Bulletin of Environment, Pharmacology and Life Sciences
Bull. Env. Pharmacol. Life Sci., Vol 9[8] July 2020 : 100-105

Online ISSN 2277-1808
Journal's URL:http://www.bepls.com
CODEN: BEPLAD
Global Impact Factor 0.876
Universal Impact Factor 0.9804
NAAS Rating 4.95

ORIGINAL ARTICLE **OPEN ACCESS**

Frequency of Post Tonsil Hemorrhage (PTH) in Patients with Pre-Operative Use of Analgesic (NSAIDs)

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ABSTRACT

Tonsillectomy is one of the most common surgical procedure with significant morbidity and mortality among otolaryngology practice now days. After tonsillectomy morbidity includes bleeding, pain, dehydration, nausea and vomiting. Most life-threating complications include post-tonsillectomy bleeding or hemorrhage. The aim of this study was to find out the frequency of Post Tonsil Hemorrhage among those who were on Pre-operative analgesic (NSIADs). A descriptive cross-sectional study was conducted on 192 patients in Mardan Medical Complex hospital, Pakistan (MMC) presented for elective tonsillectomy procedure during April 2018 to September 2018. In total 192 patients 186 (96.9%) were stable with no post tonsil hemorrhage and 06 (3.1%) patients were presented with post tonsil hemorrhage. Out of total 109 (56.8%) were males and 83 (43.2%) were females. There were no deaths or major complications reported in this study. The pre-operative uses of NSADs in patients scheduled for tonsillectomy have low risk of Post tonsillectomy Hemorrhage. We didn't have any case of immediate PTH. These results show that Post Tonsillectomy Hemorrhage in MMC remain within acceptable limits according to the previous literature. There is no evidence to support with holding pre-operative uses of NSAIDs in tonsillectomy procedures.

Keywords: Post Tonsillectomy Hemorrhage, Non-Steroid Anti-Inflammatory Drugs, Anesthesia.

Received 14.05.2020 Revised 11.06.2020 Accepted 11.07.2020

INTRODUCTION

Tonsillectomy is one of the most common surgical procedure with significant morbidity and mortality among otolaryngology practice now days[1]. After tonsillectomy morbidity includes bleeding, pain, dehydration, nausea and vomiting. Most life-threating complications include post-tonsillectomy bleeding or hemorrhage[2]. Nowadays tonsillectomy is considered a small procedure and commonly done on an outpatient basis which is associated with severe postoperative pain [3]. Post tonsillectomy bleeding (PTB) can be life threating. And in United States has reported incidence of upto 4500 per year. With a reoperation rate of 1% to 5.5% under general anesthesia [4]. Incidence of post-tonsillectomy bleeding varies from 1.5% to 5% with secondary bleeding (>24hours) is more common than primary bleeding (<24hours)[5,6]. NSAIDs are popular for their analgesic and antipyretic effect among different surgical procedure[7,8]. Increase in demand for out-patient tonsillectomy decree for postoperative adequate analgesia without adding any other co-morbidities. Narcotics have extensively been used for postoperative pain management [9]. Some studies suggest that ketorolac tromethamine have more tendency to bleed compared with other NSAIDs these statement regard NSAID and Bleeding under conflict [7,10]. A study demonstrates that even ketorolac given after tonsillectomy, it increases the incidence of post tonsillectomy hemorrhage (PTH) and bleeding episodes in the first 24 h after surgery. however, ketorolac decreased the number of episodes of emesis after Post anesthesia care unit (PACU) discharge[11].As narcotic is a potent pain reliever but hasan undesirable effect such as respiratory depression, sedation, emesis, pruritis and constipation. Nonsteroidal anti-inflammatory drugs (NASID)

are an attractive alternative to opioids for post-tonsillectomy pain management[12].A study revealed that ibuprofen is not contraindicated in tonsillectomy and should be consider for postoperative pain management [13]. Understood mechanism behind NSAIDs inhibit the function of platelets and this property may limit their use in patients who are prone to postoperative hemorrhage. There is spare literature on the risk of postoperative bleeding related to NSAIDs uses perioperative. The evidence for a causative association is very untenable. The deleterious effect remains unknown[14].

