

HEARING SCREENING OF SÃO VICENTE DE PAULO HOSPITAL: SURVEY DATA

Teste da orelhinha no Hospital São Vicente de Paulo: levantamento de dados

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ABSTRACT

Purpose: to analyze the results in newborn hearing screening (NHS) conducted from July 2007 to July 2010, at São Vicente de Paulo Hospital (HSVP), in the city of Passo Fundo-RS. **Method:** analysis was performed on records from 7153 infants born alive, to verify the numbers of conducted trials, the results of passes and fails, the retest rates and false-positive rates of diagnosed hearing loss. **Results:** it was observed that from 7153 live births, 5045 (70.53%) went through newborn hearing screen. Of these, 760 (15%) failed and were referred to retest. The retest information was available only of 377 (49,60%) neonates. From them, 353 (93.63%) passed, 13 (3.44%) failed, 10 (2.65%) attended the retest and did not do it and 1 (0.26%) was death. After the data analysis, it was found that retesting rates were 15% and false-positive were 93.63%. In addition, the incidence of hearing impairment confirmed by the sample was 0.0039%. **Conclusion:** in this study it can be conclude that the results of neonatal hearing screening of HSVP are not in agreement with the literature and with the provisions of Municipal Act 4373. It is suggested that some strategies are also used to reduce the rate of false-positive and proper coordination of the screening program and early intervention.

KEYWORDS: Hearing; Infant, Newborn; Early Diagnosis; Hearing Loss

■ INTRODUCTION

The hearing is essential for the acquisition of the oral language and plays a fundamental role in the integration with the child with the external environment.

To occur the acquisition of the spoken language, the hearing system must be incorrupt, both peripheral and central. The child must be able to detect sounds, discriminate them, locate them, recognize them and understand them.

The hearing loss it's one of the sensory deprivation that brings more damage to the infant development, affecting social functions, cognitive

and occupational and mainly linguistic ability and speaking.

Children deprived of the stimulation of the language appropriate during the 2 or 3 years of life will have your linguistic potential fully committed.

Deafness is considered a public health problem due the high incidence and the several consequences that can result in the human development.

The incidence of the hearing deficiency in newborns it's estimated between 1 in 3 in each thousand births of health babies, and increasing significantly from 20 to 50 for thousand newborns from intense care units.

With the purpose of identify and intervene early hearing loss in children with losses unilateral or bilateral sensorineural or conductive below 30 to 40 dB, were created programs of hearing screening.

Programs of hearing screening are really effective if there were identification when born till the first month of life, the diagnosis till the three months and the intervention and rehabilitation hearing till the six months old.

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Conflict of interest: non-existent

In the last years laws were elaborated, dealing on the mandatory newborn hearing screening in cities, states and also in the Federal space.

The municipal law number 4373 – Passo Fundo/RS, sanctioned in January of 2007, makes obligatory the implementation of a program of early detection of infant hearing deficiency in all public maternity or private of the city. In July of the same year the TAN was implanted in the São Vicente de Paula Hospital (HSVP) and it's been realized in the maternity and in the intensive treatment center (CTI) neonatal.

In August 02 of 2010, the President Luiz Inacio Lula da Silva sanctioned the law project 12.303/10, authorship of Senator Inácio Arruda that forces the maternities and public hospitals of the country to realize for free the Hearing Screening in newborn babies in its dependences.

So, considering the importance of the neonatal hearing screening and the mandatory of the test by means of the Municipal law number 4373, the present study has as its aim analyze the results got in the neonatal hearing screening realized in the period of July of 2007 to July 2010 in São Vicente the Paulo Hospital, in the city of Passo Fundo – RS.

■ METHODS

This is the retrospective analysis of neonates and screened in the São Vicente de Paulo Hospital in the period of July of 2007, when the program was implanted, till July of 2010.

From a data collection of 7153 born alive, from the respective period, were analyzed the records of 5046 neonates that realized the Hearing Screening by means of EOAETs and the results obtained.

The information concerning the demographic data of births obtained in the sector of medical files of the hospital.

The results obtained in the Hearing Screening were collected by the access in the records of the

Program Eroscaan in the neonatal intense care units in the HSVP. To this search were collect the following information: child's name, mother's name, date of birth, date of the test and the results of pass and fail.

Hearing Screening in the HSVP it's realized by a search of EOAETs, with the equipment Eroscaan, brand Maico, in the maternity of the hospital and in the CTI neonatal. It was considered "pass" when the neonate had the presence of the emissions transient evoked otoacoustic in both ears tested. No the fail case, the neonates were guided to a retest with the same procedure in the first aid post of HSPV or in the Health Center Geraldo Tessler or in the Audiology Clinic of UPF.

