

Effect of Post-Operative Antibiotic on Post-Operative Infection in Tonsillectomy Operations

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ABSTRACT:

Tonsillectomy remains one of the most common surgical procedures performed in the world. Despite advances in anesthetic and surgical techniques, post-tonsillectomy morbidity remains a significant clinical problem. Among of them, postoperative hemorrhage is the most frequent and severe one. Other common short-term complications of tonsillectomy are nausea, vomiting, fever and Pain after tonsillectomy, which been regarded as a major morbidity in the early post-operative period. A prospective study was designed to determine the effect of use postoperative antibiotics to reduce or prevent the postoperative complications at Hawari hospital, Benghazi, Department of ENT. From October 2005 to march 2006 over a period of 6 months. Method: the same doctors operated 100 patients of varying ages and both sexes. Patients divided in to two groups, (50) patients receive postoperative antibiotic (amoxicillin) and (50) patients not receive antibiotics. All patients scheduled to return for a routine follow up appointment one week following surgery and examined for complications. Results: seven (7%) develop post tonsillectomy infection two (2%) using antibiotic and five (5%) not using antibiotic. Among the infected patients one (1%) has post tonsillectomy bleeding, two (2%) have infection with pus and four (4%) have sever sore throat with dehydration. In infected patients not use antibiotic two (2%) age (3-12) years old and three (3%) age (>12) years old. four (4%) have last attack of tonsillitis less than one month and one (1%) have the last attack more than one month. two (2%) time required to perform the operation less than thirty minutes and three (3%) more than thirty minutes. In infected patients use antibiotic no patients (0%) age (3-12) years old and two (2%) age (>12) years old. One (1%) has last attack of tonsillitis less than one month and one (1%) have the last attack more than one month. No patients (0%) time required to perform the operation less than thirty minutes and two (2%) more than thirty minutes.

Keywords: Tonsillectomy, Tonsillitis, Post Tonsillectomy Infection, Sore Throat, Post Tonsillectomy Hemorrhage

INTRODUCTION:

Adenoidectomy and tonsillectomy are historically the surgical procedures most commonly performed in the Ear Nose and Throat (ENT) specialty, 1 having their main incidence in the pediatric population. At the beginning of the 20th century, there was a boom in the use of such surgeries, which were frequently conducted in the presence of only minimum symptoms. As of the 1960's, because of the advance in immunology, a movement towards standardizing and defining the precise indications to the surgery gained momentum. It has been observed since then that there has been a decline in the use of these surgeries, but despite this trend, they are still the most frequent ENT surgical procedures performed. 2 The main indications for the conduction of tonsillectomy with or with out adenoidectomy are recurrent infections and upper airways obstruction, which may lead to recurrent sinusitis, repetitive otitis media 3, snoring and obstructive sleep apnea. Despite the frequency of the surgical procedure of tonsillectomy with or with out adenoidectomy at our center, these procedures are not free from complications. Among them, we can highlight postoperative hemorrhage as the

most frequent and severe one 4. Other common short-term complications of tonsillectomy are fever and an inability to eat or drink 5. Pain after tonsillectomy has been regarded as a major morbidity in the early post-operative period. It delays the early resumption of oral intake and therefore leads to a delayed discharge from the ward. Pain occurs due to trauma to the local tissue, releasing inflammatory mediators. 6 Postoperative antibiotics are prescribed to decrease the inflammation of pharyngeal tissues following tonsillectomy due to colonization of bacteria. The benefits of antibiotics also include pain reduction, improving oral intake and possibly decreasing postoperative bleeding. However, there is controversy regarding the use of antibiotics due to growing concerns of bacterial resistance.

THE AIM OF THE STUDY:

The study aimed to demonstrate the effect of the use of postoperative antibiotics to reduce or prevent postoperative infection in relation to the age, last attack of tonsillitis and the length of procedure in the study group of patients.

