



Mean Time to the First Request for Analgesia Post-Operatively between Pre-Emptive and Intra-Operative Paracetamol Groups in Cases of Septoplasty: A Comparative Prospective Study

Tahir Hussain Khan, Ashfaq Hussain Rana, Muhammad Farooq, Muhammad Afzal, Mukhtar Ibrahim, Rao Ammar Nasir

¹ENT Surgeon, Department of ENT, Kulsumbai Valika Social Security SITE Hospital, Karachi, Pakistan; ²Assistant Professor, ENT Department, Shahida Islam Medical College, Lodhran, Punjab, India; ³Assistant Professor, ENT Department, Shahida Islam Medical College, Lodhran, Punjab, India; ⁴Assistant Professor, ENT Department, Shahida Islam Medical College, Lodhran, Punjab, India; ⁵Assistant Professor, ENT Department, Indus Medical College, Tando Mohammad Khan, Hyderabad, India; ⁶Senior Registrar, ENT Department, Shahida Islam Medical College, Lodhran, Punjab, India.

ABSTRACT

Introduction: The difficulty of breathing due to nasal blockage is a common grievance in the ENT-based practice. Nearly eighty percent of the people have some grade of deviated nasal septum (DNS). Septoplasty is the choice for the correction of DNS. Septal cartilage provides structural support to the dorsum of the nose; it may have also deviated during the birth of a baby. The acquired septal deviation may occur after trauma in childhood or adult life. Treatment of DNS is septoplasty and it is widely used.

Aim/Objectives: To compare the mean time to the first request for analgesic demand postoperatively in cases of septoplasty by using intravenous paracetamol pre-emptive versus intraoperative.

Methodology: A total of sixty-four patients were included in this study with both genders who had deflected nasal septum. Age ranges between 18 to 40 years. We divided the patients into two groups randomly. Groups A, and Group B i.e., pre-emptive and Intraoperative paracetamol groups. A total of thirty-two patients were in each group. All patients underwent septoplasty under general anaesthesia. In group A, patients received paracetamol 1gm by intravenous route fifteen minutes before the induction of general anaesthesia while in Group B, patients received 1gm I/V paracetamol 1gm. at the end of surgery before extubating the endotracheal tube. Postoperatively, patients were shifted to the post-anaesthesia care unit (PACU) for standard monitoring and observation. Time for the first analgesic demand in minutes was noted by the on-duty resident doctor.

Results: The mean age of patients in the pre-emptive paracetamol group was 29.50 ± 9.50 years and the mean age of the patients in the intraoperative paracetamol group was 30.50 ± 9.50 years and the p-value was 0.819. The meantime for the first analgesic demand in the pre-emptive paracetamol group was 180.97 ± 14.25 minutes and the meantime for the first analgesic demand in the intraoperative paracetamol group was 170.89 ± 14.04 minutes (p-value 0.001).

Conclusion: Substantial difference was noted in the meantime to the request for the first analgesic demand postoperatively in the septoplasty cases between pre-emptive paracetamol versus intraoperative paracetamol. The mean time consumed for the first analgesia is lengthy while using pre-emptive intravenous paracetamol as compared to intraoperative paracetamol.

Key Words: Intraoperative, Postoperative, Pre-emptive, Septoplasty, Time to the first request, Intraoperative paracetamol

INTRODUCTION

The difficulty of breathing due to nasal blockage is a common grievance in the ENT-based practice. Nearly eighty percent of the people have some grade of deviated nasal septum (DNS). Septoplasty is the choice for the correction of DNS. Septal cartilage provides structural support to the dorsum of the nose; it may have also deviated during the birth of a

baby. The acquired septal deviation may occur after trauma in childhood or adult life.¹ Treatment of DNS is septoplasty and it is widely used. According to Van Egmont, et al. septoplasty is more effective compared with non-surgical management for nasal obstructions in adults.² One of the common clinical indications for ENT referral is a nasal airway obstruction (NAO). NAO remains a challenge for clinicians due to discrepancies between subjective and objective find-