In order to verify the retest results in the Hearing Screening in the neonates that fail in the test realized in the hospital, were analyzed the results obtained in the data base of HSPV, Audiology Clinic of UPF and in the Health Center Geraldo Tessler, checking the register of the results obtained in this procedure.

Neonates that fail in the first test realizes in the HSPV and didn't attend to retest in any of the places listed, they tried phone contact with the parents to ask about the realization and the results of the retest, but the majority wasn't possible the contact because of the outdated entries.

This search was developed after the approval in the Ethics and Research of the University of Passo Fundo, number 009/2011 and the Ethics and Research of the HSPV.

It was realized a descriptive analyses of the data obtained in the São Vicente de Paulo Hospital.

■ RESULTS

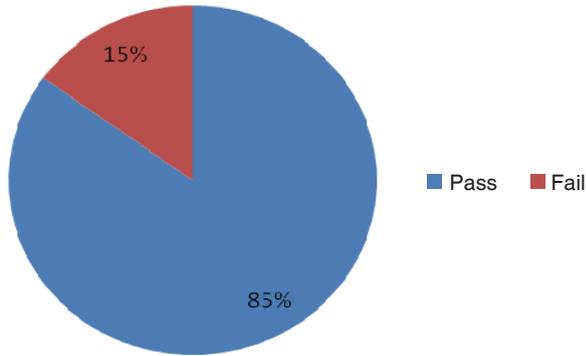
Between July 2007 and July 2010, there were 7.153 births in the HSPV. From this ones, 5.045 (70,53%) neonates realized the neonatal hearing screening (Chart 1).

Tabela 1 – Demonstrativo geral dos nascidos x triados por período de análise

Período	Nascidos vivos	Nº triados mês	%
JUL/07 a JUN/08	2.132	1.330	62,38
JUL/08 a JUN/09	2.417	1.560	64,54
JUL/09 a JUL/10	2.604	2.155	82,72
TOTAL	7.153	5.045	70,53

Source: HSVP, 2010.

It is verified that, the 5.045 neonates that realized the hearing screening, 4.285 (85%) had the result "PASS" and 760 (15%) the result was "FAIL". So, the index for the referrals to retest of the test was 15% (Picture 1)



Source: HSVP, 2010.

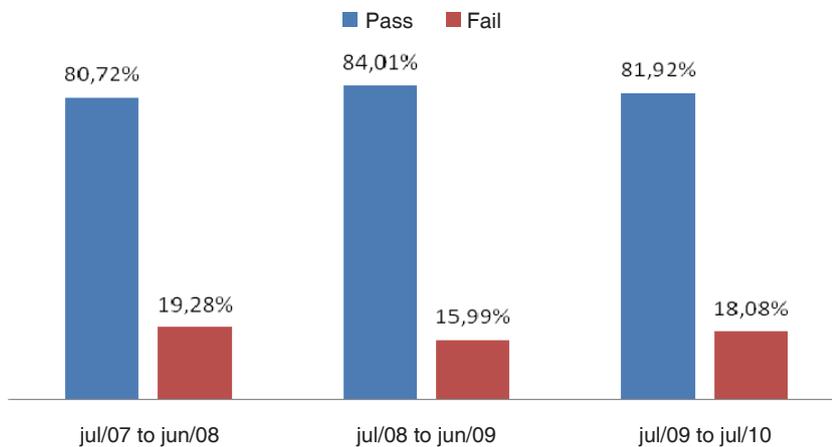
Picture 1 – Results of pass and fail in the neonates that realized the Hearing Screening in the HSPV

About the results of "pass" and "fail" by period of analyses, 215 (19,28%) neonates failed in the period of July 2007 and June 2008, 215 (19,28%) failed on July 2008 and June 2009 and 330 (18,08%) failed in the Hearing Screening between July 2009 and July 2010 (Picture 2).

From the 760 neonates that failed in the Hearing Screening, was possible to obtain information about the retest in 377 (49,60%) and it wasn't possible the access to this information in 383 (50,39%) neonates (Picture 3).

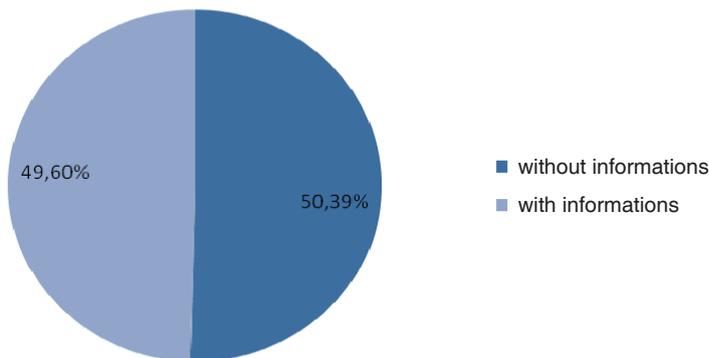
From the 377 neonates that failed in the Hearing Screening and it was possible to determine the results of the retest, 353 (93,63%) passed, 13 (3,44%) failed in the retest, 10 (2,65%) attended in the retest but and 1 neonate died (0,26%). So, it is verified that the index of false-positive in the test was (93.63%) (Picture 4).

