Need for better analgesic treatment after tonsillectomy in ear, nose and throat practices

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ABSTRACT

INTRODUCTION: The objective of this study was to investigate patient-reported outcomes on quality (PRO) of outpatient tonsillectomy in Danish ear, nose & throat practices in terms of indicators, standards and prognostic factors.

MATERIAL AND METHODS: Patients filled in a post-operative questionnaire three weeks after tonsillectomy. The questions were focused on the preoperative information about the procedure. Unscheduled contacts to Danish healthcare after the tonsillectomy and number of days absent from work/school were reported. A pain score was indicated daily during the first 14 post-operative days.

RESULTS: A total of 89% of the 614 enrolled patients returned the questionnaire. 30% were dissatisfied with the information they had been afforded about post-operative complications and risks and 23% had unscheduled contacts to Danish healthcare. The daily pain score and absence from work/school were significantly higher among adults (> 15 years) than among children. The pain score correlated significantly with absence from work/school, unscheduled contacts and short observation time. PRO was significantly influenced by the length of the observation time before discharge, and a higher pain score was associated with a lower satisfaction with preoperative information about complications/risks.

CONCLUSION: Most patients/parents are satisfied with outpatient tonsillectomy. However, the post-operative pain control needs revision, the preoperative information should be intensified and the observation of the patients before discharge should be extended.

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In a recent publication, we presented the results of a measurement of the medico-technical quality of outpatient tonsillectomy in Danish ear, nose and throat (ENT) practices by means of the principles outlined in the National Indicator Project (NIP): indicators, standards and prognostic factors [1, 2]. We concluded that it is possible to conduct quality studies in ENT practices by this instrumentation, and that useful information about specific areas demanding improvements can be achieved. Post-operative pain and bleeding were the main causes of unscheduled post-operative contacts to Danish healthcare. These indicators were influenced by age, diagnosis and length of the post-operative observation period [2]. We recommended that patients be observed for more than four hours after surgery and that more detailed/differentiated information be given to patients about the expected post-operative course.

Patient-reported outcomes (PRO) have not formed part of the various Danish NIPs. A thorough search of the literature provided only few reports about the patient's experience and impression of the entire procedure enwrapping tonsillectomy [3-6]. The majority of the patients are content with having chosen the operation, but satisfaction with the preoperative information provided and its influence on the post-operative course remain unclear.

The objective of the present study was to measure the PRO after outpatient tonsillectomy in Danish ENT practices by means of the NIP principles. Preoperative information was defined as an indicator of PRO with a standard of 90%, i.e. at least 90% of the patients should be satisfied with the information given prior to surgery [3, 4]. The degree of post-operative pain and the number of days absent from school/work after the tonsillectomy were also indicators reflecting PRO. The following prognostic factors (case mix factors) with a possible significant influence on the indicators were identified: age, diagnosis, length of the post-operative observation period and unscheduled post-operative contacts to Danish healthcare.

MATERIAL AND METHODS

The study population has been described in details in a previous publication [1]. Patients undergoing outpatient tonsillectomy in Danish ENT practices from March 2003 to March 2005 were included. Cases of tonsillotomy were excluded. All patients received pre-operative oral and written information according to the usual procedure in the clinics. A standardised, validated questionnaire about the preoperative information was prepared including post-operative pain scoring on a visual analogue scale from 0 (no pain at all) to 10 (unbearable pain). The questionnaire was tested in a pilot study through interviews with five randomly chosen patients and/or parents [7-9]. The patients/parents were presented to the questionnaire at the preoperative consultation and instructed by the surgeon to fill in a daily pain

ORIGINAL ARTICLE

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FIGURE 1

Median daily pain scores 1-14 days after tonsillectomy. Bars indicate minimum and maximum scores.

