ISSN: 2572-4193

Muthanna. J Otolaryngol Rhinol 2024, 10:148
DOI: 10.23937/2572-4193.1510148
Volume 10 | Issue 1
Open Access

Journal of Otolaryngology and Rhinology

RESEARCH ARTICLE

Benifet of Dexamethasone in Post-Tonsillectomy Pain in Adults

Ali Obaid Muthanna, MD*

Department of Otorhinolaryngology, Faculty of Medicine and Health Sceince, SanA'A University, Yemen

***Corresponding author:** *Ali Obaid Muthanna, MD, ENT Department, Faculty of Medicine and Health Sceince, Sana'a University, Yemen, Tel: 00967777431487*

Abstract

Objective: To determine the effectiveness of dexamethasone to reduce pain after tonsillectomy in adults.

Methods: A total of 120 patients were enrolled and divided randomly into two equal groups, dexamethasone group and placebo group. This study was conducted in OtoRhinoLaryngology, Al-thawra Teaching Hopital, Sana'a, Yemen. During the period January 2015 to January 2019. All patients were underwent to tonsillectomy under general anesthesia.

The patients asked to visit the outpatient clinic on 3rd, 6th, and 9th day post-operation.

Results: Females were 52.5% and males 47.5%. On the third day, the severe pain was not detected in the treated group, but detected in 50% of the placebo group. There was statistically significant difference between two groups. On sixth day the severe pain occurred in 36% of treated group and 71.7% in the placebo group. There was statistically significant difference. On the 9th day the severe pain detected in 33.3% of treated group and 41.6% of placebo group.

Conclusion: Dexamethasone locally injection was led to reducing post-tonsillectomy pain over a period of 9 days, especially on the third and sixth days.

Keywords

Tonsillectomy, Post-tonsillectomy pain, Dexamethasone, Steroids

Introduction

Tonsillectomy continues to be one of the most common surgical procedures performed worldwide. Despite improvements in anesthetic and surgical techniques, post-tonsillectomy morbidity has continued to be a significant clinical concern [1].

Postoperative pain presents a problem. Some favour injecting local anesthetic dexamethasone, and nerve blockages, in the tonsillar bed, just prior to surgery and certainly immediately postoperative intramuscular in order to reduce pain but there is still no consensus on these issue [2]. Opioids and non steroids reduce post-tonsillectomy pain, these drugs not preferred due to their adverse effects of bleeding, vomiting, sedation and respiratory depression. Problems arise in the maintenance of analgesia throughout the 6-8 days postoperative period [3].

Numerous attempts have been made to reduce postoperative pain, these include intraoperative anesthetic pain regimens, use of perioperative corticosteroid, perioperative antibiotic and intraoperative injection of local anesthetic [4-6]. Other measures used to prevent pain have included local injections of antibiotic-steroid-analgesic combination drugs, but these have had questionable success [6,7].

The mechanism of pain has been attributed to irritation of sensory nerve endings as well as to spasm of the pharyngeal muscles due to local tissue damage during operation that causes the release of inflammatory substances [6].

The aim of this study was to evaluate the effect of injection of corticosteroid locally immediately post-tonsillectomy on pain after operation.

Citation: Muthanna AO (2024) Benifet of Dexamethasone in Post-Tonsillectomy Pain in Adults. J Otolaryngol Rhinol 10:148. doi.org/10.23937/2572-4193.1510148

Accepted: January 13, 2024: **Published:** January 16, 2024

Methods

With approval for study by Al-Thawra Teaching Hospital Sana'a, Yemen, Ethics committee, and with patients written informed consent, we enrolled one hundred twenty patients in this prospective study, randomized double blinded controlled study was conducted in the Department of OtoRhinoLaryngology at Al-Thawrah Teaching Hospital, Sana'a, Yemen. During the period from January 2015-January 2019.

Inclusion criteria, males and females 16-29 years, non hypertensive, or diabetic, or malignant or peritonsillar abscess, or acute inflammation.

Cases diagnosed as chronic tonsillitis from the history and clinical examination, no history of chronic medications, no any contraindications. For application of steroid, no history of previous tonsillar operation.

