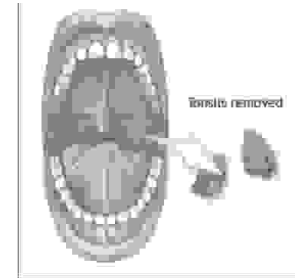


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PROF-1223

TONSILLECTOMY; QUALITY-OF-LIFE IMPROVEMENT IN SCHOOL GOING CHILDREN.



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ABSTRACT... Objectives: To determine the quality - of - life benefit derived from Tonsillectomy and its specific impacts. **Design:** A Cross sectional survey. **Setting:** ENT Department, CMH Rawalpindi. **Period:** From 01 Jan 2004 to 31 Dec 2004. **Material & Methods:** The Glasgow Benefit Inventory (GBI) was used to quantify the health benefit of tonsillectomy. Data was collected for demographics and antibiotic use, physician visit, and school days missed due to chronic tonsillitis for 12 months before and after tonsillectomy. This study includes the patients who had undergone tonsillectomy alone. **Results:** A total of 102 patient met inclusion criteria for this study. Sixty five parents returned complete survey of their children. The mean age was 10.3 years (5-15 years). The improvements in the total score (+27.1), general health sub score (+34.7), social functioning sub score (+14.2), and physical functioning sub score (9.38) were each statistically significant ($P < .001$), indicating a significant health benefit of tonsillectomy. Statistically significant decreases in mean weeks receiving antibiotics (-7.8 weeks), mean physician visits (-5.4), and mean schooldays missed (-6.3 days) were noted after tonsillectomy ($P < .001$). **Conclusion:** Tonsillectomy provides a significant quality-of-life improvement for children with chronic tonsillitis. Tonsillectomy also affords decreases in medical resource utilization and missed school days after tonsillectomy. Such factors should be incorporated into decision making when considering tonsillectomy.

Key words: Tonsillectomy, school going children, quality-of-life impact.

INTRODUCTION

Tonsillectomy with or without adenoidectomy is one of the most commonly performed surgical procedures in the world¹. Traditionally, recommendation for tonsillectomy has depended primarily on the frequency of acute episodes of tonsillitis in the setting of recurrent (chronic)

disease. Recent American academy of Otolaryngology clinical indicators specify that patients with 3 or more infections of tonsils and or adenoids per year despite adequate medical therapy may be considered candidates for tonsillectomy². In addition chronic or recurrent tonsillitis associated with the streptococcal

carrier state and non responsiveness to B-Lactamase antibiotics may be considered an appropriate indication for tonsillectomy. There is poor correlation among criteria selected by general practitioners, pediatricians and otolaryngologist of indications of tonsillectomy³. In reality, however, quality-of-life assessments often influence or temper traditional guidelines in deciding whether to recommend tonsillectomy for patients with chronic tonsillitis. For example patients with fewer than 3 episodes of tonsillitis per year but in whom each episode results in protracted absence from school might be deemed candidate for tonsillectomy. Such decision making is often considered the art of medicine. The efficacy of tonsillectomy for chronic tonsillitis in children has been well studied⁴. Accurate quality-of-life data would assist in parents counseling about treatment option for chronic tonsillitis. However more stringent criteria are needed because tonsillectomy does carry risk and morbidity apart from cost of operation⁵.

The goal of this study was to determine the quality-of-life benefit derived from tonsillectomy and specific impact of tonsillectomy on antibiotic use, frequency of physician visits and school days missed. It is hoped that with adequate quality-of-life and disease impact data more pertinent recommendations for tonsillectomy might be formulated.

MATERIALS AND METHODS

We searched the general otolaryngology practice retrospectively for patients who had undergone tonsillectomy alone between January 1, 2004, and December 31, 2004. Patients who met the following criteria were extracted from the database; age between 5-15 years, tonsillectomy performed for chronic infectious tonsillitis, and minimum follow-up of 1 year. Patients who simultaneously underwent adenoidectomy or uvulopalatopharyngoplasty were excluded, as were patients who underwent tonsillectomy to rule out malignant neoplasm.

The extracted cohort underwent evaluation by means of medical chart review and mail survey. Components of

the survey included patient-reported data for disease severity variables. These variables included the number of weeks during which the patient was taking antibiotics specifically for tonsillitis, the number of schooldays missed due to sore throat, and the number of physician visits specifically for sore throat during the 12 months before tonsillectomy. Analogous data were collected for the 12 months after tonsillectomy (excluding the immediate postoperative period). Parents of each patient were asked to complete the Glasgow Benefit Inventory (GBI), which was modified accordingly to measure the change in health status and quality of life due to the tonsillectomy intervention⁶. The GBI scores were scaled in standard fashion to range from - 100 to + 100, with positive scores implying an improvement in quality of life due to tonsillectomy.

Statistical analysis was conducted using commercially available software (SPSS, Version 10.0). Descriptive statistics were calculated for patient demographics and mean follow-up. Statistical comparison between disease variables before and after tonsillectomy was conducted using paired t Test. The significance of scores on the GBI was assessed using the t test for population examination for scores that differed from a population mean of 0 (a score of 0 on the GBI or its subscales implies no positive or negative benefit).