It possible to observe that, from the 13 (3,44%) neonates that failed in the Hearing Screening, 8 were oriented to realize the third retest and not returned and 5 were submitted to additional assessment (Picture 5).



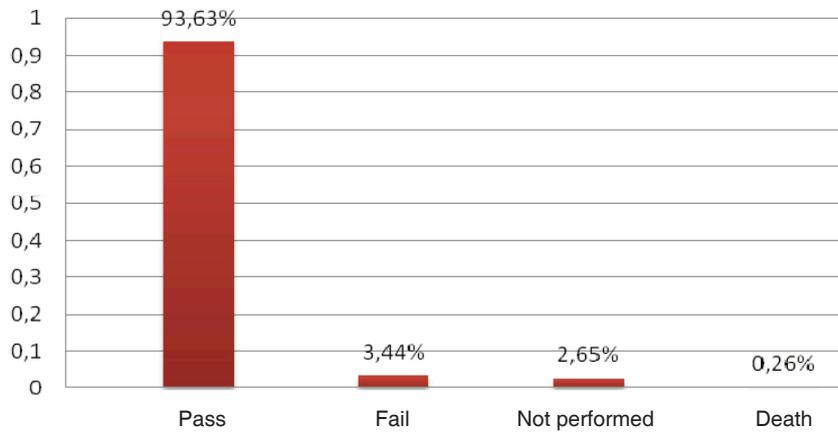
Fonte: HSVP, 2010

Picture 2 – Results of Pass and Fail by period of analyzes



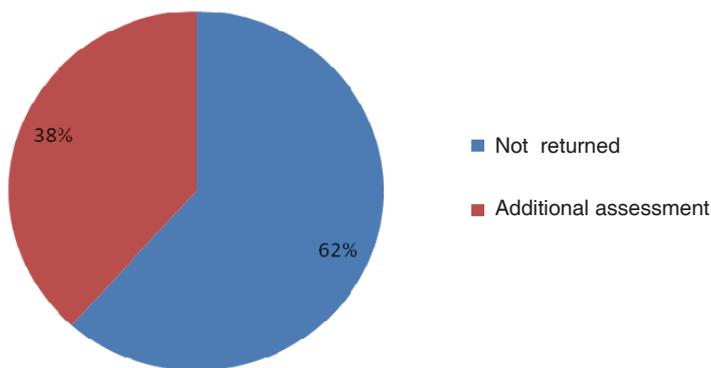
Source: HSVP, 2010.

Picture 3 – Neonates whose data about retest were obtained X neonates that couldn't be count



Source: HSVP, 2010.

Picture 4 – Demo sample with data from the retest

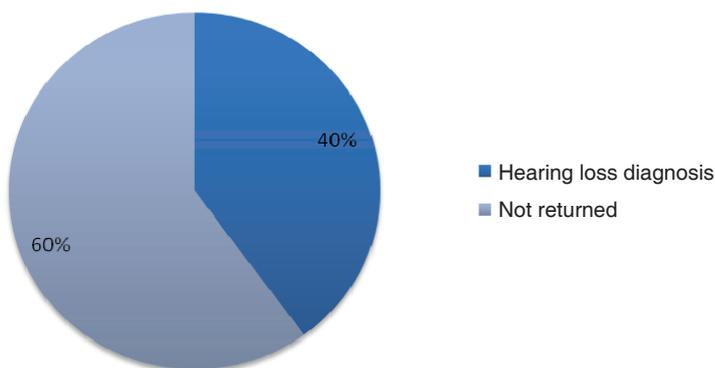


Source: HSVP, 2010.

Picture 5 – Sample distribution that obtained fail in the retest

From the 5 neonates that were submitted to additional assessment, 3 (60%) not returned with the diagnosis and 2 (40%) had hearing loss confirmed (Picture 6).

From the 5045 neonates that realized the Neonatal Hearing Screening in the São Vicente de Paulo Hospital, whose data could be analyzed, in the period of July of 2007 to July of 2010, just 2 (0,039%) cases of hearing loss were confirmed.



Source: HSVP, 2010.

Picture 6 – Neonates that were submitted to a additional assessment and the ones that had hearing loss confirmed

■ DISCUSSION

The results found in the present research show a high number of births in the São Vicente de Paulo Hospital during the studied period, as well as the number of screening realized. According to this study, just two authors reported significant samples, about the numbers analyzed.

