THE POSTOPERATIVE USE OF AMOXICILLIN IN ADULT TONSILLECTOMY PATIENTS
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ABSTRACT

Introduction: The study was conducted to evaluate the potential benefits of administering postoperative amoxicillin with and without clavulanate potassium in adult post-tonsillectomy patients.

Methods: A randomized controlled study was performed on adult patients who underwent tonsillectomy at a large military tertiary care teaching hospital. Study patients were randomized, prior to surgery, to receive no antibiotics (group 1), amoxicillin with clavulanate (group 2), or amoxicillin (group 3). Ninety patients completed follow-up. Pain level was assessed by visual analog scale (VAS) for the first 10 days following surgery. Additional outcomes evaluated included the length of time for patients to return to a regular diet and normal activities and the total pain medications consumed during recovery. Complications, including adverse events from medications, were recorded.

Results: One way analysis of variance of group 1 (N=32), group 2 (N=26), and group 3 (N=32) revealed no statistical difference in return to normal activities or return to regular diet. No increase in pain medication consumption was seen in group 1, the no antibiotic group. Two way analysis of VAS during the 10 days following surgery revealed a small but significant lower pain score in group 2 (mean=5.6) compared to group 1 (mean=6.0) (P=.047). Adverse medication events were documented in the antibiotic treatment groups.

Conclusion: The use of amoxicillin with and without clavulanate offers no clinically significant reduction in morbidity following tonsillectomy in healthy adult patients.

INTRODUCTION

Chronic tonsillitis, or recurrent acute tonsillitis, are the most common indications for tonsillectomy in adult patients. [1] For adult patients with chronic tonsillitis, a tonsillectomy can improve quality of life, decrease medical resource utilization and reduce missed workdays.[2] Although tonsillectomy is a very common surgical procedure, post-operative morbidity, especially pain, has remained a challenging clinical problem. Several studies, including a recent Cochrane review, have found minimal evidence that antibiotics reduce morbidity following tonsillectomy [3, 4] Other studies, have demonstrated some pain relief and earlier return to normal diet and activity with the post-operative use of antibiotics after tonsillectomy. [5-7]

The use of post-operative antibiotics after tonsillectomy stems in part from the expected contamination of the tonsillar fossae by bacteria normally present in the oropharyngeal mucosa. Bacterial overgrowth in the fresh wound has been suspected to cause an inflammatory and infectious process, during the healing phase, potentially contributing to post-operative morbidity.[3] The microbiota of tonsillar tissue has also been demonstrated to have an increased incidence of beta-lactamase producing organisms.[6] Despite this emerging trend, the majority of the tonsillectomy studies evaluating the post-operative use of antibiotics have used amoxicillin rather than a beta-lactam stable antibiotic, such as amoxicillin with clavulanate. In addition no study has compared these two types of antibiotics.

The goal of this study was to evaluate the efficacy of amoxicillin with and without clavulanate in reducing morbidity after adult tonsillectomy.

METHODS AND MATERIALS

A prospective randomized clinical study was conducted at a large military tertiary care teaching hospital in adult patients undergoing elective tonsillectomy. Patients were randomized into three groups.
- Group 1 No post-operative antibiotics (no treatment group)
- Group 2 Amoxicillin 500 mg with 125 mg clavulanate TID x 10 days
- Group 3 Amoxicillin 500mg TID x 10 days

Every tonsillectomy was performed in a similar fashion using unipolar and suction electrosurgery for dissection and hemostasis. All study patients received an intra-operative antibiotic and steroid dose with 1 gram ampicillin and 10 mg of dexamethasone. Every patient was discharged on day of surgery with oxycodone and acetaminophen (5mg/325mg) tablets for post-operative pain.

Measured outcomes:
- Pain during the first 10 days following tonsillectomy (10 point VAS)
- Return to normal diet
- Return to normal activity
- Number of pain medication consumed

RESULTS

One hundred and thirty two patients were enrolled in the study with ninety patients completing follow-up. Demographics are similar in each group. The mean age of patients in the study was 26 (range 18-49). A similar ratio of male to female was found in each group. There were 32 patients included in Group 1 (no antibiotics), 26 patients in Group 2 (amoxicillin + clavulanate) and 32 patients in Group 3 (amoxicillin).

Post-operative hemorrhage was the main complication and showed no significant difference between the groups with a combined incidence of 5.6%. There were two post-tonsillectomy hemorrhage in Group 1 (6.25%), one patient in Group 2 (3.8%), and two patients in Group 3 (6.25%). There were four suspected side effects from antibiotics including two patients with gastrointestinal upset with diarrhea (one each in Group 2 and 3), one yeast infection (group 2), and one patient who developed a rash (Group 2).

There was no statistical difference in the number of days required to return to full activities for each group (p=.848). The combined mean time to return to full activities was 11.4 days. (Fig 1)

Similarly, there was no statistical difference in the length of time needed to resume a normal diet in each group (P=.220), with a combined mean time of 13.6 days. (Fig 2)

Post-operative pain showed a similar trend in each group, with gradual decrease in pain seen after post-operative day 4 and day 5. (Fig 3) A small but statistically significant difference was seen in pain assessment in group 2 (mean=5.6) compared to group 1 (mean=6.0) (P=.047).

Total pain medication consumption revealed slightly higher medication consumption for Group 3 than in Group 1 (no antibiotic group) p=.023. (Fig 4)

DISCUSSION

The post-operative use of antibiotics following tonsillectomy remains a common practice. One study reported that approximately 79% of Otolaryngologist in the United States prescribed antibiotics after tonsillectomy.[8] However, the role of post-operative antibiotics after tonsillectomy remains unclear.

There are several arguments why avoidance of post-operative antibiotics following tonsillectomy should be considered. Side effects of antibiotics, including gastrointestinal upset and diarrhea are common. Allergic reactions including mild reactions with pruritis and rash, as well as severe reactions including life-threatening anaphylaxis can occur. In our study two patients developed gastrointestinal upset and diarrhea. Another patient experienced a yeast infection, and one patient developed a rash.

Clostridium difficile colitis, or antibiotic induced colitis is another consideration. The incidence and severity of Clostridium difficile-associated colitis is increasing and remains a significant clinical problem.[9] Another concern is the potential of contributing to antibiotic drug resistance. The wide spread use of antibiotics has created drug resistant microbes that have become a major public health concern. Finally, there is the cost of the medication itself. In 1996, approximately 418,000 tonsillectomies were performed. [1] Considering the cost of a 10 day course of generic amoxicillin/ clavulanate ($80) or generic amoxicillin ($18), the health care cost savings would amount to $33.4 million/year or $7.5 million/year, depending on the choice of antibiotic.

In our study we found no statistical difference in the length of time required after tonsillectomy to resume a normal diet and normal activity. The pain experience during the first ten days following tonsillectomy showed a small numerical difference comparing amoxicillin and no antibiotic. This difference was less than 1 point on the ten point visual analog scale suggesting a questionable lower mean than the amoxicillin group.

In conclusion our study found that the use of amoxicillin with and without clavulanate demonstrated no clinically significant reduction in morbidity following tonsillectomy in healthy adult patients.

REFERENCES