Original Article

A Comparative Study Between Diclofenac Sodium and Diclofenac Sodium-Paracetamol Combination in The Pain Management of Adult Post-Tonsillectomy Patients

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Abstract

Background: *Tonsillectomy is one of the most common surgical procedures performed in adults which is associated with severe postoperative pain. Inadequate analgesia in post tonsillectomy period may result in poor oral intake, dehydration, sleep deprivation. In moderate to severe pain, multimodal analgesia has been used where different type of analgesics are used in combination to get adequate pain relief.*

Objective: *To compare the analgesic efficacy of diclofenac sodium versus diclofenac sodium combined with paracetamol in managing postoperative pain following tonsillectomy in adults.*

Material and Methods: *This prospective study was carried out in 100 patients above 18 years who underwent tonsillectomy from October 2024 to September 2025 in Khwaja Yunus Ali Medical College Hospital. Patients were equally divided into two groups: Group A got Diclofenac (Nopain) alone, while Group B received a combination of Diclofenac (Nopain) and Paracetamol (Napa) as analgesics postoperatively. Both groups got the medication three times daily, with rescue medication (Diclofenac sodium suppository) given as needed. The intensity of pain was measured using a numeric pain rating scale, ranging from 0 to 10, and the mean pain score of each group was calculated at second and ninth postoperative day and the data was analysed and recorded.*

Results: *Among 50 patients in each group, 32 patients were male and 18 were female in Group A, while 27 were male and 23 were female in Group B. Maximum of the patients, which was 26 in Group A and 31 in Group B, were in between 18 to 25 years of age. For both the groups, mean pain score was measured at second and ninth postoperative day. In second postoperative day, the mean pain score of Group A was 5.38 and Group B was 3.98. Z value was 2.74 and P value was < 0.05 which was statistically significant. In ninth postoperative day, the mean score of Group A was 4.54 and Group B was 3. Z value was 2.8 and P value was < 0.05 which was statistically significant. 11 patients in Group A and 5 patients in Group B required diclofenac sodium suppository as a rescue medication for pain relief when the pain was severe.*

Conclusion: *Diclofenac sodium-Paracetamol combination provides better pain relief while reducing the need for higher doses of Diclofenac sodium and their associated risks.*

Key words: *Mean Pain Score, Rescue Medication, Diclofenac Sodium*

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Introduction

The management of post-tonsillectomy pain can be challenging and often inadequate. Tonsillectomy has been identified as one of the most painful surgical procedures, probably because pain remains poorly managed in clinical practice. There are many reasons for undertreating pain after tonsillectomy, including clinicians underestimating the degree of pain associated with tonsillectomy surgery due to the fact that the surgical procedure is considered to be minimally invasive.[1]

Pain is an integral part of the post-tonsillectomy period and is often considered intense and lasting for 7 to 10 days. Inadequate treatment for post-tonsillectomy pain may result in poor oral intake, dehydration, sleep deprivation, behavioral changes and emesis.[2] Opiods play a fundamental role in the management of

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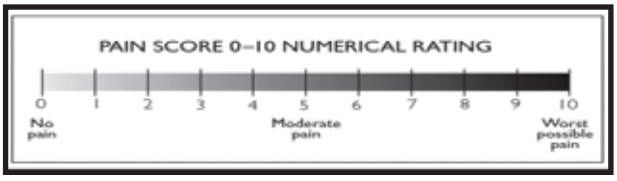
post-tonsillectomy pain control; however their use is associated with a number of side effects, including nausea, vomiting and respiratory depression.[3] Diclofenac sodium are highly effective in the treatment of mild and moderate pain. They decrease the need for opiods, thus reducing the risk of opiod related side effects. Although the mechanism of analgesic action (inhibition of prostaglandin synthesis) is the same for all presently used NSAIDs, analgesic efficacy relative to side effects may vary from agent to agent.[4]

Paracetamol, a commonly used analgesic with a distinct mechanism of action, has been considered as an adjunct to NSAIDs to enhance pain relief while minimizing the risks associated with higher doses of NSAIDs. Combining Paracetamol with diclofenac sodium is hypothesized to provide better pain control than diclofenac sodium alone, potentially reducing the need for rescue medications and improving overall patient outcomes.[5] The aim of this study is to develop a basic analgesic regimen for optimal pain management after tonsillectomy.

Materials and Methods

This prospective, comparative study included 100 patients above 18 years who underwent tonsillectomy from October 2024 to September 2025. Tonsillectomy was performed by electrocautery method. Patients were equally divided into two groups: those receiving diclofenac sodium alone (Group A) and those receiving diclofenac sodium combined with Paracetamol (Group B). Both groups got the medication three times daily, with rescue medication (Diclofenac sodium suppository) given as needed. The intensity of pain was measured using a numeric pain rating scale, ranging from 0 to 10, and the mean pain score of each group was calculated at second and ninth postoperative day and the data was analysed and recorded. Quantitative data was expressed as frequency tables and bar charts. Z value was calculated to find out the significant difference between mean pain score of both groups at second and ninth postoperative day. P value less than 0.05 was considered significant.



