reside.

Numerous researches had tested the preventative analgesic effectiveness of different drugs and methods, such as nonsteroidal anti-inflammatory drugs (NSAID).^[5,6,7] Lornoxicam's results rear extended than do those of further NSAIDs. These distinctiveness construct lornoxicam a possible substitute for organization of postoperative pain.^[8,9]

The chief method of these analgesic drugs is to restrain the COX and prostaglandin synthesis.^[10] Paracetamol is an acetanilide imitative, secure, the well-accepted drug with recognized efficiency. Its clinical belongings happen most expected from the central action and IV direction gives quick and expected beneficial plasma concentration. The method of action of paracetamol is all the way during the

reserve of prostaglandins and commencement of downward serotonergic inhibitory pathways.^[11,12]

The IV research of paracetamol has an excellent shelter outline, utilized to give effectual analgesia for heightened post-operative pain. Current research was performed to assess the outcome of preventative intravenous paracetamol on post-operative analgesic prerequisite in subjects undergo laparoscopic cholecystectomy underneath GA with placebo controlled trial.

Subjects and Methods

Current research was an eventual RCT performed at Department of Anesthesiology at Tertiary care institute of India during the phase of one year. 150 ASA I and II mature subjects aged 17-62 years undergo laparoscopic cholecystectomy under GA with period of fewer than or equivalent to 90 minutes were incorporated in research. Subjects had reaction to paracetamol and subjects on management NSAIDs or drugs prior to surgical procedure were debarred.

All subjects were pre medicated with alprazolam 0.25 mg and ranitidine 150 mg, nighttime prior to the surgical procedure. Visual analogue scale (VAS) for pain was elucidating to all subjects through the pre-anaesthesia health check. Subjects were arbitrarily owed to 3 groups: Group I: got IV paracetamol 1 g, thirty minutes earlier to initiation, and hundred ml of IV normal saline earlier to closure of skin. Group II: got hundred ml IV normal saline 30 min previous to introduction plus IV paracetamol 1 g previous to closure of skin. Group III: Getting 100 ml IV normal saline 30 min previous to introduction, and previous to closure of skin. All groups Comprise of 50 subjects each.

Table 2: Post-operative VAS Score of study participants

Groups	15 min (Mean±SD)	30 min (Mean±SD)	1 Hour (Mean±SD)	2 Hour (Mean±SD)	6 Hour (Mean±SD)
Group 1	3.10±0.40	3.16±0.25	2.81±0.7	2.46±0.30	2.66±0.89
Group 2	2.89±1.20	3.35±1.24	2.98±0.6	2.84±0.85	2.89±0.2
Group 3	3.90±1.32	3.01±1.50	3.11±0.86	2.84±0.85	2.70±0.3
P value	0.001*	0.50	0.16	0.24	0.21

* indicates statistically significance at p≤0.05

Discussion

Sufficient organization of post-operative pain is solitary a large amount significant disputes, which not merely offers ease for the subject, but helps premature enlistment and reduce duration of hospital reside. Pain practiced following laparoscopic operations is a company of 3 dissimilar apparatus: incisional pain, visceral pain, and shoulder pain. In addition, presentation of personage difference in strength and extent, the pain is often impulsive.^[13] There have been numerous current researches discover different modalities for manage of pain following laparoscopic cholecystectomies.^[14,15,16]

Paracetamol quickly overtakes the blood-brain obstacle, attains a elevated absorption in the CSF and has an anti-nociceptive consequence arbitrate by the CNS, which has been observed mainly as a roundabout and equal authority through COX enzyme inhibition, and perhaps all the way during the serotonergic organization too.^[16]

Momentous lessening in pain scores when 1 gm iv

Anaesthesia was persuaded by propofol 2 mg/kg IV, fentanyl 2 µg/kg IV, and vecuronium 0.1 mg/kg IV. It was preserved through isoflurane in 40/60 oxygen/nitrous oxide ratio. Every subjects were observed for heart-rate (HR), noninvasive blood pressure (NIBP), pulse oxygen saturation (SpO2) and end tidal carbon dioxide (ETCO2) all through process. Postoperative pain score was calculated by utilizing VAS.

Statistical analysis

Recorded data were investigated utilizing SPSS version 15.

Results

Table 1: Demographic characteristics of study participants

Variable	Group 1	Group 2	Group 3
Age (Mean±SD)	45.10±11.05	43.31±12.10	43.05±11.95
Weight (Mean±SD)	62.5 ± 6.30	60.02 ± 6.45	60.31 ± 6.21
Gender (M/F)	18/32	20/30	16/34
ASA (I/II)	32/18	29/21	29/21

As mention in [Table 1] there was no dissimilarity among the 3 groups at baseline in provisos of Demographic parameters score or length of operation. Mean VAS scores were considerably elevated in group II at 2 hours as contrast to Group I. Mean pain scores were considerably elevated in Group III (3.90±1.32 and 2.84±0.85) at 15 min and 2 hours as contrast to Group I (3.10±0.40 and 2.46±0.30). Mean VAS scores were considerably elevated than in Group III at 15 min as contrast to Group II. On the whole, post-operative fentanyl utilization was 25.72±33.21 in Group I, 44.10±32.26 in Group II and 61.12±44.74 µg in Group III.

Paracetamol was ordered preemptively thirty minutes prior to commencement of surgical procedure than 1 gm iv Paracetamol was administer intra-operatively prior to closure of skin. Choudhuri et al. carry out a similar findings on their research.^[13] Comparable researches carry various authors who evaluated analgesic consequence of acetaminophen on pain following cholecystectomy and demonstrated analogous outcomes.^[17,18,19,20,21] Even though it is usually thought that paracetamol acts centrally, current researches established influences equally central and peripheral cyclooxygenase enzymes.^[22] These findings specify that adequate analgesic efficiency was making certain in the postoperative era in Group I. Present research registered subjects with 18-60 years, therefore, findings of present research cannot be universal to pediatric and old age group. Future researches to imitate our findigs should comprise superior samples sizes and an impartial mix of genders so that results can be comprehensive to a larger resident.

Conclusion

Preventive management of 1g of IV paracetamol in subjects undergo laparoscopic cholecystectomy offers high-quality excellence analgesia by diminish pain scores through post-operative era, improved subject approval and reduce post-operative Fentanyl utilization. Therefore, 1g of IV paracetamol could be carefully oversee pre-emptively for post-operative analgesia for laparoscopic cholecystectomy.

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