Information on neonatal hearing screening from pregnant women of different social classes

Triagem auditiva neonatal: informações de gestantes de diferentes classes sociais

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ABSTRACT

Objective: To verify how well pregnant women and mothers users of public and private healthcare know about neonatal hearing screening (NHS), and also to verify behaviors related to such knowledge. Methods: Eighty-seven pregnant women were interviewed during prenatal medical care at a Primary Healthcare Unit (Group A) and 83 pregnant women under prenatal medical care at a private practice. A questionnaire was applied to investigate whether the studied sample was aware of NHS and, in case of a positive answer, they were asked about its purposes. They were also questioned on how they found out about the test, which children should be tested and, in case they already had children, it was asked if those children had also been tested (if not, for what reason). Moreover, they were asked about where NHS can be performed in the city of Santa Maria (RS, Brazil).

Results: It was verified that none of the 87 pregnant women from Group A knew about NHS. Of the 83 pregnant women of Group B, only 13.25% (n = 11) had previous information on NHS; ten of them knew the purpose of the test; eight were able to tell its target-population; four knew where NHS could be performed in Santa Maria and nine said none of their children had been tested.

Conclusions: It is concluded that, regardless of social class, the pregnant women studied did not have enough information about NHS, which could compromise communication of their children. We suggest a systematic NHS campaign within both public and private healthcare networks.

Keywords: Neonatal screening; Hearing tests; Child health (Public Health); Child health services; Health knowledge, attitudes and practice

INTRODUCTION

Hearing abnormalities in childhood interfere in speech development and can have deleterious effects on the social, emotional and cognitive development¹). The possibility of a deaf child developing normal or almost normal speech depends on early diagnosis and intervention on hearing loss.

The first step to an early diagnosis and intervention is the neonatal hearing screening (NHS). The diagnosis stage must be completed by the third month of age
and intervention must start before the sixth month of age\(^2\).

As opposed to the Newborn Screening Test, pregnant women/mothers do not seem to have enough information about the NHS. According to reports of hearing screening programs in Brazil, the rates of children examined in maternities where this service is available is approximately 30\%\(^4\). Given the low rates of babies tested, it is questioned whether this fact stems from lack of knowledge about this subject by pregnant women/mothers. Therefore, the purpose of this study was to verify to what extent pregnant women/mothers, who are users of the public health system and private practices, know about the NHS and the behaviors resulting from such information.

**METHODS**

This study is part of the “Project for Early Detection of Childhood Hearing Impairment”, developed at the Research Laboratory for Child Development (LAPEDI, acronym in Portuguese), registered at the Projects Department of Centro de Ciências da Saúde at Universidade Federal de Santa Maria, under number 010612 and approved by the Ethics Committee. An informed consent was obtained from those in charge of the children.

A total of 170 pregnant women were studied, of which 87 were undergoing prenatal follow-up at Primary Healthcare Units (PHU) (Group A) and 83, followed up in private practices (Group B).

Data were collected in the waiting rooms of two PHU and of four private practices in the city of Santa Maria (RS).

By means of a questionnaire, it was investigated if the pregnant women were aware of the NHS. In case of a positive answer, they were questioned about its purposes, how they found out about the test, which children should be tested; in case they already had children, it was asked if those children also underwent the NHS (if not, for what reason) and lastly, where the NHS can be performed in Santa Maria (RS). The data obtained were represented in tables and compared.

**RESULTS**

Of the 87 pregnant women, who were users of the PHU (Group A), none was aware of the NHS, and for this reason the following results are related to Group B.

Of the 83 pregnant women undergoing prenatal follow-up in private practices (Group B), 11 (6\%) reported they knew about NHS. Of those, ten (91\%) provided appropriate responses about the test purpose, eight (73\%) were able to mention the target population correctly and four (36\%), were able to say where NHS could be performed in Santa Maria (RS) (Table 1).

<table>
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<th>NHS knowledge</th>
<th>Yes n</th>
<th>Yes %</th>
<th>No n</th>
<th>No %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Know about the NHS</td>
<td>11</td>
<td>68</td>
<td>72</td>
<td>32</td>
</tr>
<tr>
<td>Know the purpose of the NHS</td>
<td>10</td>
<td>91</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Know the target population for NHS</td>
<td>8</td>
<td>73</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Know where the test could be performed in Santa Maria (RS)</td>
<td>4</td>
<td>36</td>
<td>7</td>
<td>64</td>
</tr>
</tbody>
</table>

NHS: neonatal hearing screening

Seven (63\%) of the 11 pregnant women who knew about NHS already had other children. Figure 1 shows how many children had undergone the said test. Figure 2 shows the reason for not performing the NHS in those children. The media was the main source of information about the NHS (Figure 3).

**DISCUSSION**

In Brazil, NHS programs have been increasingly available and have become compulsory for all newborns in 16 cities and in three states\(^5\). However, hearing loss detection and intervention has occurred late in the child development. This study aimed to compare knowledge of pregnant women from different social
classes about the NHS. It was believed that mothers from higher social-economic and cultural brackets would have more knowledge about the test, which did not prove to be true.