The incidence of post-tonsillectomy hemorrhage is severe enough to require treatment ranges from (2–10%) and reoperation for hemostasis or recovery ranges from (1-5.5%.)[4]. Contributing factor which leads to postoperative bleeding, includes unusual surgical indications, abnormal preoperative bleeding identified by questionnaire, high postoperative blood pressure, and Sluder technique [15]. The use of Pre-operative NSAID therapy in prospective studies increased intraoperative blood loss up to 70–80% in children undergoing tonsillectomy, requiring additional hemostatic treatment to stop hemorrhage[16]. A study indicate that the use of ketorolac is no concerned with increase the incidence of (PTB) and with decrease in the length of hospital stay[17].

The adverse effect on the central nervous system limits the use of narcotics compared with NSAIDs. Although NSAIDs inhibit the function of cyclooxygenase (COX) and influence the synthesis of prostaglandin. However, NSAIDs therapy come with increase in bleeding time and inhibit platelet aggregation. The clinical implication of NSAIDs inhibition of platelet aggregation is still unclear [2].

The aim of this is to find the frequency of postoperative tonsillectomy bleeding with preoperative uses of NSAIDs. As in clinical setting, we have chosen the tonsillectomy because of two reasons first one is postoperative bleeding is a serious complication after tonsillectomy and second because tonsillectomy is a very common procedure, so we were interested in to evaluate risk-benefit ration of NSAID therapy in preoperative tonsillectomy

MATERIAL AND METHODS

This descriptive cross-sectional study was conducted in operation theater, Mardan Medical Complex, Pakistan from April to September 2018. Research Participants we rescheduled for tonsillectomy in Mardan medical complex hospital (MMC). All Participants who received pre-operative NSAID were observed for postoperative hemorrhage. A total of 192 patients' history was recoded who underwent for tonsillectomy and received preoperative NSAID. Patient with incomplete record and who haven't received NSAIDs were excluded. This study was conducted after approval from hospitals ethical and research committee.

After all patients meets the inclusion criteria (i.e. patients premedicated with NSAIDs presented for elective tonsillectomy) was selected in the study from ward. Informed consent was obtained from patients. All the enrolled patients were scrutinized with detailed history and clinical examination including anesthesia fitness. The past medical records will also be carefully checked in consultation with the referring surgeon. This was done to control confounders and possible bias in the study results. All the patients were followed and examined to find the post-operative hemorrhage. Strictly exclusion criteria were followed to control confounders and bias in the study results.

All the data will be put and analyzed in SPSS version 22.0. Mean $\pm$ SD was calculated for quantitative variables. Frequency and percentages were calculated for categorical variables.