According to Joint Committee on Infant Hearing (2007), all the maternities should realize the neonatal hearing screening universal, and that, the index of screening realized should be superior to 95% of the live births and before going out of the hospital. Other study realized in 2009 reach an index of 100% of neonates screened according the number of live births in the hospital.

However, this data diverges from the obtained results in the research, and that 70,53% of the neonates realized a neonatal hearing screening in the HSPV, showing not being universal feature. Other authors refer the index of 67,9% and 89,2% of the neonates that realized the neonatal hearing screening.

In the studied sample, 15% of the neonates failed in the initial test and were conducted to the retest. As the CBPAI (2000) the index of fail can vary from 5 to 20% when the screening is realized in the first 24 hours of life of the baby and fall to 3% between 24 and 48 hours of life. Some authors found index of fail similar, like 12,3%, 17,3%, 19,1% e 19,7% of conduction to the retest.

The Joint Committee on Infant Hearing (2007) proposes an inferior index of 3% of the neonates conducted to the retest.

From the 760 (15%) neonates that failed in the neonatal hearing screening, was possible to access information about the retest in 377 (49,60%) of the cases, not being viable the access to 383 (50,39%) of these neonates.

From the 377 neonates that failed in the first test in the HSPV and that was possible access information about the return, 353 passed in the retest. So, it's verified an index of false-positive of 93,63%, and that the literature refers that the index of false-positive can't exceed 3%. In a hospital from Malaysia the index of false-positive was 88,2%, in another study was found 16,9% of false-positive.

It's important to point that when a child fail in the initial test, the anxiety of the parents it's inevitable. According the literature, the anxiety, the distrust, the insecurity, the fear and the tension, were feelings reported by mothers, whose babies needed to be retested because didn't present the ideal answers.

With this study was possible to verify the 13 neonates failed in the retest. From these ones, 8 were oriented to realize a third retest and the other 5 were conducted to complimentary evaluation. From these, just 2 had diagnoses of hearing loss.

So, from 5045 neonates screened in the HSPV between July 2007 and July 2010, 2 (0,039%) confirmed diagnosis of hearing loss.

Due to the incidence of hearing loss, it was hoped from 5 to 15 children with diagnosis confirmed, according the total number of screened. It is noteworthy that due the lack of access to the retest of 50,39% neonates that failed in the initial screening, it wasn't possible to obtain such results and maybe some of these estimated children presenting hearing loss are without diagnosis yet.

■ CONCLUSION

From the findings of this study, we can conclude that:

- The Hearing Screening realized in the HSVP wasn't universal in the studied period;
- The index of referrals to retest was superior to the recommended by the international literature and compatible with the data observed in the national literature;
- The index of the false-positive results that could be analyzed was very high;
- It wasn't possible to determine the incidence of in the sample. Therefore, it was identified 2 (0,039%) confirmed cases among the screened neonates in the analyzed period of this study.

So, the results obtained in the neonatal hearing screening of HSVP aren't according the recommendations of the literature and with determinations of the Municipal Law 4373. It is suggested the some strategies are used in the place related to the reducing of the index of false-positive and the proper coordination of the program of early detection and intervention.

RESUMO

Objetivo: analisar os resultados obtidos na triagem auditiva neonatal (TAN) realizada de julho de 2007 a julho de 2010, no Hospital São Vicente de Paulo (HSVP), no município de Passo Fundo-RS.

Método: foi realizada uma análise em prontuários de 7153 neonatos nascidos vivos, a fim de verificar o número de triagens realizadas, os resultados de passa e falha, os índices de retestes e falso-positivo e índices de deficiência auditiva diagnosticada. **Resultados:** observou-se que de 7153 nascidos vivos, 5045 (70,53%) realizaram a triagem auditiva neonatal. Destes, 760 (15%) falharam e foram encaminhados ao reteste. Foi possível obter informações do reteste de apenas 377(49,60%) neonatos, sendo que 353 (93,63%) passaram, 13 (3,44%) falharam, 10 (2,65%) compareceram ao reteste e não realizaram e 1 (0,26%) foi a óbito. Após a análise dos dados, constatou-se que os índices de reteste foram de 15% e falso-positivos de 93,63%. Além disso, a incidência de deficiência auditiva confirmada na amostra foi de 0,039%. **Conclusão:** neste estudo pode-se concluir que os resultados obtidos na triagem auditiva neonatal do HSVP não estão de acordo com a literatura especializada e com as determinações da Lei Municipal 4373. Sugere-se que algumas estratégias sejam utilizadas no local em relação à redução do índice de falso-positivo e à coordenação adequada do programa de detecção e intervenção precoce.

DESCRITORES: Audição; Recém-Nascido; Diagnóstico Precoce; Perda Auditiva

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