PATIENTS, METHODS AND MATERIALS

Our study population was made up of 100 patients, males

and females, aged 3 years to 35 years who had undergone inpatient tonsillectomy, from October 2005 to March 2006 over a period of 6 months. The indications for tonsillectomy, with or without adenoidectomy, included chronic or recurrent tonsillitis and upper airway obstruction. Patients had been admitted one day before operation or on the morning of the procedure (day case) and discharged at the discretion of the surgeon, with input from parents and nurses. All patients had been examined on the first postoperative day and one week later. All had been placed on similar dietary and activity restrictions and given instructions to call if persistent bleeding or any other complication occurred. All the patients underwent surgery under general anaesthesia and with nasal or oral intubation. Tonsillectomy was done by the classical dissection method. Any bleeding that occurred after pressure had been applied with gauze was controlled by suture ligation (silk3.0) or diathermy. Patients were instructed to refrain from eating and drinking for four hours following surgery. Patients were divided in to two groups, of fifty patients. Fifty patients received a postoperative antibiotic (amoxicil-

lin). Fifty patients did not. The two groups were scheduled to return for a routine follow up appointment one week following surgery and were examined for complications (pain in the throat, referred earache, intermittent fever, foul odor from the mouth, and post-operative bleeding. All the information regarding the age [child (3-12) adult >12 years], postoperative antibiotics, last attack of tonsillitis before operation, length of procedure and presence or absence of complications were recorded.

RESULTS:

Out of a hundred patients, seven (7%) developed post tonsillectomy infection, two (2%) had been on antibiotic and five (5%) not.

No patient developed post tonsillectomy infection in age group between 3-12 years who received the antibiotic and two (2%) patients of the same age group not on antibiotic therapy developed post tonsillectomy infection. Two (2%) patients of more than 12 years on antibiotic develop infection while three (3%) patients of same age group and not on antibiotic developed infection.

Patients who had had the last attack of tonsillitis two weeks to one month before operation, developed infection in one (1%) patient on antibiotic and four (4%) patients not on antibiotic. Patients with a last attack of tonsillitis more than one month prior to the operation developed infection in one (1%) patient on antibiotic, and one (1%) patient not on antibiotic. Figure.1 demonstrates that when the time required to perform the operation was 15-30 minutes, no patients developed infection while on antibiotic whereas two (2%) of patients not on antibiotic developed infection. With an operation time of more than 30 minutes, infection developed in two (2%) of patients on antibiotic and three (3%) of patients not on antibiotic.

DISCUSSION:

In the study of the effect of postoperative antibiotic therapy in tonsillectomy operations we found that the percentage of post tonsillectomy infection was (7%), which was

Table .1 shows the relationship of occurrence infection and use of antibiotic

POST OPERATIVE INFECTION	NUMBER	%
Total number	7	7%
Received antibiotic	2	2%
No antibiotic received	5	5%

Table .2 shows complications among infected patients.

TYPES OF COMPLICATION	NUMBER	%
Post tonsillectomy bleeding	1	1%
Congested throat with pus	2	2%
Sever sore throat with dehydration	4	4%

Table .3 shows the relationship between development of infection and age.

AGE		INFECTED PATIENT
years 12 <	years 3-12	
2%	0%	Received antibiotic
3%	2%	No antibiotic received

Table.4 shows the relationship between post tonsillectomy infection and the last attack of tonsillitis before operation

LAST ATTACK OF TONSILLITIS		INFECTED PATIENT
.ONE MONTH <	TWO WEEKS-ONE MONTH	
1%	1%	Received antibiotic
1%	4%	No antibiotic received

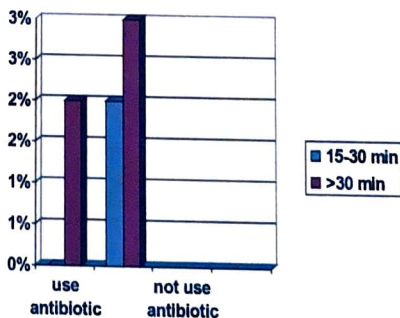


Figure.1 shows the relationship between post tonsillectomy infection and the operation time required to complete the operation.