RESULTS

A total of 102 children who underwent tonsillectomy alone at our hospital met inclusion criteria for this study. Sixty five parents of these children returned completed surveys. Most parents who failed to respond to the surveys had moved out of the cantonment. The mean age was 10.2 years (range 5-15years) and mean follow up was 4.3 months (range 14.9-38.2 months). Data for the mean number of week received antibiotics, mean schooldays missed and mean number of physician visits before and after tonsillectomy are presented in table I. Decreases in all 3 measurements were statistically significant. (Paired t test).

Disease severity variables	Mean (SD)		Mean net change	Significance of change, P Values
	12 months after tonsillectomy	12 months after tonsillectomy		
No. Of weeks receiving antibiotics	6.8 (7.0)	0.6 (0.9)	-7.8	< .001
No. Of physician visits	5.7 (5.9)	0.4 (0.8)	-5.4	< .001
No. Of schooldays missed	8.1 (11.3)	0.5 (1.4)	-6.3	< .001

The summary of scores for the GBI is presented in Table II. Patients derived statistically significant benefit on the total score as well as on the individual sub scales of general health, social functioning and physical functioning from the tonsillectomy intervention. No correlation was found between GBI scores and of follow up (all $P > .05$). To test for potential recall bias among parents, we divided the cohort into equal populations above and below the median follow up. The groups were compared for differences in GBI scores, physician visits, antibiotic used and school days missed. No statistically significant difference between groups was identified suggesting a minimal recollection bias.

Score	Mean ($\pm 95\%$ CI)	P values
Total score	+ 27.08 (4.41)	<.001
Subscales		
General Health	+ 34.78 (5.04)	<.001
Social Functioning	+ 14.20 (4.87)	<.001
Physical Functioning	+ 9.38 (4.77)	<.001

DISCUSSION

Tonsillectomy with or without adenoidectomy is one of the most commonly performed surgical procedures in the world, with most performed in the pediatric population. Traditionally, tonsillectomy has been recommended for recurrent tonsillitis, chronic tonsillitis or the streptococcal carrier state⁷. In addition, varying criteria for a diagnosis

of chronic tonsillitis have been used, depending on frequency and severity of episodes. Despite the prevalence of chronic tonsillitis and tonsillectomy, relatively few studies have examined the impact of the diagnosis and treatment of this disorder on health and quality-of-life⁸. Other studies on tonsillectomy have uncovered similar results, but none of these studies attempted to examine vigorously quality-of-life issues and the impact of health care resource utilization surrounding tonsillectomy⁹⁻¹⁰. Such data are important for patient counseling and formulation of clinical guidelines to recommend tonsillectomy. In actual fact effectiveness of tonsillectomy has not been formally evaluated¹¹. The GBI is well studied and validated outcomes instrument that was developed specifically to study outcomes after otolaryngology interventions. It has been used to examine clinical outcomes for acoustic neuroma, middle ear surgery, botulinum toxin treatment for head and neck dystonias. The GBI is very sensitive to the impact of the otolaryngology intervention on the patient's quality-of-life. We found that patients who underwent tonsillectomy had a dramatic improvement in GBI scores indicating a solid beneficial impact of tonsillectomy on their quality-of-life. This benefit was significantly more pronounced in the total score and general health subscore than in the social and physical function subscore. This finding suggests that tonsillectomy has more impact in other facets of the patient's life beyond improving health from a purely medical standpoint. These other areas of beneficial impact are likely to involve decreases in school absences, physician visits, and medication requirements.

Aside from patient reported scores on outcome measurement tools, several other variables may be used to assess the overall health benefit of tonsillectomy. One common assessment method for a single surgical intervention is to examine health care resource utilization before and after the proposed intervention. We measured health care resources utilization for chronic tonsillitis by the frequency of physician visit and antibiotic use especially for sore throats, as in other studies in chronic tonsillitis. We found a similar number of physician visits before and after tonsillectomy similar to the results of Mui et al. However, our antibiotic utilization rate before tonsillectomy was notably higher, exceeding 1.5 months receiving antibiotics in the 12 months before tonsillectomy. The number of days of antibiotic treatment for sore throat after tonsillectomy dropped dramatically, suggesting that patients had fewer infections, or their infections were not severe enough to warrant antibiotic use. Both decreases reflect a substantial decrease in utilization in health care resources after tonsillectomy.

When considering the impact of chronic tonsillitis on patients' quality-of-life, physicians should consider the number of the school days missed due to the tonsillitis episodes. Excessive absences from school may have significant impact on the patient's productivity. We were somewhat surprised by the relatively high number of mean school days missed during the twelve months before tonsillectomy. Some parents reported 30 days of school absence due to chronic tonsillitis. Again, the dramatic decrease in the number of school days missed further emphasizes the potential impact of tonsillectomy on the quality-of-life of patients with chronic tonsillitis.

