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Evaluation of postoperative pain management in patients undergoing combined ENT and general surgical surgeries

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Abstract
Background and Objectives: Patients who have both ENT and general surgery are highly concerned about pain after the surgery. If pain is not well controlled, it can slow down recovery, make problems more likely, and make patients less happy. For the best results, it's important to use effective multimodal analgesic techniques. This study sought to assess postoperative pain treatment in individuals following concurrent ENT and general operations, analysing analgesic efficacy, safety, and recovery trajectories.
Materials and Methods: A prospective, randomized, controlled trial was performed on 70 adult patients aged 18-65 years, categorized as American Society of Anesthesiologists (ASA) physical status I-II, and scheduled for elective combined ENT and general surgical operations. Patients were randomly divided into two groups (n = 35 each): Group A got a multimodal analgesic regimen comprising intravenous opioids and NSAIDs, whereas Group B received standard opioid-based analgesia. The Visual Analog Scale (VAS) was used to measure pain after surgery at 1, 4, 8, 12, and 24 hours.
Results: Age, sex, weight, and length of operation were all similar across the two groups. After the operation, Group A had better pain control with significantly lower VAS values (1, 4, 8, and 12 hours postoperatively; $p<0.01$) in comparison to Group B. Group B had a shorter time to provide initial rescue analgesia (3.5±0.9 h) compared to Group A (6.8±1.2 h), with a p-value less than 0.001. Group A's total opioid consumption after surgery was 25±8 mg, which was substantially lower than Group B's total consumption of 48±12 mg ($p<0.001$). The group that received multimodal analgesia reported higher levels of patient satisfaction. Although there were no statistically significant differences in sedation or other adverse effects, Group A had a reduced incidence of nausea and vomiting (11.4%) compared to Group B (28.6%, p = 0.04).
Conclusion: In patients having both ear, nose, and throat (ENT) and general surgery, multimodal analgesia improves postoperative pain control, decreases opioid use, lengthens the time until first rescue analgesia is needed, and increases patient satisfaction. If you want a speedier recovery after surgery, you should think about this safe and effective method.

Keywords: Postoperative pain, multimodal analgesia, opioids, NSAIDs, ENT surgery, general surgery, patient satisfaction

Introduction
Patients undergoing surgical operations, especially those involving numerous surgical sites or specializations, such combination ENT and general surgeries, can experience postoperative pain. Delays in recovery, longer hospital stays, greater risk of complications, and decreased overall patient satisfaction can all result from pain that is not under control. Because of its central role in facilitating recovery and bettering outcomes, postoperative pain management is an essential component of perioperative treatment [1-3].
Because of the involvement of different kinds of tissues, different kinds of surgical trauma, and the possibility of overlapping nociceptive pathways, the pain that follows a combination of ENT and general surgical operations can be complicated. Nausea, vomiting, drowsiness, respiratory depression, and delayed ambulation are some of the side effects of traditional opioid-based analgesia, notwithstanding its effectiveness [4, 5].
Recovery and patient satisfaction can be negatively affected by these side effects.
A new approach to pain management that aims to maximize effectiveness while reducing opioid-related side effects is multimodal analgesia. This method involves combining various types of analgesic drugs that work via complementary processes [6, 7]. Opioids, NSAIDs,

acetaminophen, local anesthetics, and adjuvant medicines like alpha-2 agonists are common components of typical regimens. The goals of this strategy are to improve the quality of recovery as a whole, decrease opiate intake, and address numerous pain pathways at once. Patients undergoing both ear, nose, and throat (ENT) and general surgery do not have enough evidence to draw firm conclusions on the efficacy of multimodal analgesia, despite its acknowledged advantages in individual surgical procedures. Assessing the most effective methods of pain relief is crucial in these instances because postoperative pain is likely to be worse [8-10].