Corresponding Author:

Tahir Hussain Khan, ENT Surgeon, Department of ENT, Kulsumbai Valika Social Security SITE Hospital, Karachi, Pakistan.
Email: tahirhussinkhan99@gmail.com

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ings; although examination of the nose (anterior rhinoscopy), peak nasal inspiratory flow, rhinometry and x-rays are available. Sometimes septal deviations are challenging and these produce functional and aesthetic issues for the patients. Conventional septoplasty will improve nasal functions. Extracorporeal septoplasty is a surgical technique for correcting severe deviated nasal septum and also to correct the aesthetic part of the nose.³ Crooked nose causes psychological impacts to the patients. We know that face play important role in social gathering and relations as in meetings it is the first thing the people see. The people with this deformity can be prey to insecurity as well as severe complexes.⁴ Nasal cavity plays very important functions consisting of warming, humidification, and filtering of ventilated air, ciliary clearance, immunologic defence and olfaction.⁵ Acetaminophen (paracetamol) are a very popular non-opioid analgesic drug. I/V uses of paracetamol are increasing after approval from Food and Drug Administration (FDA) for perioperative analgesia.⁶

Post-operative pain and its complications are a major concern to surgeons as well as anaesthesiologists. For perioperative pain management, various methods are employed to facilitate the patients. Optimal pain management can reduce post-operative complications, enhance recovery after surgery, and reduces the length of stay in the hospital.⁷ Inappropriate post-operative pain management is associated with impaired wound healing, delayed gastrointestinal motility, and a higher risk of thromboembolism.⁸ According to recent guidelines, paracetamol is recommended as well-adjusted peri-operative analgesia. Intra-operatively opioids used for pain are associated with some complications. Nowadays acetaminophen is used as an adjuvant analgesic for the control of pain and to reduce opioid-related side effects. Intravenous paracetamol has favourable pharmacokinetics and greater bioavailability.⁹ Pre-emptive analgesia is also recognized as preoperative analgesia. Pre-emptive analgesia is used for reducing and preventing the production of mediators that are responsible for nerve stimulation.⁴ Paracetamol is a non-opioid drug that primarily acts on the central nervous system by the cyclooxygenase pathway.¹⁰ A society of anaesthesiologists (ASA) recommended decreasing or escaping opioid drugs during the operative procedure and for postoperative analgesia.¹¹ The objective of this study was to compare the mean time to request for first analgesia postoperative by using the pre-emptive paracetamol versus intraoperative paracetamol in cases of septoplasty. The hypothesis of this study is that there is statistically no significant difference in time to request for postoperative analgesia between pre-emptive vs intraoperative paracetamol in cases of septoplasty.

Study design: A comparative prospective study

Place and Duration: from July 2019 to December 2020 at social security Landhi Hospital Karachi in the Department of Ear Nose and Throat

METHODOLOGY

The study design was a prospective/comparative study. A total of sixty-four patients were included in this study with both genders who had deflected nasal septum. Ethical approval was taken from the ethical committee of the hospital and written consent was also obtained from patients. Age ranges between 18 to 40 years. We divided the patients into two groups randomly. Group A and Group B i.e., pre-emptive paracetamol group and intraoperative paracetamol group. Thirty-two patients were in each group. Male patients were 40 (62.5%) and female patients were 24 (37.5%). Patients less than 18 years of age and above 40 years, patients who had hypersensitivity to paracetamol, patients receiving analgesic treatment for a prolonged time, and patients who had comorbid e.g., diabetes, renal diseases, hypertensive and chronic liver diseases were excluded from the study. All patients underwent septoplasty under general anaesthesia by a single surgeon. In Group A, patients received pre-emptive paracetamol 1gm intravenous paracetamol fifteen minutes before induction of anaesthesia. In Group B, patients received 1gm of intravenous paracetamol when the surgical procedure was ended.