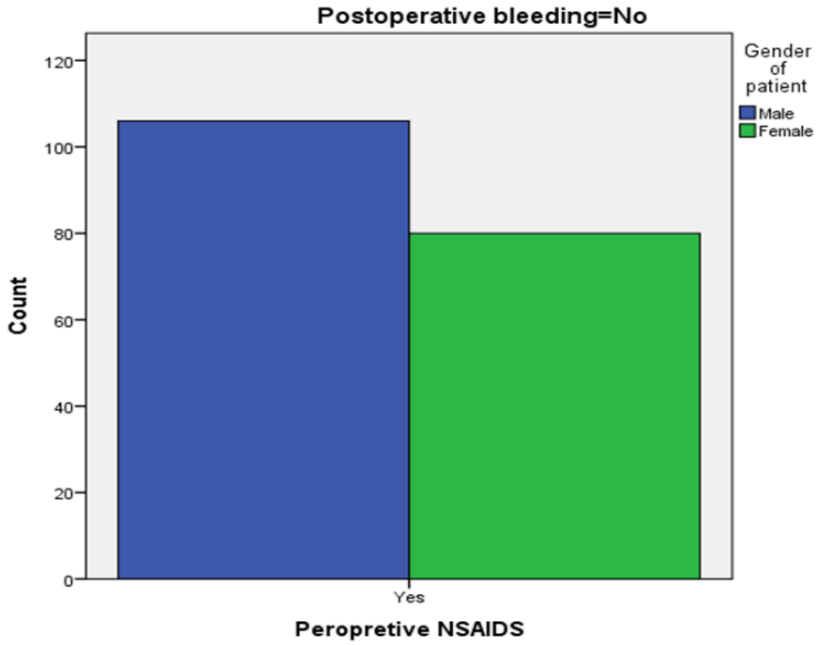
RESULT

Data from 192 patients was analyzed. Out of total 109 (56.8%)were males and 83(43.2%) were females. All participatent received preoperative NSAIDs and we found 6 patients (3.1%) of post tonsil bleeding and in 192 of total 186 (96.9%)were stable . The detail of patients summarized in Table 1.

Table 1: Frequency of postoperative hemorrhage among Participants

Distribution of postoperative bleeding among Participants					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	6	3.1	3.1	3.1
	No	186	96.9	96.9	100.0
	Total	192	100.0	100.0	

Fig 1: The data shows the distribution of no post-operative bleeding among male and female who were presented for preoperative NSAIDs. Majority of positive



