Patient Reported Outcome Measures (PROM) after adenotonsillectomy performed in children with sleep-disordered breathing

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PROM - introduction

• PROM = patient reported outcome measures

  – ‘any report directly from patients, without interpretation by physicians or anyone else, about how they function or feel in relation to a health condition and its therapy (from diaries, questionnaires, interviews, etc.)’ (Cochrane workgroup)

  – can be used in clinical trials to measure the effect of a medical intervention
    • survival: not the only outcome of interest for many interventions
    • objective physiologic measures do not always reflect functioning of the patient

  – offer enormous potential to improve the quality and results of health services
Background

• AdenoTonsillectomy (ATE)
   - Leupe PJ. et al - *Societal cost of tonsillectomy compared to acute tonsillitis in children: a cost comparison study* - B-ENT. 06-2012

   - Belgium:
     • 2001: 23,208 ATE’s
     • 2010: 23,384 ATE’s
   - ATE: indirect: 45 %, direct 55 % (fee: 24 %, hospital: 31 %)
     • Nis: € 970
     • Fod: € 1074
     • financial impact on yearly basis: 22,682,480 (25,114,416) euro in 2010
   - Angina: indirect: 94 %, direct 6 % (medical: 6 %)
     • Nis: € 613
     • Fod: € 805
     • financial impact of 23,384 anginae: 15,410,056 euro (18,824,120)
Background

• AdenoTonsillectomy (ATE)

  – 2 major indications:
    • recurrent tonsillitis (>3-4 episodes/year): 75 %
    • upper airway obstruction due to AT hypertrophy: 25 %
Recurrent Tonsillitis 75%

- ATE is done in a well-considered way

  - Lemkens N. et al - *Use of antibiotics and number of doctor visits after adenotonsillectomy* - B-ENT. 06-2010

  - studied data of ‘Christelijke Mutualiteit’ on 11.114 subjects who underwent ATE

  - significant reduction after ATE in the need for medical care

  - median number of doctor visits dropped from 7 visits to 4 visits in the year after ATE (34% reduction)

  - median antibiotic use dropped from 4 boxes in the year before ATE to 1 box in the year after ATE (55% reduction)
Recurrent Tonsillitis 75 %

• ATE is done in a well-considered way


• same data of ‘Christelijke Mutualiteit’

• respiratory medication = heterogeneous group of non anti-microbial medications used for inflammatory and reversibly obstructive lower respiratory diseases

• mean respiratory medication use dropped from 3.2 boxes in the year before surgery to 1.6 boxes in the year after surgery (reduction of 51%)
Upper Airway Obstruction 25 %

- sleep-disordered breathing
  - Adenotonsillar hypertrophy as the most common cause of childhood OSAS
  - Continuum: primary snoring => obstructive sleep apnea syndrome (OSAS)
  - Complications of untreated OSAS (snoring, sleepiness, behavior, apnea, appetite)
  - Diagnosis:
    - Patient history, clinical findings,
    - Polysomnography ??
  - Treatment: adenotonsillectomy
PROM – introduction
Upper Airway Obstruction

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PROM - introduction

- objective PROM
  - to evaluate the effect of adenotonsillectomy (ATE) on QoL
    - in children with SDB
    - as reported by their parents
  - to evaluate the feasibility of this method
    - by means of an electronic questionnaire
Materials and methods

• patients
  – consecutive patients
    • between 29/10/2009 and 28/10/2010
    • age 0-16 years
    • undergoing ATE for SDB

  – ENT specialist decides which patients can be included based on
    • history
    • clinical findings

  – nurses in the day care surgery centre invite parents to participate
    T0, T1, T2.
Materials and methods

• electronic questionnaire
  based on the Pediatric Sleep Questionnaire (Chervin et al, 2000)
  • snoring score
  • sleepiness score
  • behavioral score
  • appetite score
  • apnea score
  • total score

• yes/no response format (yes = 1; no = 0) => higher scores = more symptoms
• question 15 (appetite) = indicated on a scale from 1 to 10
Materials and methods

• electronic questionnaire based on the Pediatric Sleep Questionnaire (Chervin et al, 2000)

  • snoring score:

    – ‘snurkt uw kind meer dan de helft van de nachten?’
    – ‘snurkt uw kind iedere nacht?’
    – ‘snurkt uw kind zeer luid tijdens de slaap?’
    – ‘ademt uw kind zwaar of luid tijdens de slaap?’
Materials and methods

• electronic questionnaire
  based on the Pediatric Sleep Questionnaire (Chervin et al, 2000)

  • sleepiness score:
    – ‘Is uw kind vaak slaperig overdag?’
    – ‘Heeft een leraar of andere begeleider ooit opgemerkt dat uw kind moe is?’
    – ‘Is het moeilijk uw kind ‘s morgens wakker te krijgen?’
    – ‘Wordt uw kind ‘s morgens wakker met hoofdpijn?’
Materials and methods

• electronic questionnaire based on the Pediatric Sleep Questionnaire (Chervin et al, 2000)

  • behavior score:

    – ‘Lijkt uw kind vaak niet te luisteren wanneer u hem/haar aanspreekt?’
    – ‘Heeft uw kind moeite om taken en activiteiten te organiseren?’
    – ‘Is uw kind vaak gemakkelijk afgeleid?’
    – ‘Friemelt uw kind vaak met de handen of wiebelt uw kind op zijn/haar stoel?’
    – ‘Lijkt het vaak of uw kind niet te stoppen is?’
    – ‘Onderbreekt uw kind vaak anderen?’
Materials and methods

• electronic questionnaire
  based on the Pediatric Sleep Questionnaire (Chervin et al, 2000)

  • appetite score:
    – ‘Hoe is de eetlust van uw kind? Duid aan op een schaal van 1 tot 10’

  • apnea score:
    – ‘Heeft uw kind moeite om adem te halen tijdens de slaap?’
    – ‘Stopt uw kind regelmatig even met ademhalen tijdens de slaap?’
Materials and methods

• questionnaires were completed on
  – T0 = day of the surgery (in the day care surgery centre)
  – T1 = 2 weeks after surgery (sent by e-mail)
  – T2 = 6 months after surgery (sent by e-mail)

• outcome measure = difference between pre- (T0) and postoperative (T1 and T2) scores
  – analyzed using Wilcoxon signed-rank test
Results

• age: 2-16 years old, median 4 (IQR 3-5)
• sex: 62% male, 38% female

• snoring - behavior - apnea
  – lower on T1 and T2 than on T0 (p<0.0001; p<0.0001)
  – no significant difference between T1 and T2

• sleepiness
  – lower on T1 and T2 than on T0 (p=0.003; p=0.0001)
  – lower on T2 than on T1 (p=0.04)

• appetite
  – higher on T2 than on T0 (p=0.01)
  – no significant difference between T1 and T2, T1 and T0
Results

- 88% invited patients wished to participate
  - 6% invited patients had no access to internet
  - 6% invited patients did not wish to participate
  - language problems were not reported

- T0: 69 questionnaires
- T1: 57 questionnaires (82.6%)
- T2: 55 questionnaires (79.7%)
Conclusion

• effect of ATE on QoL?
  – children with SDB have a substantially improved QoL after ATE
  – this is a long-term effect
  – no need of Polysomnography

• feasibility of this method?
  – language problems were not reported
  – a minority of patients had no access to internet
  – a minority of patients did not want to participate
  – high response rates on T1 and T2