This study possesses several potential limitations. Our data collection regarding medication use, physician visits, and school days missed depended heavily on parents recollection and self reporting. In addition, we encountered a relatively poor response rate. This was not surprising given that most of our patients undergoing tonsillectomy are highly likely to relocate within a few years after tonsillectomy, due to routine postings in Armed Forces.

We did not assess for the presence or absence of Streptococcal pharyngitis or tonsillitis in these patients. Although this may have added some information in terms of disease severity, we find that fewer and fewer patients undergo culture or testing using the rapid streptococcal antigen test when a diagnosis of acute tonsillitis or pharyngitis is given. We believed that this inconsistency in practice preferences may lead to more bias than helpful information, and therefore did not include it as part of the data to be considered.

As this was retrospective analysis, 2 more limitations were observed. First we asked parents to evaluate their perceived change in quality-of-life due to the tonsillectomy. Capturing the patient's the view of change as a clinical outcome measure may not be as accurate as prospective before-and-after measurements of quality-of-life. In fact, when asked to rate retrospectively the change in quality-of-life after medical interventions, patients often ascribe higher values for such change than would be realized from serial measures of quality-of-life before and after the intervention. However, retrospective measure of change in quality-of-life has been found to be more sensitive to change than have serial measurements and many correlate more strongly with patients' overall satisfaction with the intervention. Second, it is possible that some percentage of the improvement in quality-of-life may in fact be due to the natural history of the chronic tonsillitis. That is, even if tonsillectomy were not an effective treatment for chronic tonsillitis, some patients may report improvement in quality-of-life because, due the natural history of their disease, the frequency and severity of tonsillitis episodes may have diminished. The potential contribution to quality-of-life improvement from the natural history of the disease could only be assessed by simultaneously studying patients who did not undergo tonsillectomy with long term follow up.

CONCLUSION

Even in an era of broad spectrum antibiotics, tonsillectomy provides significant symptom relief and quality-of-life improvement for properly selected patients with chronic tonsillitis. Our data suggest that

tonsillectomy significantly decreases use of antibiotics, physician visits and schooldays missed due to chronic tonsillitis. Such factors may be as important as the absolute frequency of tonsillitis episode in determining the appropriateness of tonsillectomy.

REFERENCES

1. Derkay CS. **Pediatric Otolaryngology procedures in the United States: 1977-1987.** J Pediatr Otorhinolaryngol. 1993;25:1-12.
2. **Clinical indicators, tonsillectomy, adenoidectomy, adenotonsillectomy American Academy of Otolaryngology-Head and Neck Surgery Web Site Available at <http://www.entnet.org/indicators/tonsillectomy.html>.** Accessed April 1, 2001.
3. Capper R, Canter RJ. **Is the incidence of tonsillectomy influenced by the family, medical or social history ?** Clinical Otolaryngol 2001; 26(5):371-8.
4. Paradise JL, Bluestone CD, Bachman RZ. et al. **Efficacy of tonsillectomy for recurrent throat infection in severely affected children;** results of parallel randomized and nonrandomized clinical trials N. Engl j Med 1984; 310:674-683.
5. Paradise JL, Bluestone CD, Colborn DK, Bernard BS, Rockette HE, Kus-Lasky M. **Tonsillectomy and Adenotonsillectomy for throat infection in moderately affected children.** Paediatrics 2002 : 110(1) (pt-1) : 7-15.
6. Robinson K, Gatehouse S. **Browning GG Measuring patient benefit from Otorhino-laryngological surgery and therapy.** Ann Otol Rhinol laryngol 1996; 105; 415-422.
7. Fry TL, Pillsbury HC. **The applications of "controlled" studies of tonsillectomy and adenoidectomy.** Otolaryngol Clin North Am 1987; 20,409-413.
8. Mui S, Rasgon BM, Hilsinger RL Jr. **Efficacy of tonsillectomy for recurrent throat infection in adults.** Laryngoscope, 1998,108;1325-1328.
9. Blair RL, Mckerrow WS Carter NW, fenton A, for the Audit Sub Committee of the Scottish Otolaryngological Society. **The Scottish tonsillectomy audit J laryngol Otol, 1996, 110(suppl 20):1-25.**
10. Ogino S, Notake N, Herada T. **Long-term observation of postoperative course f habitual tonsillitis.** Acta otolarayngol Suppl. 1988, 454: 299-304.
11. Burton MJ, Towler B, Glaszion P. **Tonsillectomy versus non surgical treatment for chronic/ recurrent tonsillitis (Cochrane review):** The Cochrane Library, issue 2; 2002.
12. Nikolopoulos TP, Johnson I, O' Donoghue. GM. **Quality-of-life after acoustic neuroma surgery.** Laryngoscope, 1998;108;1382-1385.
13. Bhattacharyya N, Tarsy D. **Impact on quality-of-life of botulinum toxin treatments for spasmodic dysphonia and oromandibular dystonia.** Arch Otolaryngol Head Neck Surg, 2001; 127; 389-392.
14. Fischer D, Stewart AL, Bloch DA, Loring K, Laurent D, Holman H. **Capturing the patient's view of change as a clinical outcome measure.** JAMA, 1999, 282, 1157-1162.