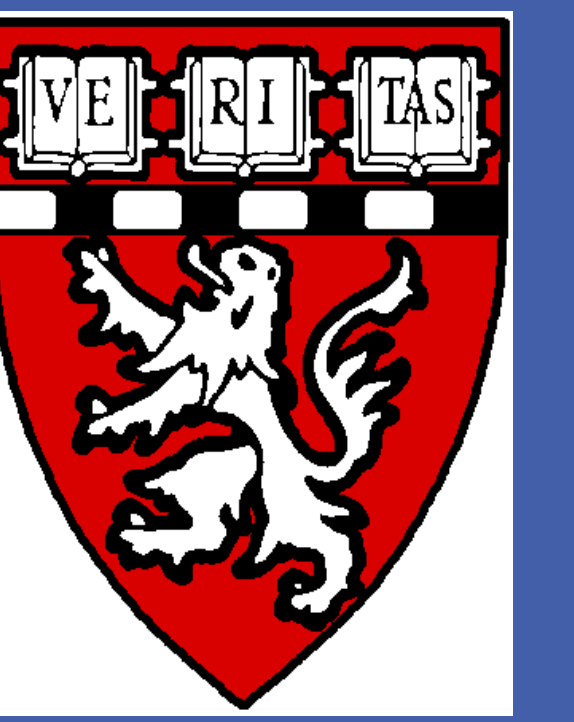


OTOLARYNGOLOGY SERVICE USAGE IN CHILDREN WITH CLEFT PALATE



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Abstract

Objectives: To determine the usage of otolaryngology services by children with cleft palate at a pediatric tertiary care facility.

Study Design: Retrospective chart review.

Methods: A centralized data repository was queried for all children born between 1/1/1999 and 12/31/2002 with the diagnosis of cleft palate or cleft lip and palate.

Results: 110 patients were identified. Three patients were excluded for having a diagnosis of cleft lip only and 18 were excluded for not receiving otolaryngologic care at the hospital; therefore, 89 patients (41 female and 48 male) were included. 58 (65.2%) of these children had both cleft lip and palate. 12 (13.5%) had a cleft associated with a syndrome. In the first five years of life, the children had an average of 8.2 otolaryngology clinic visits (SD 5.0; range: 1-22) and underwent 3.3 tympanostomy tube surgeries (SD 2.0; range: 0-10). 77 (86.5%) had their first tube placed at the time of repair; 73 at the time of palate repair, and 4 at the time of lip repair. 51 (57.3%) required other otologic or upper airway procedures, including tonsillectomy or adenoidectomy (27 children), removal of tympanostomy tubes (24 children), tympanomastoidectomy (3 children), and tympanoplasty (14 children). Of the children who underwent other procedures, they underwent a mean of 1.67 (SD=.84, range 1-4) surgeries.

Conclusions: Children with cleft palate are at increased risk for eustachian tube dysfunction, frequently utilize otolaryngology care, and typically receive multiple sets of tympanostomy tubes. This study found that children with cleft palate receive on average of approximately 3 sets of tympanostomy tubes, and the majority required another otologic or upper airway surgery.

Methods

IRB approval was obtained from the Boston Children's Hospital institutional review board, after which we queried the institutional tool, i2b2. This tool is a centralized repository of clinical data, which allows users to form complex queries composed of specific patient characteristics. The system returns a list of patients who fulfill those characteristics. It draws from a data source which includes all hospital-billed ICD-9 diagnoses or procedures codes.

We queried over the time period of January 1st, 1998 to December 31st, 2002 for:

-cleft palate, diagnoses of

ICD9: 749.0

749.2

The medical records of patients returned by i2b2 were then abstracted by a single research team member for medical, surgical, and audiological history, where hearing loss was defined as present if there was greater than or equal to a 25dB HL at any single frequency. As this was a descriptive study, statistical analyses were limited to descriptive statistics.

Purpose

It is known that children with cleft palate often have concomitant eustachian tube dysfunction (Szabo et al, 2010; Sheahan et al 2008). However, for prognostic purposes regarding the typical usage of otolaryngological (ORL) services in this population is scarce, with one study by Szabo et al (2010) examining similar questions, who found these children underwent a mean of 1.7 tympanostomy tube placements. This study was conducted to determine the usage of ORL services by children with cleft palate at a single pediatric tertiary care facility.

Results

110 patients identified

→ 3 excluded for cleft lip only
→ 18 excluded for not receiving ORL care at facility

89 patients (41 female, 48 male)

-12 (13.5%) patients had a diagnosed syndrome
» Stickler's, velocardiofacial, Van der Woude, Apert's, Diamond Blackfan, CHARGE, Moebius, Shone, Say, and other chromosomal abnormalities
-11 (12.4%) patients had Pierre Robin sequence

8.2 visits: Mean number of visits to the ORL clinic

Standard deviation 5.0, range 1-22

3.3 surgeries: Mean number of tympanostomy tube surgeries performed for each patient

Standard deviation 2.0, range 0-10

77 (86.5%) had first tympanostomy tube placed at the time of repair

- 73 at time of palate repair
- 4 at time of lip repair

31 (34.8%) had evidence of hearing loss upon the final audiological evaluation

- 23 Conductive
- 5 Mixed
- 3 Sensorineural

51 (57.3%) required other otologic or upper airway surgeries

- Mean of 0.96 other surgeries required (Range of 0-4 surgeries)
 - 27 required tonsillectomy and/or adenoidectomy
 - 24 required surgical removal of TTs
 - 14 required tympanoplasty
 - 3 required tympanomastoidectomy
 - 8 underwent examination under anesthesia during other surgery
- 9 of 12 (75%) with diagnosed syndrome required additional otolaryngologic surgery

Discussion

It is known that children with cleft palate are at increased risk of eustachian tube dysfunction; as such, they often receive tympanostomy tubes to assist with fluid drainage from the middle-ear (Szabo et al 2010). What is unknown is their overall usage of otolaryngological care.

These children were found to undergo a mean of 3.3 tympanostomy tube placement surgeries. The majority of these surgeries occurred during otherwise-scheduled surgery, e.g. cleft repair. This number is higher than that of approximately 1.7 surgeries found by Szabo et al (2010); potentially this is due to differences in the population treated at this institution, or perhaps differences in surgeon preference. In terms of otolaryngologic care usage, these patients had a mean of 8.2 ORL clinic visits for those who were followed by this institution for ORL care. These children on average required one additional otologic or upper airway surgery, with tonsillectomy or adenoidectomy being most common. The rate of hearing loss seen in this data set, in roughly one-third of the patients correlates with that of 37% seen in prior study (Tuncbilek, Ozgur, & Belgin, 2003). A 2003 study by Shaw, Richardson, and McMahon found that grommet usage as opposed to conservative management in this population was suggestive of better speech outcomes, though other studies have found better outcomes with conservative management (Phua et al. 2009); a review by Ponduri et al (2009) found the evidence in this regard is contradictory. As such, next steps could include reviewing outcomes, including medical, speech, and audiological more thoroughly.

This study is limited by its retrospective nature; the data were limited to what was available in the electronic medical records at a single facility, as such the descriptive results found could be biased due to potentially missing data points. In addition, as a single pediatric tertiary care institution, there could also be selection bias regarding who was included in the project.

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