The purpose of this research was to compare the safety and effectiveness of multimodal analgesia to that of traditional opioid-based analgesia in patients having both otolaryngological and general surgical operations done at the same time. Total analgesic intake, time to initial rescue analgesia, patient satisfaction, and incidence of adverse events were all secondary endpoints that the study planned to investigate [11, 12].

Material and Methods

This prospective, randomized, controlled trial involved 70 adult patients aged 18 to 65 years, categorized as American Society of Anesthesiologists (ASA) physical status I-II, who were scheduled for elective combined ENT and general surgical procedures under general anesthesia. This study was conducted at the Department of General Surgery, Maharajah's Institute of Medical Sciences (MIMS), Nellimarla, Vizianagaram, Andhra Pradesh, India between June 2015 to May 2016. The Institutional Ethics Committee gave its approval, and all participants signed a written consent form. There were two groups of 35 patients each, and they were chosen at random. For postoperative pain management, Group A got multimodal analgesia, which was a mix of intravenous opioids (morphine 0.05 mg/kg) and NSAIDs (intravenous ketorolac 30 mg).

Inclusion Criteria

- Adult patients aged 18-65 years
- ASA physical status I-II
- Scheduled for combined ENT and general surgical procedures under general anesthesia
- Provided written informed consent

Exclusion Criteria

- Known allergy or hypersensitivity to opioids, NSAIDs, or other analgesic agents
- History of renal, hepatic, or cardiovascular disease
- Pregnancy or lactation
- Patients with coagulopathy or bleeding disorders
- Chronic use of opioids, NSAIDs, or other analgesics
- Emergency surgeries

Anesthetic Technique

All patients received midazolam (0.03 mg/kg IV) for premedication 15 minutes before to induction. Standard monitoring was implemented, encompassing heart rate, non-invasive blood pressure, oxygen saturation (SpO_2), electrocardiogram (ECG), and end-tidal CO_2. General anesthesia was initiated with propofol (2 mg/kg IV) and fentanyl (2 µg/kg IV), succeeded by muscular relaxation using atracurium (0.5 mg/kg IV). Anesthesia was sustained using inhalational drugs (sevoflurane 1-2%) in an oxygen/air mixture.

Postoperative Pain Assessment

The Visual Analog Scale (VAS) was used to measure postoperative pain at 1, 4, 8, 12, and 24 hours postoperatively. Administer rescue analgesia when the VAS was equal to or greater than 4, and keep track of the total amount of analgesics consumed.

Statistical Analysis

The t-test for continuous variables and the chi-square test for categorical data were used for analysis. Statistical significance was determined by a p-value less than 0.05.

Results

A total of 70 patients finished the research, with 35 participants in each group. The groups were successfully randomized since their demographic features, such as age, sex, weight, and length of operation, were similar. We looked at postoperative pain scores, how much pain medicine patients used, how long it took for the initial rescue analgesia to work, how happy patients were, and how many bad events happened.

Table 1: Demographic and Baseline Characteristics

Parameter	Group A (n=35)	Group B (n=35)	p-value
Age (years)	42.5±11.3	41.8±10.9	0.76
Weight (kg)	68.3±12.1	69.5±11.8	0.65
Sex (M/F)	20/15	19/16	0.81
Duration of surgery (min)	95.4±15.2	96.8±14.7	0.72

To ensure a fair evaluation of analgesic efficacy, all groups were similar in demographic factors and operative duration.

Table 2: Postoperative Pain Scores (VAS) at Different Time Points

Time (hours)	Group A (VAS±SD)	Group B (VAS±SD)	p-value
1	2.5±0.9	4.1±1.1	<0.001
4	2.8±1.0	4.5±1.2	<0.001
8	3.0±0.8	4.2±1.0	<0.001
12	2.7±0.9	3.8±1.1	0.002
24	2.3±0.7	3.0±0.9	0.01

Compared to the opioid-only group, Group A, which received multimodal analgesia, showed significantly lower pain scores at all-time points, suggesting greater control of postoperative pain.