Results

Table I: Gender distribution (n=100)

Gender	Group A	Group B
Male	32	27
Female	18	23

Table II: Age distribution (n=100)

Age	Group A	Group B
18 - 25	26	31
26 - 35	17	14
36 - 50	7	5

Table II shows that majority of the patients were between 18 to 25 years of age in both the groups, which was 26 and 31 respectively. 17 patients in Group A and 14 patients in Group B were between 26 to 35 years. Remaining of the patients in each group were between 36 to 50 years.

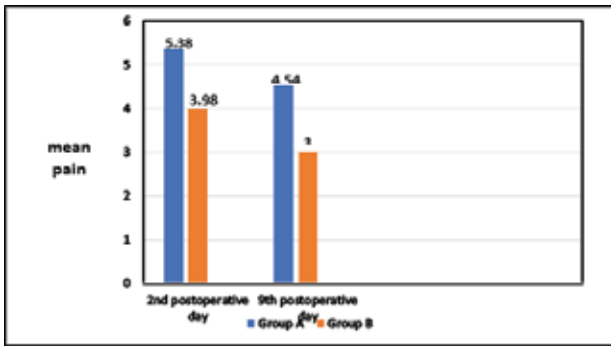


Figure 1: Shows the mean pain score of Group A and Group B at second postoperative day which is 5.38 and 3.98 respectively while at 9th postoperative day the mean pain score of Group A is 4.54 and Group B is 3.

Table III: Comparison of pain outcome at second postoperative day (n=100)

	Mean pain scor	Standard deviation (SD	Z value	P value
Group A	5.38	1.72	2.74	<0.05
Group B	3.98	1.58		

Table IV: Comparison of pain outcome at ninth postoperative day (n=100)

Mean pain score		Standard deviation (SD)	Z value	P value
Group A	4.54	1.58	2.8	<0.05
Group B	3	1.93		

Table IV compares the pain outcome of both groups. Z value was 2.8 and P value was < 0.05 which was statistically significant.

Table V: Number of patients required rescue medication (diclofenac suppository) following tonsillectomy (n=100)

	Group A	Group B
Male	4	2
Female	7	3

Table V shows that 11 patients in Group A and 5 patients in Group B required diclofenac sodium suppository as a rescue medication for pain relief when the pain was severe.

Discussion

This study was carried out on 100 patients, equally divided into two groups, to compare the analgesic efficacy of NSAIDs alone against NSAID combined with paracetamol in managing postoperative pain following tonsillectomy. In this study, 32 patients were male and 18 were female in Group A, while 27 were male and 23 were female in Group B. Maximum of the patients were between 18 to 25 years of age in both the groups. Magdalena et al.[6] showed that 30 were males and 35 were females aged between 14 and 52 years in Group1 and 29 were males and 21 were females with ages between 15 and 52 years in Group 2. All the patients underwent tonsillectomy due to recurrent tonsillitis.

This study demonstrates that combining diclofenac sodium with paracetamol significantly improves postoperative pain control after tonsillectomy combined with diclofenac sodium monotherapy. The superiority was evident both in the early (day 2) and later (day 9) postoperative phases. In second postoperative day, the mean pain score of Group A was 5.38 and Group B was 3.98. Z value was 2.74 and P value was < 0.05 which was statistically significant. In ninth postoperative day, the mean pain score of Group A was 4.54 and Group B was 3. Z value was 2.8 and P value was < 0.05 which was also statistically significant. These findings align with prior studies showing enhanced efficacy of multimodal analgesia regimens.[7,8,9,10] On the contrary, Sahu et al.[11] stated that there was no statistically significant difference in pain score in the two groups on day 1 (p=0.191) but significant difference was noticed in the pain score on day 5 (p=0.002).

Our results also indicate that the need for rescue analgesics was reduced in the combination group. This is clinically important, as minimizing additional NSAID doses lowers the risk of gastrointestinal and renal side effects, and potentially reduces postoperative bleeding.[12] The pharmacological rationale for combining NSAIDs with paracetamol lies in their complementary mechanisms: NSAIDs act peripherally via prostaglandin inhibition, whereas paracetamol exerts central analgesic effects through serotonergic and cannabinoid receptor pathway.[13] This dual action likely accounts for the observed synergistic effect.

However, the study's scope was limited by its single-center design and modest sample size. Pain assessment relied only on subjective scoring without incorporating functional outcomes such as oral intake or quality of life. A multicenter randomized controlled trial would provide more robust evidence.

Conclusion

Combination of analgesics (diclofenac sodium and paracetamol) for pain improvement in patients of post-tonsillectomy appears to be more effective, with less dosage of individual drugs and lesser side effects than single drug therapy. The findings support the routine use of multimodal analgesia, particularly diclofenac sodium-paracetamol combinations, as a safe and effective strategy in postoperative pain management for adult tonsillectomy patients.

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