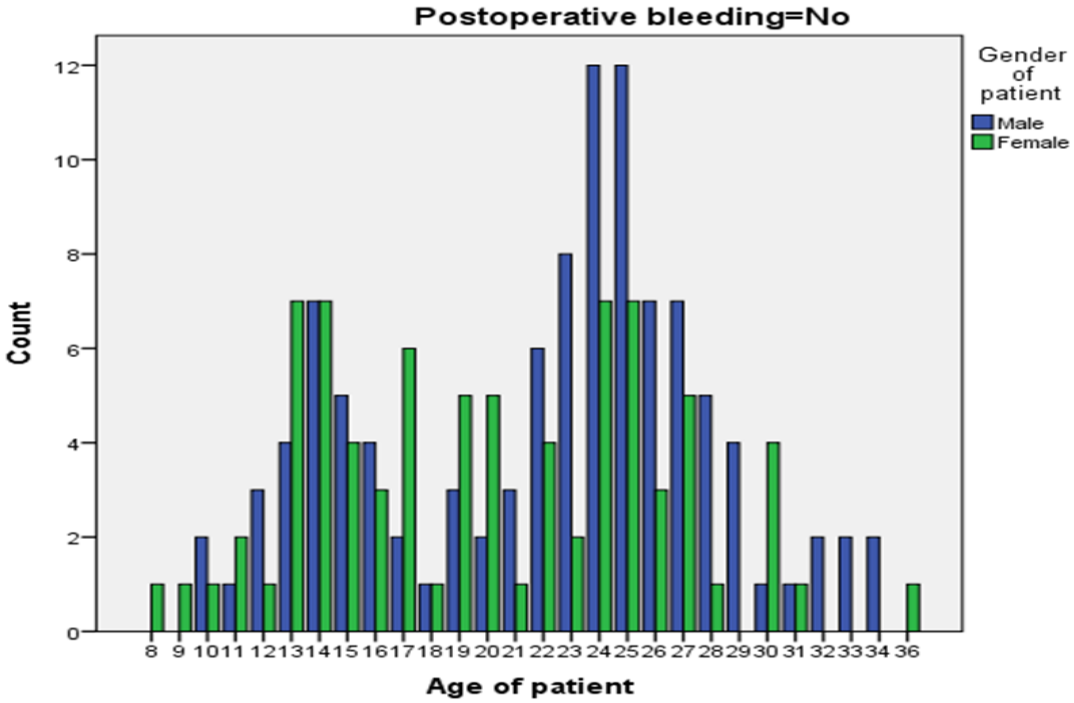
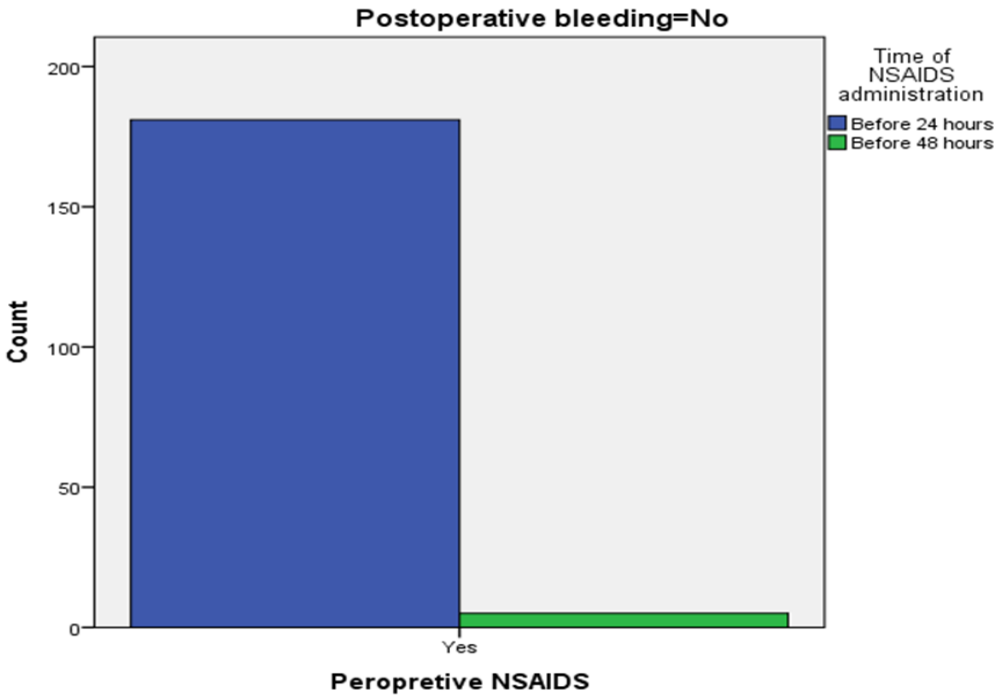


Fig 2: Distribution of cases according to different age (8-36 years) and gender. Majority of cases likes in (23-28 years) which are males.

Fig 3: This graphical presentation show time of NSAIDs administration. Blue one represents 24 hours before tonsillectomy while green one represents the 48 hours before operation.



DISCUSSION

Tonsillectomy is considered a very common and long practiced procedure among children. Among different complication hemorrhage is consider more common complication with estimated of (2-3%) after tonsillectomy(18). Primary bleeding mostly related to surgical technique while secondary bleeding due to many causes. NSAID are considered more effective in postoperative pain management compared to opioids (19). To find out the frequency of post tonsillectomy hemorrhage (PTH) in patient premedicated with NSAIDs. A total sample size of 192 was selected out of which 109 (56.8%)were males and 83(43.2%) were females. Six patients (6/192) (3.1%) cases came with post tonsillectomy hemorrhage were reported which is nearly similar with a study conducted in USA(20). Whereas comparatively low percentage had been reported in Finland by(21).

A study revealed that ketorolac (NSAID) use are not associated with increases in hemorrhage in children presented for neurosurgery (22). In adenotonsillectomy NSAID is more effective postoperative pain management (23). Perioperative use of NSAID increase 4 fold the risk of Post tonsillectomy compared with use of narcotic (24). A study conclude that there is insufficient evidence related the use of NSAID and post tonsillectomy bleeding in patient who underwent for tonsillectomy procedures (25).