more among patients who did not receive antibiotic (5%), as compared to patients who had received antibiotic (2%). Among the infected patients most complained of severe sore throat and on examination had a congested throat without pus, two (2%) presented with severe sore throat and had pus found in the operation field. The two groups were treated with parenteral antibiotics with out readmission to hospital, and only one (1%) patient developed post tonsillectomy bleeding. The patient was admitted to hospital and the bleeding subsided with intravenous antibiotics without surgical intervention. Telian et al 7 conducted a randomized controlled trial to evaluate the effect of ampicillin on recovery from tonsillectomy in children. The ampicillin group had significantly fewer fevers, improved oral intake, and required fewer days to normal activity. The study by Iqbal H Udaipurwala. 8 found that there is a significantly better outcome as well as a reduction in postoperative morbidity in patients who receive antibiotic. In addition, Colevay MP et 9 studied the use of amoxicillin/clavulanic acid in a randomized controlled trial in children. Seventy eight patients were randomly assigned to either receive antibiotics or not. They compared tonsillar core, surface and postoperative tonsillar fossa bacterial colonization profiles in the two groups. Bipolar tonsillectomy was performed in both groups. Their results indicated tonsillar core bacteria were *Haemophilus influenzae* (64%), 9.5% of which produced β -lactamase, *Streptococcus viridans* (55.9%), *Staphylococcus aureus* (37%), 86% of which produced β -lactamase, and anaerobes (25%). More importantly, the pain scores, days to normal diet, and analgesic use in the group treated with antibiotics were significantly lower. The study concluded that it is logical to treat chronic carriers of β -lactamase producing organisms following tonsillectomy with amoxicillin/clavulanic acid. O'Reilly, et al.10 conducted a randomized double-blind controlled prospective study of the effect of antibiotics in adults following tonsillectomy. The antibiotic group received intraoperative and postoperative antibiotics. Patients were questioned at follow-up or sent a questionnaire to assess postoperative bleeding and, postoperative pain. The technique used varied, but electrocautery was most commonly used to control bleeding. The results of the study indicated that antibiotics had no influence on postoperative pain and bleeding. Regarding the age and development of post tonsillectomy infection, we found that adults develop post tonsillectomy infection more than children and the use of post tonsillectomy antibiotic significantly reduced the percentage of infection in both age groups.. Schmidt et al. 11 published a retrospective study that found that patients' aged more than ten years of age were at risk of complications, whereas children younger than ten years of age, had a three fold lower incidence. We found that there was a relationship between the last attack of tonsillitis and the development of post tonsillectomy infection. Patients with a last attack of tonsillitis less than one month were more likely to develop post tonsillectomy infection than patients with a last attack of tonsillitis of more than one month back, and the postoperative antibiotic reduced the percentage of in-

fection. We found that there was relationship between tonsillectomy infection and the time required to perform the tonsillectomy operation. An operation of longer duration (which depended on the experience and surgical skills of the operator), bleeding during operation or difficulty of dissection because of fibrosis or an atrophic tonsil, carried a greater risk of developing post tonsillectomy infection which was significantly reduced by antibiotic therapy. Gabriel et al. 12 who studied the relationship between the clinical features, including the clinical history of patients and the incidence of perioperative bleeding with post tonsillectomy infection, reported that a short history of tonsillitis before operation, and an abnormal coagulation test result carried more risk of developing post tonsillectomy infection. Randall DA et al. 13 demonstrated the same result in their study of complications of tonsillectomy. Dhiwakar et al. 14 showed in their study that antibiotics significantly reduced post tonsillectomy morbidity such as fever, halitosis, and marginally reduced the time taken to resume normal activity. Others have concluded that there is no significant effect of antibiotic therapy after tonsillectomy, Al-kindy 15 showed that postoperative antibiotic played no role in pain control, postoperative fever, secondary haemorrhage, or reduction of hospital stay. In 2005, Burkart and Steward 16 showed that the results of a systematic meta-analysis of seven randomized controlled trials of postoperative oral antibiotics in patients undergoing tonsillectomy or adenotonsillectomy suggest that postoperative oral antibiotics do not significantly reduce post-tonsillectomy pain, but result in an earlier return to normal activity and diet by one day. Abd Allah Rezk EM et.al 17 studied the combination of antibiotic and steroids they found that it was very effective in reducing post tonsillectomy morbidity.

CONCLUSIONS:

Antibiotic use had a significant effect in reducing post tonsillectomy infection especially in:

1. Adult patients.
2. Patients who had had a recent attack of tonsillitis before the operation.
3. When the time required to perform the operation was long either because of intra operative bleeding or too much tissue dissection.

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