The patients underwent elective tonsillectomy under general anesthesia by nasotracheal tube, and sharp dissection method was used to remove tonsils after control of bleeding by ligation or coagulation then dexamethasone injected locally. The patients stayed in the hospital under observation for 24 hour. The patients were randomly assigned in to two groups, injected group (dexamethasone group) n = 60 patients, non injected group (placebo group) n = 60 patients. Dexamethasone group, injection of dexamethasone locally immediately postoperative 8 mg/2 ml, into each side, (total dose = 16 mg/4 ml) in the anterior, posterior pillars, the upper and lower pole areas on both sides in equal amount into each area, by using intravenous cannula needle No. 24 G. Non Placebo group, injected equally amount of normal saline into the same sites. All patients received broad spectrum antibiotics 7 days, post-operative and analgesic was given according to intensityofpain. Our protocol for managment of post-tonsillectomy pain was prescriped single or combination of analgesic drugs. Included patient were examined on 3rd, 6th and 9th day post-operation, in outpatients clinic for evaluation and complete blood count study. Visual analogue score was used for assessment of severity of pain postoperatively. Data was analyzed statistically by using chi. Square.

Table 1: Sex distribution.

Patient sex	no	%
Males	57	47.5
Females	63	52.5
Total	120	100

Results

A total of one hundred twenty patients, male 57 patients (47.5%) and females were 63 patients (52.5%) (Table 1), age was 16-29 years, mean age 19.79. The stander deviation is ± 3.52.

Pain post-tonsillectomy on 3rd day shown in Table 2. In treated group severe pain was not found, while severe pain was occurred in 50% of non treated group. There were significant difference between two group (p 0.001).

Pain post-tonsillectomy on 6th day shown in Table 3. Severe pain was found in 36% of treated group, while it was found in 71.7% of non treated group. There were significant difference between two group (p 0.001).

Pain post-tonsillectomy on 9th day shown in Table 4. Severe pain was found in 33.3% of treated group, while it was found in 41.6% in non treated group. There were no significant differences statistically.

Table 2: Pain on 3rd day.

Patient Groups	Mild pain	Moderate pain	Severe pain	Total	P value
Treated Group n = 60	45 (75%)	15 (25%)	0 (0%)	60	0.001
Placebo Group n = 60	3 (5%)	27 (45%)	30 (50%)	60	

Table 3: Pain on 6th day.

Patient groups	Mild pain	Moderate pain	Severe pain	Total	P value
Treated group n = 60	25 (42%)	13 (22%)	22 (36%)	60 (100%)	0.001
Placebo group n = 60	0 (0%)	17 (28.3%)	43 (71.7%)	60 (100%)	
Total	25	30	65	120	

Table 4: Pain on 9th day.

Patient groups	Mild pain	Moderate pain	Severe pain	Total	P value
Treated group n = 60	30 (50%)	10 (16.6%)	20 (36%)	60	0.001
Placebo group n = 60	20 (33.3%)	15 (25%)	25 (41.6%)	60	
Total	50	25	45	120	

Noticed that severe pain was occurred more on 6th day in both groups, treated group 36%, and in non treated group 71.7%.Numeric rating scale was used to measure pain intensity, 0-no pain,1-3 mild pain, 4-6 moderate pain, 7-10 severe pain.

Discussion

Tonsillectomy is one of the most common surgical procedure in the otolaryngology and throughout the world, for children and adult. Pain reduction is crucial in order to provide patients comfort and enable them to go through this course more comfortable, beside disruption of quality of life [8]. Tonsillectomy is known to cause severe pain post-operatively, the pain affects the patient nutrition, ability to return to daily activity and delayed discharge from hospital [6]. Previous meta-analyses have demonstrated that steroids can significantly reduce post-operative morbidity and hasten early return to diet [9,10]. The results of one meta-analysis suggest that a single intra-operative dose of dexamethasone intravenous reduces post-tonsillectomy pain on early days when compared to placebo [11].

In our study dexamethasone reduced severe pain in post-tonsillectomy patients. Severe pain was not occurred in treated group in compared to non treated group where occurred in 50% of the patient on 3rd day. However, mild and moderate pain still occurred in 45%, 15% respectively on 3rd day post-tonsillectomy in treated group.

