

ORIGINAL ARTICLE

Evaluation of Perioperative Pain Treatment of Tonsillectomy Patients Using Prospect Recommendations in Tertiary HospitalsGUL E NAZISH¹, ARSHADULLAH AFRIDI², ASMA INAM³, MANIHA SANAWAR⁴, MAHREEN AKHTAR⁵, WALEED ARSHAD¹¹*Amna inayat medical college*²*Shalamar institute of Health sciences*³*Azra Naheed Medical College, Superior University*⁴*Sheikh Zyed Medical College and Hospital Rahim Yar Khan*⁵*University of Health Science, Lahore*Corresponding author: Arshadullah Afridi, Email: Arshadullahafriidi@yahoo.com, Cell: 0321 9060676**ABSTRACT****Introduction:** Tonsillectomy is a painful surgical procedure accompanied by moderate to severe pain several days after surgery. Despite the often severe pain after tonsillectomy, under-treatment of pain has been consistently reported. The cause of this under-treatment is inadequate education of health care professionals regarding pain management.**Objectives:** The aim of this study was to assess perioperative pain treatment given to tonsillectomy patients in otorhinolaryngology departments of tertiary care Hospitals using Procedure specific post-operative pain management (PROSPECT) guidelines for tonsillectomy.**Methodology:** It was an observational study with prospective data inclusion. A questionnaire was designed and filled by investigators on three different occasions (pre-operative, intra-operative and post-operative). Questionnaire was comprised of Patient's demographic details, surgical indication, surgical technique used, post-operative complications and details of analgesics used during pre-operative, intra-operative and post-operative settings.**Results:** NSAIDs (Ibuprofen, ketorolac, Flurbiprofen) were predominantly used class for perioperative analgesia alone or in combination with each other among tonsillectomy patients. Dexamethasone injection was given intra-operatively to 97% of the patient regardless of age. Nelbuphin an opioid analgesic was used only in 7% of the patients intra-operatively.**Conclusion:** Current study indicates that perioperative pain management for tonsillectomy in two tertiary care hospitals of Punjab was in conformity with PROSPECT guidelines for tonsillectomy patients. Patients were given standard pain treatment. However, study needs a further evaluation with larger data from different hospitals.**Keywords:** PROSPECT, Analgesic, Tonsillectomy, NSAIDS, Opioids**INTRODUCTION**

Tonsillectomy is a common surgical procedure performed on routine basis especially in children. Procedure involves complete removal of tonsils including capsule¹. The usual indications of tonsillectomy are recurrent infections, sleep apnea and obstructive sleep related breathing disorders². Several surgical techniques for tonsillectomy are in common clinical practice. Those techniques are divided into hot and cold procedures. Hot methods are electrocautery, laser, coblation and radio-frequency. Cold procedures include dissection, guillotine, partial tonsillectomy with microdebrider, harmonic scalpel, and plasma mediated ablation and cryosurgery. However, regardless of the technique used, tonsillectomy is a painful surgical procedure accompanied by moderate to severe pain several days after surgery³. Despite often severe pain after tonsillectomy under-treatment has been consistently reported. This insufficient treatment of pain given by health care providers and sometimes by surgeons is recognized due to inadequate education regarding pain management protocols⁴.

According to clinical guidelines recommended by Academy of Otolaryngology-Head & Neck Surgery various medications have been used extensively for perioperative (pre-operative, intra-operative, post-operative) pain management⁵.

Pre-operative analgesia is another important concept for development of postoperative

analgesic strategies. It is defined as an intervention done before surgical incision to modulate the central sensitization of nociceptors and to control the amplification of pain stimuli after surgery. It helps in reducing postoperative pain and consumption of analgesics⁶. Prevention and relieve of post-operative pain is a key responsibility of health care providers. Intensity and duration of pain after surgery can increase the chances for the development of chronic pain or neuropathic pain⁷.

The PROSPECT (procedure specific post-operative pain management) Working Group is a collaboration of anesthetists and surgeons working to make procedure specific recommendations for pain management after painful surgical procedures. The recommendations are established on the basis of procedure-

specific systematic review of randomized controlled clinical trials, clinical practice evidences, efficacy and adverse effects of analgesic techniques.

Current PROSPECT recommendations for tonsillectomy are:

1. Basic analgesic regimen should include paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs) administered pre-operatively or intraoperatively and continued postoperatively.
2. Single dose of intravenous (i.v.) dexamethasone is recommended for its analgesic and anti-emetic effects.
3. Pre-operative gabapentinoids, intra-operative ketamine (only in children) and dexmedetomidine are recommended in patients with contra-indications to the basic analgesic regimen
4. Analgesic adjuncts such as intra-operative and postoperative acupuncture and postoperative honey are recommended.
5. Opioids should be reserved as rescue analgesics in the postoperative period⁸.

