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ORIGINAL ARTICLE

Otoscopic and tympanometric findings in infants with cleft lip and palate

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Summary

Tympanometry plays a fundamental role in the identification of middle ear alterations, which are frequent in the population with cleft lip and palate. **Aim:** do a retrospective analysis of the otoscopy and tympanometric exams of infants with cleft lip and palate who were not operated. Retrospective study. **Materials and Methods:** we analyzed 273 charts from infants with cleft lip and palate whom, from March 1996 to April of 2002 underwent pneumatic otoscopy and tympanometry with a 226 Hz probe. **Results:** We did not find statistical significance in the otoscopic and tympanometric findings considering ears and genders. We observed 84% of alterations in otoscopy (opacification/83.4%, visible fluid in the middle ear /1.5%, the ear drum does not move during inflation /1.8 and retraction/0.7) and 65% in tympanometric curves (B/38%), A/36.5%, As/21%, C/4% and Ad/0.5%). **Conclusion:** female and male infants with cleft lip and palate did not differ as far as otoscopic and tympanometry findings are concerned. All types of tympanometric curves were present, and types A and B were the most frequent ones. Ear drum opacification was the most frequent otoscopic finding. Pneumatic otoscopy identified a larger number of alterations when compared to conventional tympanometry.

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INTRODUCTION

Studies have reported that children with craniofacial anomalies, especially those with cleft lip and palate, have a high incidence of middle ear alterations.[1-5]

During decades, tympanometry has been a broadly accepted method to assess middle ear function[6], as a fast, safe, non-invasive and easy to use procedure.

Considering the fundamental role played by tympanometry in the identification of middle ear alterations, which have a high incidence in the population with cleft lip and palate, we thought it was necessary to carry out a retrospective study of tympanometric findings in infants with this congenital malformation in order to help characterize the person's audiologic profile.

The goal of this study is to carry out a retrospective analysis of the results of otoscopic and tympanometric exams in infants with cleft lip and palate that were not operated.

MATERIALS AND METHODS

After proper approval by the Ethics in Research Committee (protocol # 140/2005UEPCEP), we carried out a retrospective study of 300 medical charts from infants with a unilateral trans-foramen cleft in the left incisive tooth[7], chosen randomly, which tympanometric and otoscopy evaluations were carried out from March, 1996 to April of 2002. All the infants included in this study did not present any genetic syndrome associated, nor had been submitted to any repair surgery either for malformation and/or otological. This study was carried out in 2005.

From the medical charts we studied data associated with gender, surgical condition, results from tympanometric and otoscopic exams and patient's age at the time of the exams.

For the tympanometry, we used the Grason Stadler Middle Ear Analyzer version 2 impedanciometer. The immittance tone frequency was of 226Hz (conventional). The tympanometric measures were automatically carried out by the equipment at a speed of 50 deca-Pascals per second (daPa/s). The type of tympanometric curve followed the classification proposed.[8]

For the pneumatic otoscopic exams, we used the Heine otoscope (Diagnostik-Otoskope K 100).

The exams (tympanometric and otoscopic) were carried out one day before the lip surgery.

The otoscopic findings were classified in: without alteration, when through the otoscopy we saw an intact tympanic membrane (intact, translucid and mobile during inflation); and with alteration, when there was fluid in the middle ear, opacification, retraction and immobility of tympanic membrane during inflation.

Tympanometric curves were classified in normal and altered. It was normal when the A-curve was obtained, and altered for the other types found (B, C, As and Ad).

The data obtained was organized in Tables to facilitate analysis and presentation. We used the chi-squared statistical treatment for the data. The significance level adopted was 1% ($p < 0.01$).

RESULTS

The random choice of medical charts showed that 27 infants had already been submitted to some surgical procedure and were taken off the study, thus making up a study group of 273 infants (546 ears), being that 161 (59%) were males and 112 (41%) were females.

The age of the infants at the time of the exams varied between 3 and 5 months.

Tables 1 and 2 showed the distribution of otoscopic findings and tympanometric curves, according to gender and ear, respectively. Table 3 shows the distribution and percentage of classification of such findings.

The statistical study did not show significant statistical difference between the genders (p=0.13763) and ears (p=0.58783) for otoscopic findings, as well as for tympanometric curves (p=0.45534) and (p=0.52375), respectively.

Table 1. Otoscopic findings according to gender and ear.

Otoscopic findings	Male		Female		Total
	RE	LE	RE	LE	
Tympanic membrane opacification	131	130	93	93	447
Tympanic membrane opacification, not mobile during inflation and visible fluid	2	2	1	0	5
Opacification, tympanic membrane retraction, static during inflation	1	1	0	0	2
Tympanic membrane opacification and retraction	0	0	1	1	2
Static during inflation and visible fluid	1	1	0	1	3
No alteration	26	27	17	17	87
Total	161	161	112	112	546