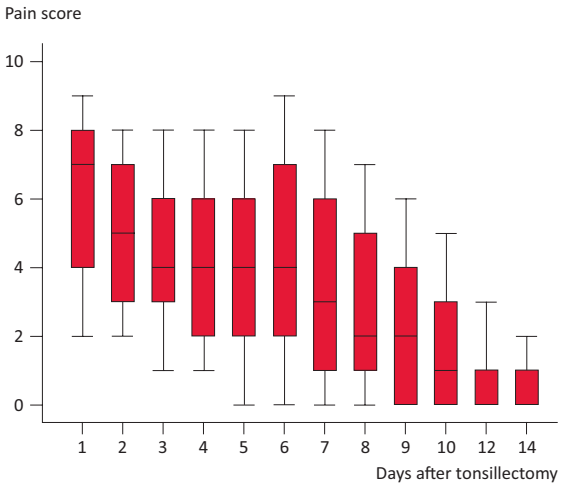
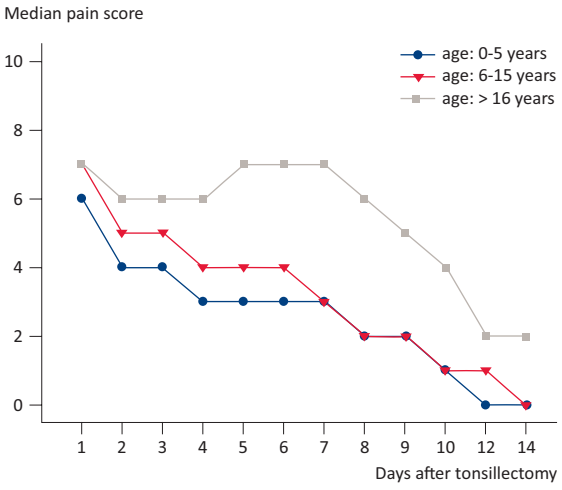


FIGURE 2

Median daily pain scores 1-14 days after tonsillectomy in three different age groups.



score between two dosages of prescribed analgesics during the first 14 post-operative days. A combination of paracetamol and non-steoridal anti-inflammatory drugs (NSAID) according to age and weight was routinely prescribed for the first week by the surgeon. Three weeks after the tonsillectomy, the rest of the questionnaire was filled in before a post-operative control examination in the ENT practice.

The following questions were selected as measures for the PRO: On a scale from 1 (extremely dissatisfied) to 7 (excellent): How was the preoperative information about A: the surgical procedure, B: the anaesthetic procedure, C: the post-operative recovery in the clinic, D: the treatment of post-operative pain, E: the post-operative intake of food, F: complications/risks. Furthermore, how was the preoperative contact to the staff G: in the clinic and H: in the recovery room. And how did you experience I: the possibility of contacting the surgeon during the first post-operative day, J: the waiting time before the preoperative consultation, K: the waiting time before surgery and L: the operation theatre [7-9].

The a priori set standard for each was that at minimum of 90% of the patients should indicate a score of five (satisfied) or more.

Finally, the patients were invited to report about unscheduled contacts to Danish healthcare after discharge and hospitalization as well as the number of days absent from work/school/institution after the tonsillectomy.

The study did not meet the criteria for trial registration.

Statistics: For comparison between responders and non-responders, the student t-test was applied for data with normal distribution. Otherwise, the χ^2-test was used. Correlations were tested by means of Pearson correlation coefficients.

Trial registration: not relevant.

RESULTS

A total of 614 patients were enrolled according to the inclusion criteria. The questionnaire about the preoperative information and the pain scores were evaluable in 549 cases (89%) with a median age of eight years (one to 49 years). A total of 73% were children below 16 years of age; 54% were females. There were no statistical differences between responders and non-responders in terms of age, gender and diagnoses ($0.2270 < p < 0.9824$). 23% of the responders (122/549) reported to have had unscheduled contacts after discharge. The corresponding number among the non-responders was 35%, which is significantly higher than among the responders ($p < 0.0287$). Twenty-eight of the responders (5.1%) had been hospitalized post-operatively compared to four out of 65 non-responders (6.1%).

As presented in **Figure 1**, the median daily pain score gradually declined from seven to zero throughout the first 14 post-operative days; however, with large variations. The pain scores are presented by age groups in **Figure 2**. Patients older than 16 years reported significantly higher scores than patients younger than 16 years during the entire period except for the first post-operative day ($p < 0.0001$).

As regards PRO, less than 90% of the patients were satisfied with the information given about post-operative complications/risks (71%), the interior of the opera-

tion theatre (82%) and the waiting time before the first consultation (89 %), **Figure 3**. Thus, the level of satisfaction regarding these three questions did not fulfil the a priori chosen standard of 90%. On the other hand, the patients were extremely satisfied with the information about the operation and their possibility of contacting to the surgeon after discharge.

