

Tonsillectomy: assessment of quality by consultation rate after discharge

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Abstract

The aim of this prospective study was to establish a measure of short-term quality of treatment after tonsillectomy/adenotonsillectomy. One hundred and thirty-four questionnaires, returned after 14 days, from 41 children and 93 adults were analysed. Forty-seven per cent had one or more consultations with health-care professionals. Eighty-three consultations by telephone and 33 consultations in person were made. Two recent studies reported higher consultation rates in person to doctors compared to this study. The predominant reason for consulting health-care professionals was pain. Maximum pain scores were significantly higher among those with consultations vs. no consultations ($p = 0.0001$). Additionally, the intensity as well as the duration of maximal pain increased with the number of contacts per patient ($p = 0.0001$, $p = 0.0045$). Sixty-four per cent felt relieved after consultation by telephone and 83 per cent felt relieved after consultation in person. The present study suggests consultation rate as a parameter of quality of treatment and quality of information.

Key words: Tonsillectomy; Quality control

Introduction

Over the past two decades the in-patient period after tonsillectomy (T) and adenotonsillectomy (AT) has been shortened considerably. Today the standard procedure for T/AT in most countries is either out-patient day-case or in-patient-stay (discharge after 24 hours) (Segal *et al.*, 1983; Herdman and Bates, 1986; Carithers *et al.*, 1987; Helmus *et al.*, 1990; Yardley, 1992; Schloss *et al.*, 1994). The practice of either day-case or in-patient-stay have been based on low rates of serious events such as secondary haemorrhage, dehydration and infection (Siodlak *et al.*, 1985; Herdman and Bates, 1986; Chowdhury *et al.*, 1988; Guida and Mattucci, 1990; Helmus *et al.*, 1990; Yardley, 1992). However, less life-threatening complications, such as pain, nausea, vomiting, drowsiness and anxiety, have been frequently present in the period following discharge (Lee and Sharp, 1996; Pringle *et al.*, 1996). Fenton and O'Dwyer (1994) found that the majority of patients experienced most severe pain from day 5 to day 7, and otalgia was predominant on day 5 and 6. These findings indicate that information achieved from retrospective data collection from case sheets may be insufficient concerning the quality of life during the first period at home after T/AT. We suggest the pain scores and the frequency of contacts to health-care professionals after discharge to be reasonable parameters of quality, if collected prospectively.

Only two previous studies have assessed the frequency of contacts to health-care professionals post-discharge. In both studies the frequency of contacts to general practitioners and casualty departments was relatively high (Benson Mitchell *et al.*, 1996, 75.5 per cent) (Lee and Sharp, 1996, 60.6 per cent).

In the search for a parameter applicable to assessment of quality, and inspired by the ward-nurses reporting many telephone contacts with patients after discharge, we determined the frequency of contacts to health-care professionals during the first 12 days following discharge. In addition we described the reasons for these contacts.

Materials and methods

In the present, prospective study, The Roskilde County Tonsillectomy Study, we consecutively investigated 207 unselected patients admitted for elective T or AT. The patients were admitted to the Ear-, Nose- and Throat department (ENT department) of Roskilde County Hospital during an eight month period from January 1 to August 30, 1997. The ENT department served the whole community of Roskilde County. In addition, patients were referred from neighbouring counties for elective T and AT. Hospital care and treatment are free in Denmark, patients were, therefore, admitted regardless of social status or age.

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We included 73 males and 134 females in the study. Fifty-nine were children (age range 3–14) and 148 were adults (age range 15–66). Indications were chronic or recurrent episodes of acute tonsillitis, foetor ex ore and hypertrophic-obstructive tonsils and adenoids with symptoms such as snoring, apnoea, dysphagia or dysphonia. Excluded were all patients with chronic illnesses, such as diabetes, symptomatic heart disease, haemorrhagic diathesis, HIV-infection or psychiatric illness. In addition, we excluded patients who were not able to read and understand Danish.

