Research Article

Crystal Journal of Medical Research

Management of Postoperative Pain in the Child in Otorhinolaryngotry

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Cite: Di Ieso T, Matano R, Bosco B. Management of postoperative pain in the child in otorhinolaryngology. Cryst J Med Res. 2025;1(1): 01-04.

Received: May 03, 2025; **Accepted:** June 02, 2025; **Published:** June 16, 2025

Abstract

Background: *Effective intraoperative analgesia is crucial for patients who cannot verbally communicate pain, such as children undergoing adenoidectomy, adenotonsillectomy, and/or tonsillectomy.*

Objective: This study aims to demonstrate that adequate intraoperative analgesia significantly improves postoperative pain management in pediatric patients.

Methods: *We administered Tramadol and/or Xylocaine spray to pediatric patients to reduce pain. Patients were divided into three groups, and pain levels were assessed using the NRS/VAS and WONG-BAKER scales.*

Results: *The group that received both Tramadol and Xylocaine spray demonstrated the most significant reduction in both postoperative pain and agitation.*

Conclusion: *The findings suggest that the combination of topical anesthesia with tramadol is an effective approach for managing pain in young patients, resulting in a statistically significant reduction in pain perception of approximately two points.*

Keywords

Children, Adenotonsillectomy, Otorhinolaryngology, Pain, Wong-Baker, Tramadol

Introduction

Adenoidectomy, adenotonsillectomy, and tonsillectomy are among the most frequently performed surgical procedures globally in Otorhinolaryngology departments. Despite their prevalence, managing postoperative pain in children undergoing these procedures remains a significant challenge. The primary difficulties are associated with several key factors:

1. Children often struggle to adequately communicate their pain or discomfort.
2. Pain management typically relies on the administration of paracetamol and/or ibuprofen syrup or suppositories as needed.
3. Postoperative nausea and vomiting are commonly observed after these types of surgeries.

In contrast, adults undergoing tonsillectomy receive comprehensive and robust analgesic therapy due to the extreme sensitivity of the palate and tonsillar pillar regions, and their ability to clearly communicate their pain. While both NSAIDs and opioid analgesics are routinely used for pain management in adults, there is often apprehension about administering these pharmaceuticals to children for surgeries not considered profoundly painful. Although children may not form explicit memories of pain due to underdeveloped cognitive

processing, studies indicate that unpleasant experiences linked to postoperative procedures can persist in their subconscious. (1)

Given these considerations and the high volume of pediatric Otorhinolaryngology surgeries performed at our hospital, we initiated an observational study to optimize pain modulation in children.

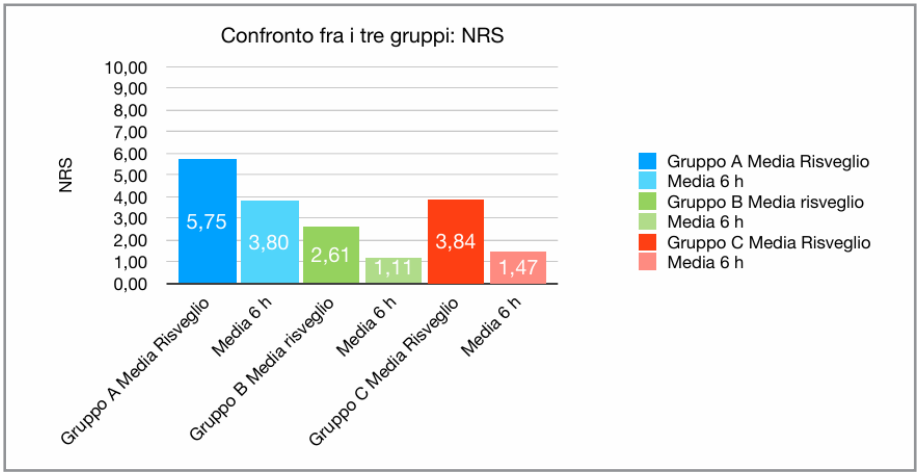
Materials and Methods

This study included all children between 2 and 10 years of age scheduled for adenoidectomy, adenotonsillectomy, and/or tonsillectomy. All patients underwent balanced anesthesia with inhalatory induction using oxygen, nitrous oxide, and sevoflurane. Subsequently, each child received 0.3-0.6 mg/kg of rocuronium and 4 mcg/kg of fentanyl prior to endotracheal intubation. Additionally, all children were administered betamethasone (0.1 mg/kg) and ondansetron (0.1 mg/kg).

