



Brazilian Journal of  
**OTORHINOLARYNGOLOGY**

www.bjorl.org



ORIGINAL ARTICLE

**The importance of retesting the hearing screening as an indicator of the real early hearing disorder<sup>☆,☆☆</sup>**



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Received 15 January 2014; accepted 4 July 2014

Available online 9 June 2015

**KEYWORDS**

Hearing;  
Acoustic stimulation;  
Newborn;  
Neonatal screening

**Abstract**

*Introduction:* Early diagnosis of hearing loss minimizes its impact on child development. We studied factors that influence the effectiveness of screening programs.

*Objective:* To investigate the relationship between gender, weight at birth, gestational age, risk factors for hearing loss, venue for newborn hearing screening and “pass” and “fail” results in the retest.

*Methods:* Prospective cohort study was carried out in a tertiary referral hospital. The screening was performed in 565 newborns through transient evoked otoacoustic emissions in three admission units before hospital discharge and retest in the outpatient clinic. Gender, weight at birth, gestational age, presence of risk indicators for hearing loss and venue for newborn hearing screening were considered.

*Results:* Full-term infants comprised 86% of the cases, preterm 14%, and risk factors for hearing loss were identified in 11%. Considering the 165 newborns retested, only the venue for screening, Intermediate Care Unit, was related to “fail” result in the retest.

<sup>☆</sup> Please cite this article as: da Silva DPC, Lopez PS, Ribeiro GE, Luna MOM, Lyra JC, Montovani JC. The importance of retesting the hearing screening as an indicator of the real early hearing disorder. Braz J Otorhinolaryngol. 2015;81:363–7.

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**PALAVRAS-CHAVE**

Audição;  
Estimulação acústica;  
Recém-nascido;  
Triagem neonatal

*Conclusions:* Gender, weight at birth, gestational age and presence of risk factors for hearing loss were not related to "pass" and/or "fail" results in the retest. The screening performed in intermediate care units increases the chance of continued "fail" result in the Transient Otoacoustic Evoked Emissions test.

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### A importância do reteste da triagem auditiva como indicador da real alteração auditiva precoce

**Resumo**

*Introdução:* O diagnóstico precoce da surdez minimiza impactos no desenvolvimento infantil. Fatores que interferem na efetividade dos programas de triagem são estudados.

*Objetivo:* Verificar a relação entre sexo, peso ao nascimento, idade gestacional, presença de risco para deficiência auditiva, local de realização da triagem auditiva neonatal e resultados "passa" e "falha" no reteste.

*Método:* Estudo de coorte prospectiva, em hospital de referência terciário. A triagem foi realizada em 565 neonatos, por meio das emissões otoacústicas evocadas transientes, em três unidades de internação antes da alta hospitalar e o reteste, no ambulatório. Sexo, peso ao nascimento, idade gestacional, presença de indicadores de risco para deficiência auditiva e local de realização do exame foram considerados.

*Resultados:* Nasceram a termo 86%, prematuros 14% e risco para deficiência auditiva, 11%. Dentre os 165 neonatos retestados, apenas o local de realização do exame, Unidade de Cuidados Intermediários, se relacionou com manutenção da "falha" no reteste.

*Conclusões:* Sexo, peso ao nascimento, idade gestacional e presença de indicadores de risco para deficiência auditiva não se relacionaram com "passar" e/ou "falhar" no reteste. A realização do exame em unidades de cuidados intermediários aumenta a chance de permanência de "falha" no exame de Emissões Otoacústicas Evocadas Transientes.

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**Introduction**

With the use of electrophysiological and electroacoustic tests in children, the early diagnosis for hearing loss became a possibility in the first months of life, through the universal newborn hearing screening (UNHS).<sup>1</sup> In Brazil, UNHS became mandatory for all newborns by Federal Law No. 12,303.

Several factors are important for a good understanding and effectiveness of UNHS testing; these include test site, clinical conditions of the newborn, and performing the test prior to hospital discharge. In addition, in at least 90% of those who fail the first UNHS exam, a retest should be performed, either before hospital discharge, or by the third month of life.<sup>2</sup>

Inability to achieve this recommended standard can occur for reasons inherent to neonates, such as death, postnatal illness and hospitalization in another unit, or by lack of family compliance. Thus, the challenge of reducing the number of failures in the initial examination and also the challenge of avoiding non-attendance of these children for retest are still good reasons for studying this topic.<sup>3-5</sup> The aim of this study was to investigate the relationship between gender, birth weight, gestational age, presence of risk factors for

hearing loss, site where UNHS is carried out, and "pass" and "fail" results in the retest.

**Methods**

The study was conducted in a tertiary referral hospital, with local Ethics Committee approval (Process No. 3395/09), from September 2011 to June 2012. The Free and Informed Consent Form was signed by the parent or legal guardian of the newborn.

This was a prospective cohort study.

During the study period, 565 neonates underwent UNHS in three different units of hospitalization: neonatal rooming-in (NRI), special care unit (ECU) and intermediate care unit (ICU), before hospital discharge. For babies with an abnormal initial examination, retesting was performed in an outpatient speech therapy clinic after hospital discharge. Hearing screening was performed by means of transient evoked otoacoustic emissions, using portable equipment (OtoRead/Interacoustics), with the newborn in a state of natural sleep in its mother's lap, or in the cradle.

The parameter PASS/FAIL described in the equipment protocol was used as analysis criterion, using clicks as

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