Analgesics currently used in common otorhinolaryngology practice are acetaminophen, NSAIDS, opioids, corticosteroids, clonidine, gabapentin, IV Ketamine etc as per literature review. These drugs are used as single agent or as adjunct to pain management protocol as a part of multimodal analgesia⁹.

The aim of the current study was to assess the pain treatment protocols given in the ENT settings at or around tonsillectomy procedure by using PROSPECT guidelines as a standard. Our main objective was to identify the mistakes related to inadequate pain management in order to minimize the risks of hazardous consequences and treatment failure.

METHODOLOGY

It was an observational study with prospective data inclusion based on data obtained from Shalamar teaching Hospital and Rahim Yar Khan teaching hospital between a time periods of May 2021 to July 2022. A questionnaire was designed and filled on three different occasions¹⁰. One part was filled by team investigators pre-operatively while a second part was filled intra-operatively. 3rd part was filled post-operatively. Questionnaire was comprised of Patient's demographic details, surgical indication,

surgical technique used, post-operative complications and details of analgesics used during pre-operative, intra-operative and post-operative settings. Data was collected with the consent of patients. Study was approved by ethical review board of Shalamar institute of health sciences.

A total of 244 patients were included in the study. Patients were within age range of 3-25 years. 75% of the patients were females and 25% were males. Mean age was 20 years. Patients were admitted to hospital for surgery with the indications of chronic tonsillitis, recurrent infections and enlarged tonsils in accordance to AAOHNS guidelines². Patients with acid peptic disease, bleeding disorders, renal impairment and history of drug allergy were not included. Patients with history of steroid use were also excluded from study. Tonsillectomies were performed with cold dissection method. Bipolar cautery and suture methods were used for hemostasis. Descriptive analysis of the data was performed. Frequency of distribution and column statistics was calculated with the help of Graph pad prim VI.

RESULTS:

Pre-operative analgesia: Out of total 244 patients 43% of the patients were prescribed ibuprofen as a single analgesic. 14% were prescribed ketorolac injections. 7% were prescribed ibuprofen + acetaminophen. 36% were prescribed flurbiprofen alone. Analgesics were given in the form of syrups, injections and tablets.

Intra operative analgesia: 54% of the patients were given ketorolac IV. 36% were given ketorolac and acetaminophen IV. 7% were given ketorolac + nelbuphine IV. 97% of the patients were given IV dexamethasone intra-operative regardless of age.

Post-operative analgesia: 33% of the patients were prescribed ketorolac IV in combination with oral ibuprofen. 34% were prescribed with oral ibuprofen alone, 33 % were prescribed with flurbiprofen oral with ketorolac IV.

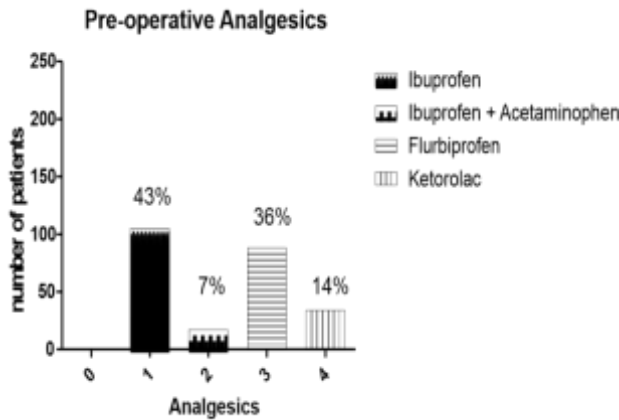


Figure 1:

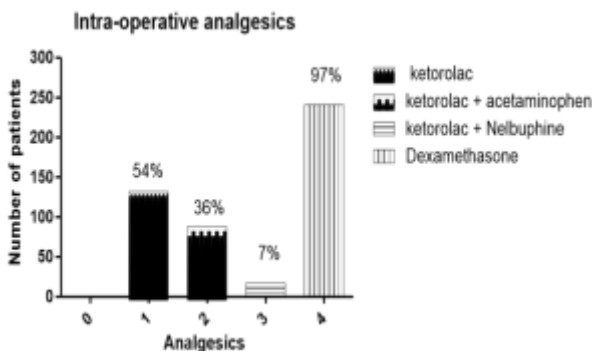


Figure 2:

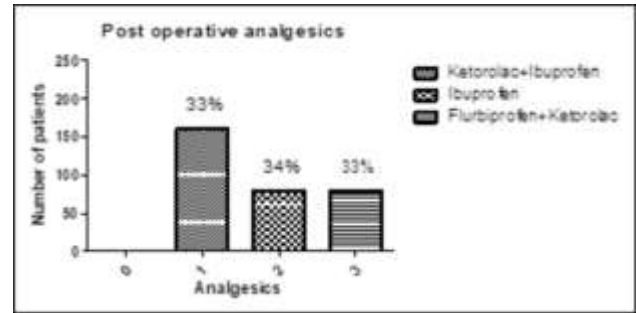


Figure 3:

Table 1: Patient Demographics

Number of patients	Male	Female	Age range	Mean age
244	25%	75%	3-25	20

Table 2: shows % of the tonsillectomy patients prescribed analgesics as single agent or in combinations in all preoperative, intra operative and post-operative settings.