All 87 pregnant women users of PHU did not know about the NHS. Only 11 (6%) pregnant women from private practices knew about the test. Similar results were obtained by other authors\(^6\), who interviewed 50 mothers in the immediate postpartum period (25 seen at the Unified Health System – SUS, acronym in Portuguese) and 25 in private practices. The authors found that only two (8%) mothers seen at SUS and nine (36%) at private practices knew about the NHS. In the said study, the difference between the groups was considered statistically significant. Sanfins et al.\(^7\) showed that only 25% of the pregnant women seen at a private practice and 16.6% of those seen at a PHU, both in the city of São Paulo, did know about the NHS procedure.

Of the mothers interviewed at a hospital setting\(^8\), 96.3% did not know about NHS. Lack of information by parents was also found in qualitative studies carried out by other authors\(^9\). Few parents received information about NHS before childbirth\(^9\) or they only became aware at the hospital where their children were born\(^10\).

In this study, only four mothers (36%) knew the site where the NHS could be performed in Santa Maria. In a qualitative study, some authors\(^7\) stated that the parents had little information about the sites where the test could be performed and about its cost.

At a university hospital in Hong Kong, 91.35% of the mothers reported they considered important the implementation of a NHS program and 81.70% of those mothers wished the screening was performed at the hospital where the child was born\(^11\).

Of 11 pregnant women who reported they knew the NHS, 8 (73%) were able to mention the target population. Still, less than one fifth (18%) of the children underwent the said procedure. Another study\(^12\) corroborates these findings. The authors verified that only children of five (13.16%) out of 38 mothers, who reported knowledge about the test, had undergone the NHS.

When asked about the importance of hearing, mothers of newborns seen at the SUS showed little knowledge about the importance of the NHS and hearing for speech development\(^13\). The authors concluded that, with more information about hearing development and its implications, the NHS would certainly be well accepted and the consequences of hearing loss could be minimized. Lack of clarification and awareness of the overall population, as well as of healthcare professionals working directly with newborns, represents obstacles to the early detection of childhood hearing loss in Brazil\(^14\).

It was verified that the media was the predominant source for obtaining information about the NHS. Another study also pointed that mothers became aware of the NHS through television, information brochures and billboards\(^6\).

It was observed that only 9% of mothers obtained information about the NHS through healthcare professionals and that 38% did not perform the test because the pediatrician did not request it. The lack of commitment by healthcare professionals and hospital institutions was pointed as one of the main obstacles to the universal implementation of the NHS\(^15\). The insufficient involvement of the healthcare professionals with the hearing of their young patients has also been demonstrated by other Brazilian studies. Barros et al.\(^16\) reported that pediatricians have little information about the causes, assessment methods, management of hearing loss, and access to this information takes place predominantly during undergraduate courses. Mahon and Souza\(^17\) interviewed gynecologists/obstetricians from the public and private network who had at least one year of professional experience. Of the 40 physicians interviewed, only 20% showed specific knowledge about hearing development. The risk indicators for hearing loss were known by 59% of them. Upon identification of a child with a risk indicator for deafness, 82.5% of the physicians studied reported they provided instructions on hearing loss and its implications and/or referred to specific services. The investigation about family history hearing loss is a routine procedure for only 32% of physicians interviewed.

Proposals such as those by Silva, Sacaloski and Guerra\(^18\) and those from Mahon and Souza\(^17\) are welcome. Instructions to professionals working with care to pregnant women allow the inclusion of boosting hearing health promotion and surveillance during the prenatal period\(^17\). A project for care of newborns at risk for hearing disorders was implemented in the city of Mauá (Sao Paulo, Brazil). In addition to regulating hearing health promotion and protection actions, the project trained physicians and nurses on the prevention and diagnosis of the hearing disorders\(^19\). Hearing screening programs, in addition to the compulsory diagnosis and intervention stages could also include information and awareness of healthcare professionals and the overall population\(^14\).

Acting in primary prevention could reduce the incidence of hearing loss and improve the population health conditions, which would be economically advantageous to the public agencies\(^18\).

Despite the recognized importance of hearing screening in the detection and early intervention of cases of hearing impairment, several efforts must still be undertaken before it becomes a national reality\(^14\).
The active participation of obstetricians, pediatricians and neonatologists in the programs for early detection of child hearing loss is requested. These professionals are in charge of informing the pregnant women and, subsequently, the parents about risk indicators for deafness in their child and the appropriate management in each case. Even in the absence of risk indicators for deafness, the high relevance of the NHS must be repeatedly emphasized by all professionals who are in contact with the baby and parents in order to turn the NHS into a universal procedure.

CONCLUSIONS

All pregnant women using the public health system were not aware of the NHS. Less than 10% of private practice users knew the test.

The media was the main source of information about the NHS. Therefore, it is suggested that these resources be intensively used to report the test.

Most children of the pregnant women interviewed did not undergo the test because it was not requested.

Healthcare professionals involved with care of pregnant women and their infants must inform the family about the NHS and its purposes. Requesting a hearing screening to all newborns is a responsible action by the neonatologists/pediatricians.

It is suggested that the prenatal and neonatal routine procedures include information about the NHS. We emphasize the importance of additional efforts by speech therapists, obstetricians, neonatologists and pediatricians aiming at efficacy of the program for early detection of child hearing loss.

REFERÊNCIAS