On 6th day severe pain occurred in 36% patients in treated group, while in non injected group severe pain occurred in 71.7% ($P < 0.0001$), that mean dexamethasone reduces post-tonsillectomy pain, this results similar to results of previous studies [11,12] demonstrated a significant reduction in pain by dexamethasone when compared to control group. On the 9th day severe pain occurred in 33.3% patients in treated group, however, in non treated group severe pain occurred in 41.7% ($P < 0.169$). Reduction in pain was statistically non significant. Pain management after tonsillectomy remains a dilemma for the surgeon and anesthetist. The mechanism by which dexamethasone may exert an analgesic effect is not fully understood. Gluco-corticoids have strong anti-inflammatory effects and have demonstrated reduced pain and swelling after oral surgery [13]. Systemic gluco-corticoid administration has been found to suppress tissue levels of bradykinin [14] and release of neuro peptides from nerve endings [15], both of which can enhance pain in inflamed tissue [11].The established reduction in prostaglandin production mediated by gluco-corticoids might further contribute to analgesia by inhibiting the synthesis of the cyclo-oxygenase isoform (cox-2) in peripheral tissues and in the central nervous system [16].

Result of meta-analysis suggests dexamethasone results in statistically significant reduction in post-tonsillectomy pain on post-operatively first day when compared to placebo [17,18]. Pain reduction post-tonsillectomy hastens early return to normal diet and reduce the risk of dehydration. Clinically significant finding for adult patients, the earlier turn to normal activity could mean an earlier return to work [1]. Preoperative dexamethasone use reduces post-tonsillectomy morbidity in the early post-operative period. The combination of steroid and cold dissection technique provided the greatest advantage in reducing pos-tosillectomy pain level [18].

There is evidence that a single dose of dexamethasone reduces pain after tonsillectomy over eight days to the low degree [19]. While other study reported that there were no statistically or clinically significant difference between the dexamethasone and placebo groups for the level of pain noted on the visual analogue scale for first 4 and 7 days [20]. Bulad, et al. reported that single dose peri-operative intravenous injection of dexamethasone relieved post-tonsillectomy pain significantly after surgery [21]. One study mentioned that the effect of tonsillar fossa steroid injection for reduction of post-tonsillectomy pain is well documented [22]. The most previous studies were used steroids by intravenous route, this may explain short duration of effectiveness of steroid on post-tonsillectomy pain. In our study we used dexamethasone locally that led to better pain relief post-operative.

Numerous approaches have been attempted for this purpose. Many techniques and drugs have been use such as peritonsillar local anesthesia, nerve blockage, dexamethasone or different surgical approaches in order to reduce pot-tonsillectomy pain but there is no consensus [23]. Multianalgesics has become the standard for care in post-tonsillectomy pain management. Combination analgesics with different sites or modes of action are commonly used to improve analgesic and to reduce dose of individual analgesic and to reduce adverse effective [24]. For adult patients, pain management is particularly challenging because they often take longer to heal than children, and as a result they not infrequently request pain medications for relief [8].

Conclusion

We found a single locally dexamethasone injection immediately post-operative reduce post-tonsillectomy pain in high percentage patients. As the side effects and the cost of dexamethasone dose are low and there were no side effects found. Consideration of using this drug is reasonable in post-tonsillectomy specialy in the adul patients underwent to operation.

Disclaimer

Non supported from any company.

Conflict of Interest

None.