Parameters	Ketorolac+ Flurbiprofen	Ibuprofen	Ketorolac + Ibuprofen
Analgesic intake days	5±0.67	9±2.8	5±0.69
Regular food intake days	4±1.6	9± 5.9	4±2.0
Complications	0%	36 %	0 %

Table 2 shows follow up status. Ibuprofen group have long analgesia duration, late restoration on regular food intake and bleeding was reported to hospital post surgically.

DISCUSSION

Health professionals are mainly responsible for identifying individuals who could benefit from pain medications, both in the emergency department and in the postoperative setting. Appropriate use of these medications can provide an immense relief to patients with better treatment outcomes.

In this study three classes of analgesics (NSAIDs, opioids, acetaminophen) were used for management of pain among tonsillectomy patients. IV Dexamethasone though an anti-inflammatory agent has been known to reduce post-operative analgesic consumption was also extensively used intra-operatively¹¹. Dexamethasone IV intra-operatively for tonsillectomy patients is recommended in PROSPECT guidelines for tonsillectomy.

Among all three classes of analgesics NSAIDs were more frequently prescribed drugs by ENT surgeons as single agent or in combination with other analgesics. NSAIDs are currently used as first line agents in pain management and are commonly prescribed nowadays. Although more than 20 different kinds of NSAIDs are commercially available. The choice of the drug depends upon various factors like risk of bleeding, hepatic or renal impairments and drug induced allergies. Another factor is the response to different NSAIDs varies between patients. The exact mechanisms for these variations are not completely understood till date¹². However, according to Prospect recommendations use of NSAIDs as First line agents among tonsillectomy patients is clearly indicated⁹.

In this study ibuprofen was most frequently used pre-operatively. 43 % as a single agent and 7% in combination with acetaminophen. Ibuprofen belongs to NSAIDs class of analgesics. It is (2RS)-1[4-(2-methyl propyl) phenyl] propionic acid. It was introduced in 1969. Role of ibuprofen as analgesic in pre-operative and post-operative settings has been well documented in literature^{13, 14, 15}.

Second most commonly prescribed analgesic in pre-operative setting was Flurbiprofen 36% while 33% to the post-operative patients. It is another NSAID, a mixed cyclo-oxygenase

(COX)-1/COX-2 inhibitor with some selectivity towards COX-1¹⁶. Flubiprofen has also been well known great pre-emptive analgesic in adults¹⁷. However, its use in children especially under 12 is not safe and it can result in harmful consequences¹⁸.

Ketorolac an NSAID is known to be used as a part of multimodal analgesia¹⁹. In this study Ketorolac was used intra-operatively to 54 % of patients in combination with dexamethasone. 43% was used in combined with acetaminophen and nelbuphine and dexamethasone. Researches have proved effectiveness of ketorolac (NSAID) equal to that of opioids. Ketorolac has potential benefits of decreasing opioid requirement and lowers the incidence of adverse effects²⁰. Ketorolac is as effective as major opioid analgesics in children as well. Use of ketorolac in children is safe with minimum risk of bleeding and renal dysfunction²¹. However, availability of data on safety profile of ketorolac is minimum.

Nelbuphine an opioid was used only in 7% of patients in combination with ketorolac intra-operatively. Opioids have been widely used for moderate to severe pain and chronic pain. These drugs have been used extensively intra-operatively and post operatively to control pain²². With the passage of time use of opioids have been limited due to their potential adverse effects in terms of addiction, behavioral changes and tolerance²³. In this study no opioid was used in post-operative settings as PROSPECT guidelines specify opioids analgesics for rescue use only⁸. Opioids nowadays have been replaced by NSAIDs. Many clinical trials proved efficacy of NSAIDs not less than opioids in post-operative tonsillectomy patients²⁴.

CONCLUSION

We found that NSAIDs were extensively used for patients undergoing tonsillectomy as perioperative pain management agents. Dexamethasone was utilized intra-operatively while use of opioid was limited. Current study indicates that pain management for tonsillectomy patients is in conformity with PROSPECT guidelines and is standardized in two tertiary care hospitals of the Punjab. However, study needs a further evaluation with huge data from different hospitals.

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