At the first ambulatory consultation patients were given oral and written information with an enclosed questionnaire, that was to be returned by mail 14 days after surgery. Written informed consent was not to be given until 14 days after surgery together with the filled questionnaire. Hereby, the patients were ensured, that the treatment would not be affected by a negative consent. Appendix 1 shows the questions given in the questionnaire. The patients were asked to fill out the questionnaire every day for 12 days post-operatively.

All patients had their tonsils removed by blunt dissection under general anaesthesia. All grades of surgeons performed tonsillectomy. No patients underwent out-patient day-case tonsillectomy. The patients were discharged 24 hours post-operatively, preceded by throat control. Six patients were discharged later than 24 hours post-operatively.

To alleviate the post-operative pain children were given paracetamol according to weight. Adults were given diclofenac 150 mg per day for six to seven days, in combination with paracetamol 4 g maximum per day, if necessary. All patients were given written information about procedures in hospital and expected pain after discharge. In case of persistent bleeding the patients were advised to consult their general practitioner or the casualty ward. Finally, in the written information the phone-number to the ENT-ward was given.

Statistics

Statistics were performed by a professional statistician. The two-sample Wilcoxon-Mann-Whitney test was used for comparisons of age, per-operative bleeding, number of contacts by phone and in person for children versus adults, total number of contacts for children versus adults, maximum pain and duration of maximum pain for contacts versus no contacts. Fisher's exact test for non-parametric data was used when comparing gender and age groups. The Jonckheere-Terpstra test, a non-parametric test for monotone trend (Hollander and Wolfe, 1973), was used to determine the *p*-value for: a) maximum pain depending on the number of contacts, b) day for maximum pain depending on the number of contacts, and c) duration of maximum pain depending on the number of contacts.

Results

Responders vs. nonresponders

The questionnaire was returned by 136 patients (66 per cent). Two were not answered sufficiently (one adult male, one adult female) and therefore excluded. Included for analyses were 134 questionnaires, 41 children and 93 adults. No attempts were made to remind the non-responders. This decision was based on the assumption that results would be unreliable if the intensity of pain were not marked every day consecutively. Basic characteristics were gender, age groups, mean age and per-operative bleeding as given in Table I. No significant differences were found between the responders and non-responders.

Contact with health-care professionals

Sixty-three patients (47 per cent) had one or several contacts with doctors or ENT-ward nurses, within the first 12 days after discharge from hospital. Altogether these patients made 83 (72 per cent) contacts by telephone and 33 (28 per cent) contacts in person (total 116).

Figure 1 shows the distribution of contacts by telephone and in person to doctors and nurses. The ward-nurse took care of 33 (25 per cent) patients one or several times by giving advice over the phone. The general practitioner (daytime and emergency service), the casualty ward doctor and the ENT-specialist were altogether contacted in person one or several times by 24 patients (18 per cent). Seventeen patients (13 per cent) made contact both by phone and in person.

Figures 2 and 3 show contacts made by children versus adults. There was no significant difference in the number of consultations made by telephone for children vs. adults ($p = 0.96$). Adults had face to face contact more often than children. The difference in face to face consultations between children vs. adults were significant ($p = 0.03$). When comparing the total number of contacts, children (38) vs. adults (78), no significant difference was found ($p = 0.35$).

Reasons for contact

According to Appendix 1, the patients were asked to state the reason for the consultation. Figure 4 shows the reasons given. Among a total of 93 reasons given, pain in wounds accounted for 45 per

TABLE I

	responders	nonresp.	<i>p</i> -value	significance test
Number, all	134	71		
Females/males	89/45	44/27	0,5417	Fishers Exact
Adults/children	93/41	53/18	0,5172	Fishers Exact
Mean age, all	20	19	0,4376	Mann-Whitney
Age range, all	3 to 66	3 to 40		
Mean age, ch.	7	8		
Age range, ch.	3 to 14	3 to 13		
Mean age, ad.	26	23		
Age range, ad.	15 to 66	15 to 40		
Mean bleed, ml	145	156	0,4625	Mann-Whitney
Bleed. range, ml	20 to 1000	20 to 600		