Postoperatively patients were perceived in the post-anaesthesia care unit (PACU) for standard monitoring. Meantime (in minutes) the first demand for analgesics was noted. Variables were time to first request for analgesia, age, gender, pre-emptive paracetamol, and intraoperative paracetamol. Data was collected on proforma and data analysis was done by SPSS version 23.

RESULTS

The mean age of the patient was 30.60 ± 9.40 years in the pre-emptive paracetamol (Group A), and 29.25 ± 10.75 years in the intraoperative (Group B) group, the p-value was insignificant at 0.819 (As shown in Table 1)

The mean time required for 1st analgesia was 180.97 ± 14.25 minutes in the pre-emptive paracetamol group while it was 170.89 ± 14.04 minutes in the intraoperative paracetamol group, and the p-value was significant at 0.006. (As shown in Table 2) Male patients were 40 (62.5%) and female patients were 24(37.5%). (As shown in Table 3) Male patients were 18 in the intraoperative paracetamol group and 22 in the pre-emptive group while female patients were 10 and 14 respectively. (As shown in Graph 1)

The mean time for the first analgesic demand was compared between the pre-emptive paracetamol group versus the intraoperative paracetamol group, and the p-value <0.006 showed a significant difference among pre-emptive and intraoperative groups, and null hypotheses were rejected.

Table 1: Age of the patients in pre-emptive and postoperative paracetamol group (n=64)

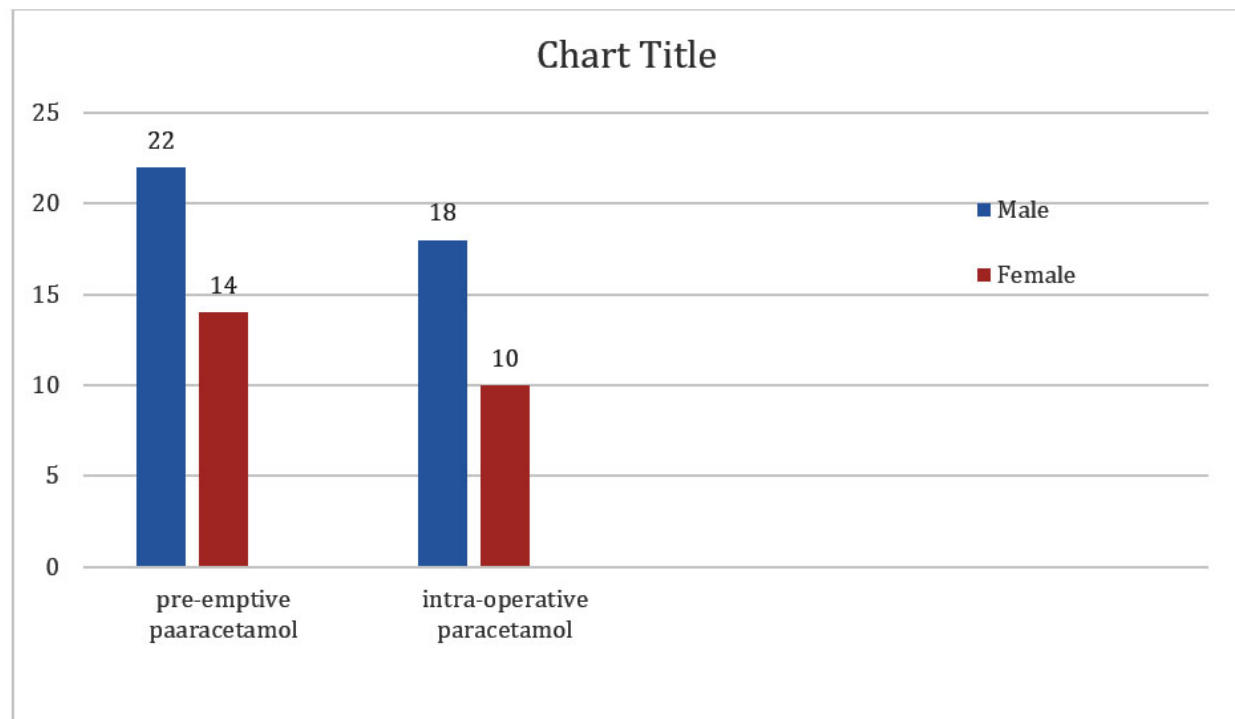
	Group	N	Mean	p-value	95% C.I.
Age (in years)	Pre-emptive paracetamol (Group A).	32	29.50 ± 9.50	0.819	-8.1 to 10.59
	Intraoperative paracetamol (Group B)	32	30.60 ± 9.40		