Almost 80% of the patients were absent from school/work between five and 15 days, **Figure 4**. Patients older than 16 years had significantly more days of absence from school/work than younger patients (12 days versus nine days, $p < 0.0001$).

The daily pain score correlated significantly with unscheduled contacts after discharge as well as with the number of days of absence from school or work ($p < 0.0001$). Furthermore, the mean pain score throughout the first two post-operative weeks was significantly associated with short observation time in the clinic (Pearson correlation coefficient: –0.10170, $p = 0.0205$). There was a general tendency towards a correlation between high pain scores and low degrees of satisfaction with the information about complications/risks, especially at day eight, nine and ten after the tonsillectomy ($0.0466 < p < 0.063$). There were no correlations between the pain score and hospitalizations except at day eight; the diagnosis; and the level of satisfaction with the information about post-operative pain treatment.

In terms of PRO, the degree of satisfaction with the preoperative information about complications/risks as well as the waiting time before the first preoperative consultation and the interior of the operation theatre were independent of age, diagnosis, unscheduled contacts and hospitalization ($p > 0.0845$). A significant positive correlation was found between the length of the post-operative observation period and the degree of satisfaction with the preoperative information about risks and complications (Pearson correlation coefficient = 0.11609, $p = 0.0085$).

Besides the age of the patient, the number of days of absence from school/work after the tonsillectomy correlated with unscheduled contacts after discharge and hospitalization ($p < 0.0047$) as well as with the length of the post-operative observation period (Person correlation coefficient = 0.22292, $p < 0.0001$). This may indicate that patients with difficult surgery/immediate post-operative problems and thus a longer stay at the clinic also had a prolonged post-operative course in general. Absence correlated inversely with the degree of satisfaction with the information about complications/risks and post-operative pain treatment ($p < 0.0340$).

DISCUSSION

To our knowledge, this is first study among a rather large population of outpatient tonsillectomies addressing PRO on quality. The results disclosed a generally high PRO. However, three specific areas need attention. Thus, the treatment of post-operative pain was insufficient, and the information about post-operative complications/risks was unacceptable since almost 30% of the patients were less than satisfied. Finally, the length of post-operative observation before discharge influenced all three indicators significantly: the shorter observation, the higher pain score, the more absence, the less satisfaction.

FIGURE 3

Percentage of 549 patients being satisfied with various conditions (A-L) related to tonsillectomy, including the information given before surgery. Red line indicates the minimum percentage (standard) of patients that should have been obtained according to the pre-set level of satisfaction.

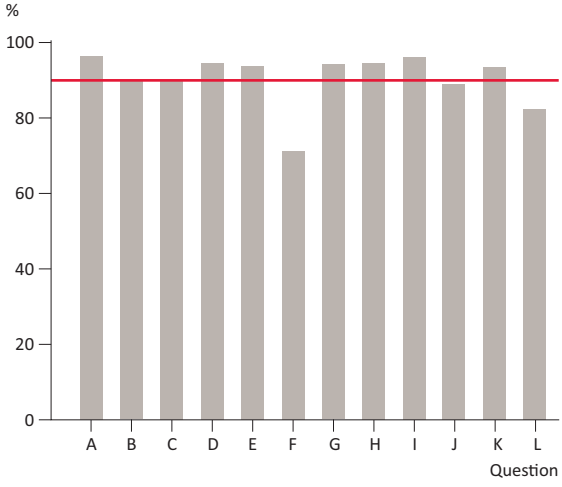
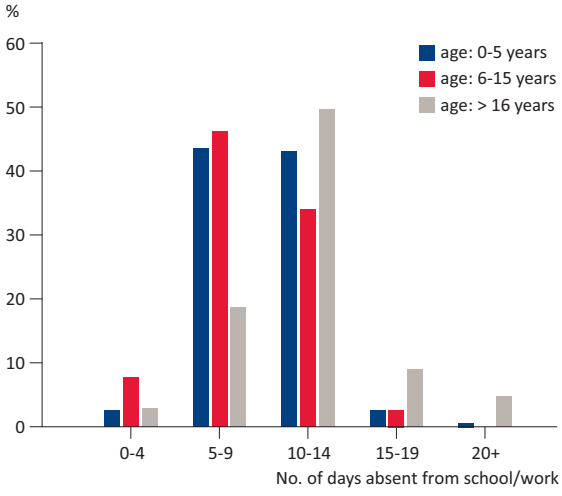


FIGURE 4

The number of days with absence from school/work after tonsillectomy in three different age groups. Percentage of 549 patients is indicated on the y-axis.