References

1. Burkart CM, Steward D (2005) Antibiotics for reduction of post-tonsillectomy morbidity: A meta-analysis laryngoscope 115: 997-1002.
2. Baugh RF, Archer SM, Mitchell RB, Rosenfeld RM, Amin R, et al. (2011) Clinical practice guidline: Tonsillectomu in children. Otolaryngol Head Neck Surg 144: 30-51.
3. Marret E, Flahault A, Samama CM, Bonnet F (2003) Effects of post-operative,non steroidal anti-inflammatory bleeding risk after tonsillectomy, meta analysis of randomized controlled trial. Anesthesiology 98: 1497-1502.
4. Meybodia M, Dadgarnia M, Baradaranfar M, Vaziribozorg S, Mansouri M, et al. (2019) Effect of cold diet at room teprature on post tonsillectomy pain Iran J Otorhinolaryngol 31: 81-86.
5. Ohlms LA (2001) Injection of local anesthetic in tonsillectomy. Arch Otolaryngol Head Neck Surg 127: 1276-1278.
6. Sutter KA, Isaacson G (2014) Post-tonsillectomy pain in children. Am J Nurs 114: 36-42.
7. Vasan NR, Stevenson S, Ward M (2002) Preincisional Bupivacaine in post tonsillectomy pain relief. Arch Otolaryngol Head Neck Surg 128: 145-149.
8. Windfuhr JP (2013) Serious complications following tonsillectomy: how frequent are they really?. J Otorhinolaryngol Relat Spec 75: 166-173.
9. Steward D, Welge J, Myer C (2001) Do steroids reduce morbidity of tonsillectomy? Meta-analysis of randomized trials. Laryngoscope 111: 1712-1718.
10. Goldman A, Satish G, Rosenfeld R (2000) A meta-analysis of dexamethasone use with tonsillectomy. Otolaryngol Head Neck Surg 123: 682-686.
11. Afman CE, Welge JA, Steward DL (2006) Steroids for post-tonsillectomy pain reduction: Meta-analysis of randomized controlled trials. Otolaryngol Head Neck Surg 134: 181-186.
12. Najeeb T, Baugash WU, Husain A (2016) Role of preoperative dexamethasone in reduction post-tonsillectomy pain. JIMDC 5: 67-70.
13. Waldro NH, Jones CA, Gan TJ, Allen TK, Habib AS (2013) Impact of peri-operative dexamethasone on post-operative analgesia and side effects: Systemic revirew and media analysis. Br J Anaesth 110: 191-200.
14. Hong D, Byers MR, Oswald RF (1993) Dexamethasone treatment reduces sensory neuro peptides and nerve sprouting reaction in injured teeth. Pain 55: 171-181.
15. Gloubovska I, Vanags I (2008) Anaesthesia and stess response to surgery. Proc Latvian Acad Ssci 62: 141-147.
16. Elhakim M, Naglaa MA, Rashed I, Riad MK, Refat M (2003) Dexamethasone reduces post operative vomiting and pain after pediatric tonsillectomy. Can J Anesth 50: 392-397.
17. Hanasono M, Lala Kea ML, Mikule CA, Shepard KG, Wellis V, et al. (2004) Preoperative steroids in tonsillectomy using electrocautary and sharp dissection techniques. Arch Otolaryngol Head Neck Surg 130: 917-921.
18. Carr M, William JG, Carmichael L, Nasser JG (1999) Effect of steroid on post-tosillectomy pain in adult. Arch Otolaryngol Head Neck Surg 125: 1361-1364.
19. Lachane M, Lacroix Y, Audel N, Savard P, Thuot F (2008) The use of Dexamethasone to reduce pain after tonsillectomy in adults; Adouble-blind prospective randomized trial. Laryngoscope 118: 232-223.
20. Bulad K, Zahoor MU, Asghar A, Khanand S, Zaid AY (2012) Efficacy of single dose peri-operative intravenous steroid (Dexamethasone) for post-operative pain relief in tonsillectomy patients. JCPSP 22: 349-352.
21. Kerekhanjanarong V, Tang-0n N, Suphyaphan P, Sastarasadhit V (2001) Tonsillar fossa steroid injection for reduction the post-tonsillectomy pain.JMed Assoc Tbai 84: 391-395.
22. Tolska H K, Hamunen K, Takala A, Kontinnen VK (2019) Systemic review of analgesic and dexamethasone for post-tonsillectomy pain in adults. BJA 123: e397-e411.
23. Tanioglu B, Erkan SO (2018) Tonsillectomy pain control with I .V.dexamethasone, infiltrated dexamethasone and infiltrated bupivacaine; randomized, double blind.Placebo controlled prospective clinical trial. J Pak Med Assoc 68: 1002-1008.
24. Wang J, Wang N, Gong F (2021) Efficancy of bupivacaine infiltration for controlling post-tonsllectomy pain,duration of surgery and post-operative morbidities: A systematic review and meta-analysis. Exp Ther Med 21: 198-205.