There always a controversy with pre-operative use of NSAID in children scheduled for tonsillectomy. There is no role of NSAID in post tonsillectomy hemorrhage (26). The author closed up with the pre-operative use of NSAID in tonsillectomy is reluctant to schedule for reoperation due to increase in hemorrhage(27). Compared Meperidine group (7%) with NSAID (19%) post tonsillectomy hemorrhage difference is not statistically significant(28).Pre-operative use of NSAIDs is not associated with any increase risk of bleeding requiring surgical hemostasis (25). Ketoprofen consider safe in children schedule for tonsillectomy and adenoidectomy without any risk of post tonsillectomy hemorrhage (29). A review study reported incidence of PTH with (1.93%) (30).

Several literatures reported that selectively selective COX-2 inhibitors are safe in pre-operatively uses. There is no significant risk of Post-operative hemorrhage(31). Few studies revealed that use of aspirin pre-operatively have increased risk of Post-operative hemorrhage than non-aspirin NSAIDs (32). Pre-operative infusion of Ketorolac (NSAIDs) provide a superior postoperative analgesia and satisfactory effect in PTH in children presented for tonsillectomy(33). In 2013, a 36 Randomized control trail updated systematic review and meta-analysis was conducted and they concluded that NSAIDs are considered safe for patients scheduled for tonsillectomy(34). There is less risk of post-operative hemorrhage in patients scheduled for tonsillectomy who were on NSAIDs pre-operatively.

CONCLUSION

In conclusion, tonsillectomy is common procedure among otolaryngology practice. The pre-operative uses of NSADs in patients scheduled for tonsillectomy have low risk of Post tonsillectomy Hemorrhage. We didn't have any case of immediate PTH. In our study we have come across with 6 patients (3.1%) of Post tonsillectomy hemorrhage and (96.9%) show no sign and symptoms. There is no evidence to support with holding pre-operative uses of NSAIDs in tonsillectomy procedures.

ACKNOWLEDGEMENT

None

CONFLICT OF INTEREST

Authors have no Conflict of Interest.

