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Current indications for adenoidectomy in a sample of children in the Netherlands

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Abstract. *Current indications for adenoidectomy in a sample of children in the Netherlands.*
Objective: To study current indications for adenoidectomy in Dutch children.
Methods: During 6 months, ENT surgeons in 1 academic and 7 general hospitals in the Netherlands filled out a questionnaire concerning all children below 15 years of age that were selected for adenoidectomy either as a single procedure or combined with myringotomy or tympanostomy tube placement. This questionnaire collected data on patient characteristics, ENT history, and indication(s) for the procedure.
Results: Questionnaires were returned on 159 children. The study population was comparable to the general population of children undergoing adenoidectomy in the Dutch Health Care Services database concerning age and sex.
Adenoidectomy alone was performed in 38%, adenoidectomy and myringotomy in 15%, and adenoidectomy and tympanostomy tube placement in 47%. In children selected for adenoidectomy alone, indications were recurrent upper respiratory tract infections or chronic rhinosinusitis in 60%, persistent otitis media with effusion or recurrent acute otitis media in 33%, and obstructive symptoms in 42%.
In children selected for adenoidectomy and myringotomy and those selected for adenoidectomy and tympanostomy tube placement, indications were persistent otitis media with effusion or recurrent acute otitis media in 96% and 99%, recurrent upper respiratory tract infections or chronic rhinosinusitis in 88% and 59%, and obstructive symptoms in 33% and 24%, respectively.
Conclusion: In Dutch ENT practices, almost two-thirds of adenoidectomies are combined with myringotomy or tympanostomy tube placement. The most common indication for adenoidectomy combined with myringotomy or tympanostomy tubes is middle ear disease. For adenoidectomy alone, recurrent upper respiratory tract infection is the most common indication.

Introduction

Adenoidectomy is one of the most common surgical procedures performed in children; it is performed either as a single procedure or in combination with myringotomy or tympanostomy tube placement. Adenoidectomy rates are variable, with values of 24 per 10,000 children in the United States, 39 per 10,000 children in the United Kingdom,[1] and 74 per 10,000 children in the Netherlands.[2] These large differences across Western countries suggest that there is not a general consensus regarding which pediatric patients benefit from the operation.

Current indications for adenoidectomy include recurrent upper respiratory tract infections, middle ear disease, and upper airway obstruction.[3,4] These indications are practice-based rather than evidence based, since randomized controlled trials of adenoidectomy in children have focused on middle ear disease. The effects of adenoidectomy in patients with recurrent upper respiratory tract infections and/or obstructive symptoms have not been studied systematically. This was emphasized recently in the Dutch national guideline on diseases of tonsils and adenoid, the ZATT guideline,[5] in which the performance of a randomized controlled trial on the effectiveness of adenoidectomy in children with recurrent upper respiratory tract infections was advised.

The aim of this study was to determine the indications used by Dutch ENT surgeons to determine which pediatric patients are treated with adenoidectomy.

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Material and methods

Data collection

From July until December 2004, ENT surgeons from 7 general hospitals and 1 academic hospital, collaborating in our multi-center studies on upper respiratory disease[6,7] in the Netherlands, filled out a questionnaire concerning all children younger than 15 years of age whom they selected for adenoidectomy. In addition to age, sex, and ENT history of the child, the questionnaire determined the selected procedure: adenoidectomy as a single procedure, adenoidectomy combined with myringotomy, or adenoidectomy combined with placement of tympanostomy tubes. Four potential indications were listed: (1) persistent otitis media with effusion (pOME) or recurrent acute otitis media (rAOM); (2) recurrent upper respiratory tract infections (rURTI) or chronic rhinosinusitis; (3) obstructive symptoms; and (4) other. ENT surgeons were asked to provide a ranking order if more than one indication was applicable in a single child. Children that were selected for adenotonsillectomy were excluded, because we studied the indications and effectiveness of this procedure earlier.[6,8]

Statistical analysis

We calculated: 1) percentages of children selected for adenoidectomy as a single procedure, adenoidectomy in combination with myringotomy, and adenoidectomy in combination with tympanostomy tube placement; 2) the distribution of the indications over the three procedures; and 3) the combinations of indications reported. We also compared the characteristics of the children included in this study with those having undergone adenoidectomy included in the Dutch Health Care Services database. This national database includes information on medical procedures, age, and sex as provided by all Dutch hospitals. It does not include information on medical diagnoses related to these procedures.

Results

Population characteristics

In total, 159 questionnaires were completed by the collaborating ENT surgeons. Of the 159 children, 93 were boys (59%) and the median age was 3.0 years (range, 0-15 years). Children selected for adenoidectomy because of rURTI were slightly younger (mean age 2.0 years; range, 0-7 years) and those selected for adenoidectomy because of obstructive symptoms were slightly older (mean age 4.0 years; range, 1-6). The age and sex distribution is comparable to the general population of children undergoing adenoidectomy included in the Dutch Health Care Services database.[2]

Thirty-three (21%) patients had previously undergone an ENT operation: 21 (13%) adenoidectomy, 18 (11%) tonsillectomy, 10 (6%) placement of tympanostomy tubes, and 9 (6%) myringotomy.