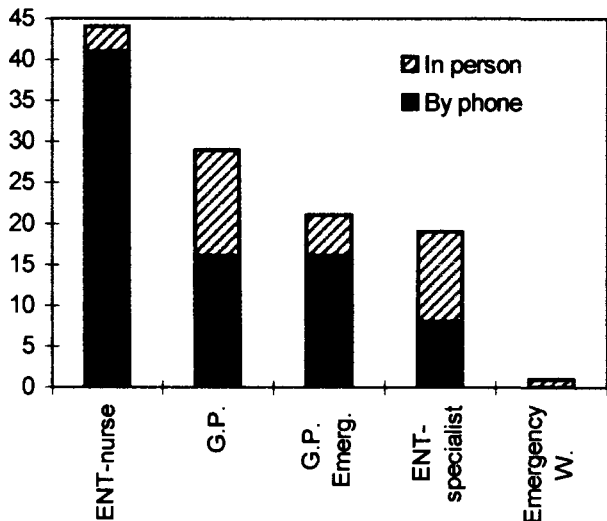


FIG. 1

Distribution of consultations (n = 116). ENT-nurse = Ear, nose and throat ward nurse. G. P. = The General Practitioner (daytime). G. P. Emerg. = The General Practitioners emergency service (evenings and nights). ENT-spec. = Ear, nose and throat specialist. Two per cent did not answer the question.

cent, otalgia 15 per cent, lingual pain four per cent, diet problems nine per cent, fever, eight per cent, bleeding four per cent, infection two per cent. Please note, that the same reason could be given for several contacts, made by the same patient. Furthermore, more than one reason could be given for a single contact. No reasons were given by eight patients.

Secondary haemorrhage is defined as haemorrhage occurring later than 24 hours after surgery. Altogether four patients (three per cent) were diagnosed with secondary haemorrhage. Two of these had surgery for haemostasis under general anaesthesia. Six patients (4.5 per cent) had infection and were given antibiotics.

Pain scores, consultations versus no consultations

On a scale from 0-10 (Appendix 1, question 1), the patients were asked to mark the intensity of pain every day. Figure 5 shows the pain scores 12 days after surgery among those, who had consultations,

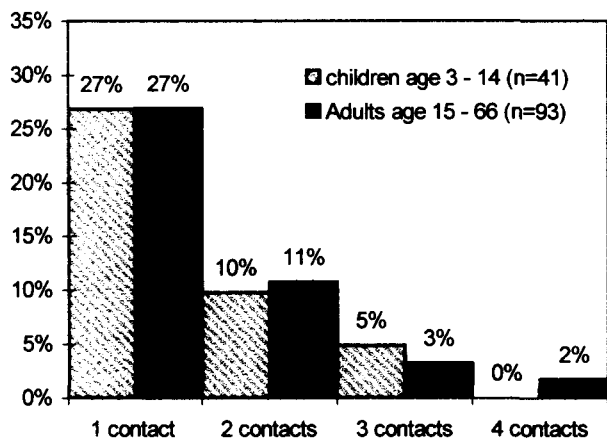


FIG. 2

Consultations by phone, children vs. adults (n = 134).

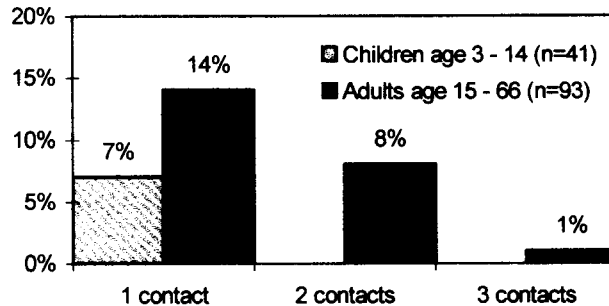


FIG. 3

Consultations in person, children vs. adults (n = 134).

compared to those who did not have consultations. The difference in maximum pain scores between the two groups were significant ($p = 0.0001$). No difference was found neither in duration of maximum pain ($p = 0.06$), nor in time point for maximum pain ($p = 0.67$) between the two groups. When maximum pain scores were depending on the number of contacts, a significant difference was found ($p = 0.0001$). The relation is as follows: the higher intensity of pain, the more contacts. In addition, the longer duration of maximum pain, the more contacts ($p = 0.005$). The time point for maximum pain did not change significantly with the number of contacts ($p = 0.86$).