REFERENCES

1. Lauder G, Emmott A. Confronting the challenges of effective pain management in children following tonsillectomy. Int J Pediatr Otorhinolaryngol. 2014 Nov 1;78(11):1813–27.
2. Krishna S, Hughes LF, Lin SY. Postoperative Hemorrhage With Nonsteroidal Anti-inflammatory Drug Use After Tonsillectomy: A Meta-analysis. Arch Otolaryngol Neck Surg [Internet]. 2003 Oct 1;129(10):1086–9. Available from: https://doi.org/10.1001/archotol.129.10.1086
3. Wei JL, Beatty CW, Gustafson RO. Evaluation of posttonsillectomy hemorrhage and risk factors. Otolaryngol - Head Neck Surg. 2000 Sep 1;123(3):229–35.
4. Gvozdenović L, Dolinaj V, Ilić B, Vojnović M. Effects of postoperative, nonsteroidal, antiinflammatory drugs on bleeding risk after ortopedic surgery. Eur Rev Med Pharmacol Sci. 2014;18(16):2241–2.
5. Tami TA, Parker GS, Taylor RE. Post-Tonsillectomy bleeding: An evaluation of risk factors. Laryngoscope [Internet]. 1987 Nov 1 [cited 2020 May 14];97(11):1307–11. Available from: http://doi.wiley.com/10.1288/00005537-198711000-00011
6. CARITHERS JS, GEBHART DE, WILLIAMS JA. POSTOPERATIVE RISKS OF PEDIATRIC TONSIL LOADENOIDECTOMY. Laryngoscope [Internet]. 1987 Apr 1 [cited 2020 May 14];97(4):422???429. Available from: http://doi.wiley.com/10.1288/00005537-198704000-00004
7. Charles CS St., Matt BH, Hamilton MM, Katz BP. A comparison of ibuprofen versus acetaminophen with codeine in the young tonsillectomy patient: http://dx.doi.org/101016/S0194-59989770211-0. 2016 May 17;
8. Watch MF, Jones MB, Lagueruela RG, Schweiger C, White PF. comparsion of ketorolac and morphine as adjuvants during pediatric surgery. Anesthesiology. 1995;31(4):305–9.
9. Forrest JB, Heitlinger EL, Revell S. Ketorolac for postoperative pain management in children. Drug Saf. 1997 Oct 14;16(5):309–29.
10. Harley EH, Dattolo RA. Ibuprofen for tonsillectomy pain in children: Efficacy and complications. Otolaryngol - Head Neck Surg [Internet]. 1998 Nov 17 [cited 2020 May 14];119(5):492–6. Available from: http://journals.sagepub.com/doi/10.1016/S0194-5998%2898%2970107-X
11. Lowe EE, Iii CMM, Willging JP. Recovery and Complications After Tonsillectomy in Children: A Comparison of Ketorolac and Morphine. Anesth Analg. 1995;81(6):1136–41.
12. Benzon H, Hansen J, Shah R. Management of pediatric tonsillectomy pain: a review of the literature. Ambul Anesth. 2016 May 12;3:23.
13. Jeyakumar A, Brickman TM, Williamson ME, Hirose K, Krakovitz P, Whittemore K, et al. Nonsteroidal anti-inflammatory drugs and postoperative bleeding following adenotonsillectomy in pediatric patients. Arch Otolaryngol - Head Neck Surg. 2008;134(1):24–7.
14. Møiniche S, Rømsing J, Dahl JB, Tramèr MR. Nonsteroidal antiinflammatory drugs and the risk of operative site bleeding after tonsillectomy: A quantitative systematic review. Anesth Analg. 2003;96(1):68–77.
15. Tomkinson A, Harrison W, Owens D, Harris S, McClure V, Temple M. Risk factors for postoperative hemorrhage following tonsillectomy. Laryngoscope. 2011 Feb;121(2):279–88.
16. Judkins JH, Dray TG, Hubbell RN. Intraoperative ketorolac and posttonsillectomy bleeding. Arch Otolaryngol - Head Neck Surg. 1996 Sep 1;122(9):937–40.
17. Agrawal A, Gerson CR, Seligman I, Dsida RM. Postoperative hemorrhage after tonsillectomy: Use of ketorolac tromethamine. Otolaryngol - Head Neck Surg [Internet]. 1999 Mar 17 [cited 2020 May 14];120(3):335–9. Available from: http://journals.sagepub.com/doi/10.1016/S0194-5998%2899%2970271-8
18. Rakover Y, Almog R, Rosen G. The risk of postoperative haemorrhage in tonsillectomy as an outpatient procedure in children. Int J Pediatr Otorhinolaryngol. 1997 Jul 18;41(1):29–36.
19. Govindarajan R, Ghosh B, Sathyamoorthy MK, Kodali NS, Raza A, Aronsohn J, et al. Efficacy of ketorolac in lieu of narcotics in the operative management of laparoscopic surgery for morbid obesity. Surg Obes Relat Dis. 2005 Nov 1;1(6):530–5.
20. Agrawal A, Gerson CR, Seligman I, Dsida RM. Postoperative hemorrhage after tonsillectomy: Use of ketorolac tromethamine. Otolaryngol - Head Neck Surg. 1999;120(3):335–9.
21. Salnon A, Kokki H, Tuovinen K. I.V. ketoprofen for analgesia after tonsillectomy: comparison of pre- and post-operative administration | BJA: British Journal of Anaesthesia | Oxford Academic. Br J Anaesth [Internet]. 2001 [cited 2020 May 14];86(3):377–81. Available from: https://academic.oup.com/bja/article