Removed hyperthropic tonsils.

The response rate of 89% (549/614) is acceptable since no significant differences between the responders and the non-responders in terms of demographic parameters were found. On the other hand, significantly more unscheduled contacts were identified among the non-responders than among the responding group. Previous studies investigating both outpatient and inpatient tonsillectomies have found corresponding results [3, 10-14]. Based on the more frequent post-operative contacts among the non-responders, it may be suspected that their level of satisfaction was lower and that their pain/absence from work was higher, meaning that we may have underestimated the three indicators.

Like in our study, pain is a well-known problem after tonsillectomy and a common cause of readmission [1, 10, 14-17]. Especially the high pain scores on the day of surgery as well as the duration of post-operative pain demand attention. According to recent literature, the prevalent complaints of pain, nausea and vomiting during the first 24 hours after tonsillectomy may be significantly reduced by a single intra-operative dose of intravenous dexamethasone [14, 18, 19]. Traditionally, mild to moderate analgesics (paracetamol and NSAID) are prescribed for a week, which is obviously insufficient, especially in patients older than 16 years. The exact amounts and types of analgesics taken by the patients were not registered in the present study. It was chosen not to interfere with the routines in the clinics. Thus, it can only be concluded that these routines seem insufficient and that analgesics may be recommended for up to two weeks [14]. This will contribute to facilitate food-intake and avoid dehydration, thereby increasing the patient's well-being. It would probably also result in a decrease of the socio-economic burden owing to fewer unscheduled healthcare contacts and lower absence rates. Somewhat in contrast to this, we found that 94% of the patients were satisfied with the information about post-operative pain. The explanation may be that the patients who reported the highest pain scores perceived this as a complication and consequently expressed their dissatisfaction through the question about the information about complications and risks.

In accordance with our findings, others have reported a high degree of satisfaction with tonsillectomy [3-6]. Thus, the majority of patients (88-91%) were content with having chosen the operation and they were also content with the results of surgery [3, 4]. Nonetheless, patients were dissatisfied with early discharge and the level of information [3, 5, 6]. The fact that only 71% of the patients in the present study were satisfied with the information provided about post-operative complications and risks is, indeed, problematic. Since complications occur rather frequently after tonsillectomy and may be serious, even life-threatening, it is mandatory to give adequate information and to educate the patients and caretakers prior to surgery [14]. In an Irish study evaluating various websites, the authors concluded that the internet represents a useful tool for informing and educating both patients and clinicians [20]. Therefore, clinicians should be encouraged to use website information as a supplement to their own material. To comply with the need for a more sufficient regimen of analgesics as well as pre-operative information, national guidelines ought to be prepared. Furthermore, as we found a strong, positive correlation between the length of the post-operative observation period before discharge and the degree of satisfaction with the information about post-operative complications/risks, it is recommended to extend the observation period during which the information is repeated [1].

CONCLUSION

To our knowledge, this is the first report about a rather large population of outpatient tonsillectomies addressing PRO by means of indicators, standards and prognostic factors. The measured indicators were PRO in terms of satisfaction with the tonsillectomy, pain scores and absence from work/school after surgery. Almost 30% were dissatisfied with the information about post-operative complications and risks. The pain scores were highest on the day of surgery and pain endured for a period of up to 14 days, mainly among patients older than 16 years. The absence from work/school and unscheduled post-operative contacts followed the pain scores. The length of the observation period before discharge correlated significantly with the pain scores, PRO and absence.

We recommend a single intra-operative dose of intravenous dexamethasone, prescription of analgesics for a minimum of two weeks for patients older than 16 years, four to six hours of observation and intensified information efforts. To specify this, national guidelines should be prepared, including exact and unambiguous

recommendations for outpatient tonsillectomy in ENT practices as well as in hospital clinics.

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