Table 3: Time to First Rescue Analgesia and Total Analgesic Consumption

Parameter	Group A	Group B	p-value
Time to first rescue analgesia (hours)	6.8±1.2	3.5±0.9	<0.001
Total opioid consumption (mg)	25±8	48±12	<0.001

Group A patients confirmed the efficacy of multimodal analgesia by consuming less total opioids postoperatively and having a substantially longer period before needing rescue analgesia.

Table 4: Patient Satisfaction Scores

Satisfaction Score (5-point Likert)	Group A (n)	Group B (n)	p-value
Excellent (5)	18	7	0.002
Very Good (4)	12	15	0.38
Good (3)	5	10	0.05
Fair (2)	0	3	0.08
Poor (1)	0	0	-

Compared to the opioid-only group, patients in the multimodal analgesia group were more satisfied, with a greater number of patients describing their experience as excellent.

Table 5: Postoperative Adverse Events

Adverse Event	Group A (n, %)	Group B (n, %)	p-value
Nausea and vomiting	4 (11.4%)	10 (28.6%)	0.04
Sedation (mild)	3 (8.6%)	5 (14.3%)	0.45
Shivering	2 (5.7%)	3 (8.6%)	0.64
Respiratory depression	0 (0%)	0 (0%)	-

The multimodal analgesia group had a much reduced rate of vomiting and nausea. Sedation and shivering were other minor side effects that were similar across groups; no major problems were noted.

Discussion

Patients undergoing both otolaryngological (ear, nose, and throat) and general surgical procedures (ENT/general surgery) should prioritize postoperative pain management due to the increased likelihood of pain intensity due to the combination of procedures. Negative effects on patient satisfaction, length of hospital stay, opiate intake, and recovery time might result from insufficient pain management. Using 70 patients undergoing these procedures, this study compared the safety and effectiveness of a multimodal analgesic regimen to that of traditional opioid-based analgesia [13-15].

Our findings show that compared to opioid-only analgesia, multimodal analgesia considerably reduces Visual Analog Scale (VAS) scores, indicating better pain control during the entire postoperative period. This result is in line with earlier research that has shown the advantages of multimodal approaches, which involve combining analgesics that work through diverse mechanisms to decrease opioid-related side effects as much as possible while simultaneously achieving additive or synergistic efficacy [16, 17].

The multimodal group experienced greater long-lasting pain relief, as evidenced by a considerably longer delay to first rescue analgesia. Furthermore, this group consumed significantly less opioids overall after surgery, which has important therapeutic implications for lowering opioid-related side effects including vomiting, nausea, drowsiness, and respiratory depression. Additional evidence that minimizing opioid exposure is beneficial is the fact that our study found a markedly reduced occurrence of postoperative nausea and vomiting in the multimodal group [18-20].

More patients in the group that received multimodal analgesia reported a good experience, leading to higher levels of patient satisfaction. This demonstrates the significance of patient-centered outcomes in assessing analgesic treatments, as it represents both better pain control and the overall quality of recovery [21-23]. The safety of multimodal analgesia was confirmed in this patient population, since there were few and comparable side effects such as sedation and shivering. To get the most out of multimodal analgesia while avoiding unwanted interactions and side effects, it's important to pick the right agents and dose them correctly. Opioids, nonsteroidal anti-inflammatory drugs (NSAIDs), and acetaminophen together provide a safe and effective postoperative pain regimen for patients having both ear, nose, and throat (ENT) and general surgery [24-26].

Conclusion

In patients undergoing both otolaryngological and general surgical procedures, multimodal analgesia improves postoperative pain control, decreases opioid use, increases patient satisfaction, and lengthens the time to first rescue analgesia. For the best possible postoperative recovery with the fewest possible opioid side effects, it is a safe, effective, and advised method.

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None

Conflict of Interest

None

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