Thirty-eight percent of children were selected for adenoidectomy alone, 15% for adenoidectomy in combination with myringotomy, and 47% for adenoidectomy and tympanostomy tube placement.

Indications

In children selected for adenoidectomy alone, indications were rURTI or chronic rhinosinusitis in 60%, pOME or rAOM in 33%, and obstructive symptoms in 42%.

In children selected for adenoidectomy in combination with myringotomy, indications were rURTI or chronic rhinosinusitis in 88%, pOME or rAOM in 96%, and obstructive symptoms in 33%. In children selected for adenoidectomy in combination with tympanostomy tube placement, indications were rURTI or chronic rhinosinusitis in 59%, pOME or rAOM in 99%, and obstructive symptoms in 24% (Table 1).

A total of 118 of the 159 children had more than one indication for adenoidectomy (Table 2), with the most frequent combinations being pOME/rAOM and rURTI/chronic rhinosinusitis (38%).

The indications for adenoidectomy in the single academic center were similar to those of the general hospitals.

Discussion

Our results show that, second to middle ear disease, recurrent upper respiratory tract infection is a very common indication for adenoidectomy in Dutch ENT practice.

Although we have shown that the children selected for adenoidectomy included in this study are representative of those included in the Dutch Health Care Services database,[2] it is questionable if the results of this study can be generalized to other countries. Adenoidectomy rates are higher in the Netherlands than in most other Western countries.[1,2] According to the literature, middle ear disease and upper airway obstruction are the most frequent indications for adenoidectomy in most countries, rather than rURTI.[9-12] As far as we know, this

Table 1

Frequency of indications for adenoidectomy in Dutch children

	Adenoidectomy alone (n = 60)	Adenoidectomy and myringotomy (n = 24)	Adenoidectomy and tympanostomy tubes (n = 75)
Indication	N (%)	N (%)	N (%)
pOME or rAOM	20 (33%)	23 (96%)	74 (99%)
rURTI or chronic rhinosinusitis	36 (60%)	21 (88%)	44 (59%)
obstructive symptoms	25 (42%)	8 (33%)	18 (24%)
other*	4 (7%)	0 (0%)	3 (4%)
TOTAL**	85	52	139

pOME = persistent otitis media with effusion; rAOM = recurrent acute otitis media;
rURTI = recurrent upper respiratory tract infections.
* Other indications listed were: speech or language delay (n = 3), fever (n = 3), and failure to thrive (n = 1)
** Total percentages exceed 100% because ENT surgeons could give more than one indication.

Table 2

Frequency and combinations of indications for adenoidectomy in Dutch children

Combination of indications	N (%)
pOME / rAOM alone *	29 (18%)
rURTI / chronic rhinosinusitis alone *	19 (12%)
Obstructive symptoms alone *	13 (8%)
pOME/rAOM and rURTI/chronic rhinosinusitis	60 (38%)
pOME/rAOM and obstructive symptoms	16 (10%)
rURTI/chronic rhinosinusitis and obstructive symptoms	10 (6%)
pOME/rAOM and rURTI/chronic rhinosinusitis and obstructive symptoms	12 (8%)

* children with only one indication for adenoidectomy.

is the first prospective inventory of indications for adenoidectomy in children in daily ENT practice.

Modern indications for adenoidectomy as listed in textbooks[3,4] lack solid scientific basis of efficacy. We found the most frequent indication for adenoidectomy to be middle ear disease. Indeed, some evidence is available supporting a small beneficial effect from adenoidectomy in children with recurrent acute otitis media and chronic otitis media with effusion.[12,13] The second most frequent indication for adenoidectomy in our population was rURTI. However, there is scarce evidence to support this indication.[11,14] The need for randomized controlled trials evaluating the role of adenoidectomy in this population was underlined recently in national guidelines issued in Italy and the Netherlands.[5,15] Similarly, the effects of adenoidectomy alone versus adenotonsillectomy in children with symptoms of upper airway obstruction deserve further study.[14] Following completion of clinical trials, we hope to update current guidelines, as has recently been done with the Allergic Rhinitis and its Impact on Asthma (ARIA) guideline.[16]

Conclusion

In conclusion, this prospective study shows that two-thirds of adenoidectomies carried out in the pediatric population in the Netherlands are combined with myringotomy or tympanostomy tube placement. The most common indication for adenoidectomy combined with myringotomy or tympanostomy tubes is middle ear disease, whereas the most common indication for adenoidectomy alone is recurrent upper respiratory tract infection.

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