Table 2: Time required for the first analgesia with respect to group (n=64)

	Groups	N	Mean	p-value	95% C.I.
Mean time for first analgesia (in minutes)	Pre-emptive paracetamol. (Group A)	32	180.97 ± 14.25	0.006	2.95 to 17.21
	Intraoperative paracetamol (Group B)	32	170.89 ± 14.04		

Table 3: Frequencies of males and females.

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	40	62.5	57.8	57.8
Female	24	37.5	42.2	100
Total	64	100.0	100.0	

**Graph 1:** Male and Female distribution in Group A (pre-emptive) and in Group B (intraoperative paracetamol).

DISCUSSION

In our study, mean time required for the first analgesia is 180.97 ± 14.25 minutes in the pre-emptive paracetamol (Group A) while it is 170.89 ± 14.04 minutes in the intra-operative paracetamol (Group B), and the p-value was sig-

nificant 0.006. It was reported in a study that the mean time to first analgesic demand was significantly longer (193.6 minutes) in the pre-emptive paracetamol group compared to the intraoperative paracetamol group (164 minutes), and the p-value was 0.0329.¹²

A study showed the time to first request for the analgesic drug after surgery was significantly greater as compared with the control group (3.6 ± 3.6 versus 2.3 ± 3.1) hours correspondingly, and the p-value was 0.030. This study is correlating with our study.¹³

It was mentioned in a study that the pre-emptive group had a prolonged duration of time for the first analgesic demand i.e. 3.6 ± 3.6 Vs 2.3 ± 3.1 respectively. (3.9 ± 0.3 and 3.3 ± 0.4 Vs 2.8 ± 0.2 and 2.6 ± 0.3), it is also correlating with our study.¹⁴ In a study, it was published that the mean time to the first request for analgesic demand was greater in the pre-emptive paracetamol group as compared with the intra-operative paracetamol group (3.9 ± 0.3 and 3.3 ± 0.4 Vs 2.8 ± 0.2 and 2.6 ± 0.3).¹⁵

A study has proven the efficacy of analgesia as pre-emptive intravenous paracetamol for postoperative pain. The mean time to the first request for analgesic demand in the pre-emptive group was 153.0 ± 110.8 minutes and in the intraoperative group was 91.9 ± 65.1 minutes¹⁶

It was revealed in a study that the first analgesic demand after surgery was 193.6 minutes in the pre-emptive group and 164 minutes in the intraoperative group and the p-value was significant i.e., <0.0329 .¹⁷ The mean time for the first analgesic request in a study was 192.90 ± 8.70 minutes in pre-emptive paracetamol (Group A) and 163.93 ± 13.57 minutes in the intraoperative paracetamol (Group B), and the p-value was 0.001.¹⁸

CONCLUSION

A substantial difference was noted in the meantime to the request for the first analgesic demand postoperatively in the septoplasty cases between pre-emptive paracetamol versus intraoperative paracetamol. The mean time consumed for the first analgesia is lengthy while using pre-emptive intravenous paracetamol as compared to intraoperative paracetamol.

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Conflict of interest

None

Approval

It was taken from the ethical review committee of the institute.

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