Relief

Among the 56 patients, who had consultations by phone, 36 (64 per cent) felt relieved after being given advice. One did not answer the question. Among the remaining 19 patients, who did not feel relieved by given advice, seven went to see a doctor for further examination.

Twenty patients (83 per cent) among 24, who had personal contacts, felt relieved after being examined by a doctor.

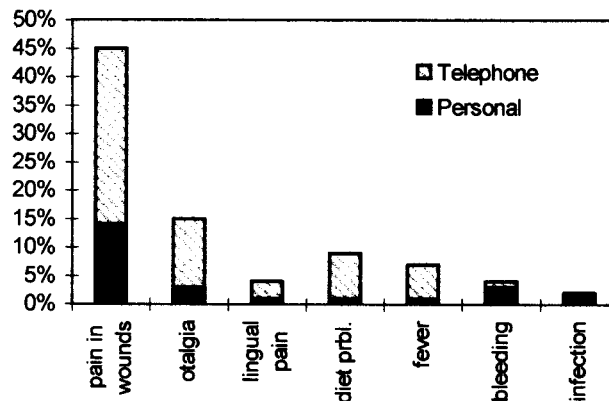


FIG. 4

Reasons given for consultations (n = 93). Diet probl. = nausea, vomiting, diarrhoea. In addition, simple questions (four per cent by telephone) were concerning dosage of analgesic medication and temperature. Other reasons (one per cent personal, eight per cent by telephone) were bad taste, swollen uvula, sleeping problems and excessive salivation.

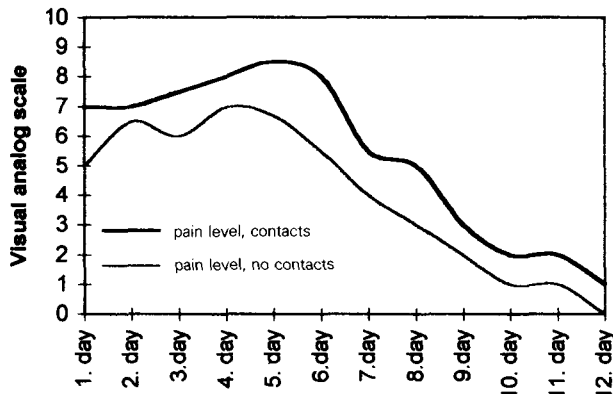


FIG. 5

Median pain scores. Patients with one or more contacts versus no contacts ($n = 134$).

Discussion

No significant differences were found between the basic characteristics of the responders and the non-responders as shown in Table I. We therefore assumed that the responders were representative of the whole unselected group of included patients, referred for T/AT.

In this study 63 patients (47 per cent) had one or more consultations with doctors or nurses within the first 12 days after discharge. A total of 116 consultations were made. Two previous reports have dealt with consultation rates to doctors, mainly general practitioners and casualty ward visits. Lee and Sharp (1996) made a survey of 291 children based on a questionnaire. They dealt with an observation period of five days after discharge (discharge after 24 hours). The general practitioner was consulted by 60.6 per cent.

Benson Mitchell *et al.* (1996) presented a follow-up study of 128 children and 38 adults. In this study 45 per cent in-patient children consulted their general practitioner and 5.4 per cent went to the casualty ward within two weeks post-operatively (total 50.4 per cent). In addition 56.2 per cent adults went to their general practitioner and 19.3 per cent went to the casualty ward (75.5 per cent). Consultations with ENT-specialists or the ENT-ward staff were not considered in the two mentioned surveys. Neither was separation between consultations by telephone and in person considered. In the present study, if we only counted the consultation rates to doctors in person (the general practitioner, the casualty ward doctor and the ENT-specialist) we found a consultation rate of 18 per cent. The consultation rates in both previous studies were higher than our figures. Nevertheless, a consultation rate of 47 per cent is considered high.