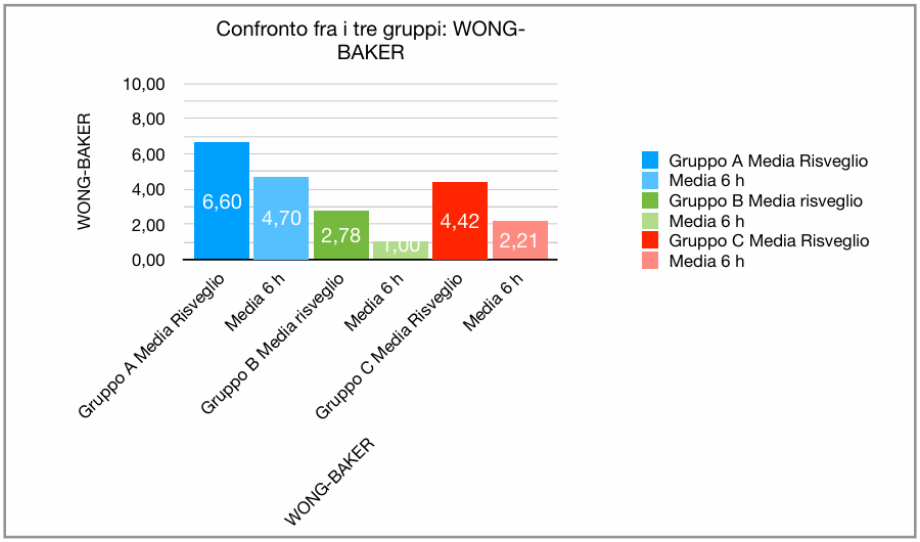
Patients undergoing adenoidectomy and/or adenotonsillectomy were categorized into three distinct groups:

- **GROUP A:** Received 15 mg/kg of paracetamol intraoperatively.
- **GROUP B:** Received 15 mg/kg or 40 mg/kg of paracetamol rectally intraoperatively. In addition, they received 1 mg/kg of Tramadol, and topical anesthesia of the vocal cords, tonsillar pillars, and palate was performed with 10% Xylocaine spray before endotracheal intubation.
- **GROUP C:** Received 15 mg/kg or 40 mg/kg of paracetamol rectally intraoperatively. Furthermore, anesthesia of the vocal cords, tonsillar pillars, and palate with 10% Xylocaine spray was administered before endotracheal intubation. (2)

Post-surgery pain assessment was conducted using the WONG-BAKER scale and the VAS + NPRS scales for children over three years old. For children under three years old, the FLACC scale was also utilized. Pain evaluations were carried out by personnel responsible for transferring children from the operating room to the recovery department, and by department nurses. These evaluators were blinded to the type of analgesic administered when patients entered the department and at six hours post-operatively. All collected data were analyzed using the Fisher test.



Graph 1: It can be observed that the addition of Tramadol and Xiloxaine spray (Group B) significantly reduces pain while the only addition of Xilocaine spray (Group C), while reducing pain compared to Group A, is not as effective as the use of Tramadol.



Graph 2: Even by varying the evaluation scale and using the WRONG-BAKER you can see the best pain management in group B that uses both Tramadol and Xilocaine spray together.

Results

The average age of children in Group A was 5.15 years, 6.5 years in Group B, and 5.53 years in Group C.

Group A (20 children) experienced the highest levels of pain both at awakening and six hours post-awakening. This group also required more rescue doses of Nurofen (5 mg/kg) and reported experiencing retching. The average pain level on the NPRS/VAS scales was 7.75, which subsequently reduced to 3.8, with standard deviations of 0.79 and 1.06, respectively. On the Wong-Baker scale, the average pain levels were 6.6 and 4.7, with standard deviations of 1.14 and 1.17, respectively. Five patients in this group were under three years old; their FLACC scale scores decreased from 9 to 5.4, with standard deviations of 1 to 0.55.