/86/3/377/298801#91212264
22. Tuncer F, Knackstedt R, Murthy A, Patel N. Postoperative Ketorolac Administration Is Not Associated with Hemorrhage in Cranial Vault Remodeling for Craniosynostosis. Plast Reconstr Surg - Glob Open. 2019;7(8).
23. Eladi IA, Mourad KH, Youssef AN, Abdelrazek AA, Ramadan MA. Efficacy and safety of intravenous ketorolac versus nalbuphine in relieving postoperative pain after tonsillectomy in children. Open Access Maced J Med Sci. 2019 Apr 15;7(7):1082–6.
24. Gallagher JE, Blauth J, Fornadely JA. Perioperative ketorolac tromethamine and postoperative hemorrhage in cases of tonsillectomy and adenoidectomy. Laryngoscope. 1995;105(6):606–9.
25. Lewis SR, Nicholson A, Cardwell ME, Siviter G, Smith AF. Nonsteroidal anti-inflammatory drugs and perioperative bleeding in paediatric tonsillectomy. Vol. 2013, Cochrane Database of Systematic Reviews. John Wiley and Sons Ltd; 2013.
26. Litalien C, Jacqz-Aigrain E. Risks and benefits of nonsteroidal anti-inflammatory drugs in children: A comparison with paracetamol. Vol. 3, Paediatric Drugs. Adis International Ltd; 2001. p. 817–58.
27. Cardwell ME, Siviter G, Smith AF. Nonsteroidal anti-inflammatory drugs and perioperative bleeding in paediatric tonsillectomy. In: Cochrane Database of Systematic Reviews. John Wiley & Sons, Ltd; 2005.
28. Bailey R, Sinha C, Burgess LPA. Ketorolac tromethamine and hemorrhage in tonsillectomy: A prospective, randomized, double-blind study. In: Laryngoscope. Laryngoscope; 1997. p. 166–9.
29. I.v. intraoperative ketoprofen in small children during adenoidectomy: a dose-finding study. - PubMed - NCBI [Internet]. [cited 2020 May 18]. Available from: https://www.ncbi.nlm.nih.gov/pubmed/10211011
30. Wei JL, Beatty CW, Gustafson RO. Evaluation of posttonsillectomy hemorrhage and risk factors. Otolaryngol - Head Neck Surg. 2000;123(3):229–35.
31. Teerawattananon C, Tantayakom P, Suwanawiboon B, Katchamart W. Risk of perioperative bleeding related to highly selective cyclooxygenase-2 inhibitors: A systematic review and meta-analysis. Semin Arthritis Rheum. 2017 Feb 1;46(4):520–8.
32. Krishna S, Hughes LF, Lin SY. Postoperative hemorrhage with nonsteroidal anti-inflammatory drug use after tonsillectomy: A meta-analysis. Arch Otolaryngol - Head Neck Surg. 2003 Oct 1;129(10):1086–9.
33. Soliman H, Abdelmageed W, Fatthallah M. Pre-emptive intravenous ketorolac analgesia does not alter the risk of bleeding after tonsillectomy in children. Ain-Shams J Anaesthesiol [Internet]. 2015 [cited 2020 Jun 16];8(1):43. Available from: http://www.asja.eg.net/text.asp?2015/8/1/43/153937
34. Riggin L, Ramakrishna J, Sommer DD, Koren G. A 2013 updated systematic review & meta-analysis of 36 randomized controlled trials; no apparent effects of non steroidal anti-inflammatory agents on the risk of bleeding after tonsillectomy. Clin Otolaryngol. 2013 Apr;38(2):115–29.

CITATION OF THIS ARTICLE

M Tayyeb, U Khan, B Ul Haq, I Hussain, N Ahmad, M Abbas.. Frequency of Post Tonsil Hemorrhage (PTH) in Patients with Pre-Operative Use of Analgesic (NSAIDs).Bull. Env. Pharmacol. Life Sci., Vol 9[8] July 2020 : 100-105