Lee and Sharp did not state whether the patients were given a standard information sheet concerning the post-operative course. In the Benson-Mitchell study patients were given an information sheet. This included an invitation to visit the general practitioner or the local casualty department, in case of either bleeding or a need for supplementary analgesia after discharge. In the ENT-dept of Roskilde County an information sheet was given, including a telephone

number for the ENT-ward, but without any direct request to make a call in case of complications. On the contrary, the patients were advised to contact the general practitioner or the casualty department in case of persistent bleeding. Nevertheless, consultations by telephone (72 per cent) were predominant compared with face to face consultations (28 per cent), as shown in Figure 1. Surprisingly, the ENT-ward nurses were contacted predominantly by telephone by half of the patients, who had contacts (25 per cent). The considerable part of contacts by telephone to ENT-ward nurses, stresses that isolated contact-rates to general practitioners and casualty wards do not show the whole picture of consultation rates. To our knowledge, no previous reports have dealt with the frequency of telephone contacts to health personnel following discharge.

This study shows that the predominant reason for contacts was pain (Figure 4). Secondary haemorrhage, infection and diet problems play a minor role, although of course, they are of more vital importance. The rate of secondary haemorrhage (three per cent) in this study did not differ from rates in previous studies (1.1–8.9 per cent, Segal *et al.*, 1983; Carithers *et al.*, 1987; Colclasure and Graham, 1990; Helmus *et al.*, 1990; Reiner *et al.*, 1990; Schloss *et al.*, 1994; Lee and Sharp, 1996).

The difference in pain scores ($p = 0.0001$) contacts vs. no contacts (Figure 5) confirm that the intensity of pain is of predominant importance when it comes to the decision of consulting a health-care professional. Furthermore, the higher intensity of maximum pain, the more contacts ($p = 0.0001$). In addition, the longer duration of maximum pain, the more contacts ($p = 0.005$). To our knowledge, no previous studies have associated pain scores with consultation rates. The fact that, considerable pain is expected in the post-operative course, stresses the need for proper oral and written information before discharge.

The majority of patients with contacts felt more relieved after consultations. This indicates the need for advice, even though the problem may not be of vital importance. In addition, the need for proper information concerning the post-operative course is stressed.

Follow-up by phone seems to be a relevant procedure, since most patients simply need to be assured, that everything is all right. It has importance concerning the quality of information and the quality of education, that 'follow-up' stays within the ENT-ward.

Conclusions

High consultation rates after discharge following T/AT, found in previous studies, are confirmed and further detailed in this study. Pain is the predominant reason for contacts after discharge. Based on these results, the authors recommend that the rates of face to face contacts as well as contacts by telephone are used as measures of short-term quality.

Additionally, it is recommended that it is made easy for patients to make contact with a health-care professional from the ENT-ward. The information

sheet could include a telephone number together with an invitation to call if any anxiety or complications should occur after discharge.

Future research should be concerned with how to reduce the intensity of pain following T/AT.

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Appendix 1: The questionnaire in abbreviated form used in this study.

1. Intensity of pain in throat.

0 = no pain at all, 5 = medium pain, 10 = intolerable pain
Please mark the number corresponding to the intensity of pain, you experience each day post-operatively (day 1 = the day following the day of surgery).

Parents should answer in cooperation with their child, if the patient is a child.

Day no. 1-13:

☺ 0 1 2 3 4 5 6 7 8 9 10 ☹

2. Did you consult any doctor or the ward-nurse **by phone**, to get advice?

Please mark: yes no

If several times, please write the number: _____

If yes, please mark who:

The general practitioners emergency service (evenings

and nights):

Any casualty department (hospital).

The ENT-specialist.

The ENT-ward nurse.

The general practitioner (daytime).

Any other medical person.

What was the reason for the consultation by phone? _____

Did you feel more relieved by the answer you were given?

yes no

What was the answer you were given? _____

3. Did you **go to a doctor or the ENT-ward (consultation in person) to get an examination?**

Please mark: yes no

If several times, please write the number: _____

If yes, please mark who:

The general practitioners emergency service (evenings

and nights):

Any casualty department (hospital).

The ENT-specialist.

The ENT-ward nurse.

The general practitioner (daytime).

Any other medical person.

What was the reason for the consultation in person? _____

Did you feel more relieved by the answer you were given?

yes no

What was the answer you were given? _____

ENT = Ear, Nose and Throat.