Group B (18 children) reported significantly less pain compared to both Group A and Group C. There were no instances of vomiting or the need for rescue doses of ibuprofen syrup in this group. The average NPRS scale score decreased from 2.61 to 1.11, with standard deviations of 0.78 and 0.68, respectively. On the Wong-Baker scale, pain after waking was 2.78, reducing to 1 six hours post-awakening, with standard deviations of 1.4 and 1.03, respectively. (3)

Group C (19 children) reported more coughing compared to Group B, but this was comparable to Group A. Nausea and vomiting experiences were similar to Group A and slightly higher than Group B, possibly attributable to poorly managed mouth dryness in the absence of Tramadol. Pain on the NPRS scale ranged from 3.84 to 1.47, with standard deviations of 0.69 to 0.51. On the Wong-Baker scale, pain decreased from 4.42 to 2.21, with standard deviations of 1.26 and 1.17, respectively.

Discussion

The use of Tramadol in pediatric patients is often considered controversial due to concerns regarding potential side effects and the risk of inadequate pain management, which could lead to more negative outcomes than benefits. However, our experience, though based on a relatively small sample, yielded positive results concerning both effective pain management and the absence of contraindicating side effects. This challenges the common apprehension, demonstrating that Tramadol can be safely and effectively utilized in pediatric settings for procedures like adenoidectomy/tonsillectomy, even in short, non-invasive surgeries. Our findings suggest that with careful dosage and consideration, the benefits of Tramadol in managing postoperative pain in children can outweigh the perceived risks, especially when combined with other analgesic strategies. (4)

A noteworthy observation, currently supported by sporadic reports from otolaryngologists rather than objective data, was a greater difference in controlling post-adenoidectomy bleeding in certain cases, which led to a lengthening of surgery times by approximately 10-15 minutes. This prolonged bleeding time could potentially be attributed to an effect of Tramadol on platelet aggregation. However, such effects are typically described for much higher dosages than those employed in our study, suggesting further investigation is warranted to fully understand this phenomenon.

Regarding pain management, we observed a distinct improvement in Group B compared to Group A. There was also an improvement when compared to Group C, where the primary pain reported by young patients was coughing and a sore throat, whereas in Group A, it was generalized pain. This highlights the efficacy of the combined approach used in Group B in addressing multiple facets of postoperative discomfort. The reduction in the necessity of NSAIDs and/or Paracetamol post-surgery, along with the ability to limit overall discomfort, further supports the benefit of this combined strategy. (5)

Furthermore, it appears clear that despite the slight extension of adenoidectomy surgery times due to a feasible lengthening of bleeding times (data still requiring verification), the use of Tramadol paradoxically aids in reducing vomiting. For these patients, vomiting is often linked to throat discomfort caused by the surgery, which increases coughing and, consequently, the production of mucus mixed with blood, leading to emesis. By effectively managing throat pain and discomfort, Tramadol appears to mitigate this cascade of events (6).

Conclusion

Based on the data presented, it can be concluded that the use of Tramadol represents a viable and effective solution for managing postoperative pain, even in short and less invasive pediatric surgeries. Moreover, the combination of Tramadol with other analgesic techniques that do not impair the patient's consciousness not only reduces the need for postoperative NSAIDs and/or paracetamol but also significantly limits overall discomfort in young patients. (7) While adenoidectomy surgery times might be slightly extended due to a potential increase in bleeding times (a finding that warrants further verification), the paradoxical benefit of Tramadol in reducing vomiting, which is often a secondary symptom of throat discomfort and coughing, is a significant advantage in improving patient comfort and recovery.

Presentation

This scientific study was conducted to enhance the comfort and pain management of pediatric patients undergoing routine surgeries such as adenoidectomy/tonsillectomy. Currently, various studies in the literature aim to manage pain using local infiltrative methods. However, these methods often yield conflicting results and are not consistently effective in significantly reducing pain. The administration of Tramadol in pediatric patients has historically raised concerns regarding the risk of respiratory depression. Nevertheless, it is established that in pediatric patients, the response to opioids is closely related to both the timing of administration and the dosage.

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