

Newborn hearing screening in Saxony-Anhalt – current state

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Abstract

The importance of an area-wide newborn hearing screening is doubtlessly accepted. After analysing the current state of newborn hearing screening, our endeavours primarily aimed to equip all delivery hospitals and institutions in Saxony-Anhalt and to build up an efficient “tracking system”. That means that children who had conspicuous findings in the screening and those who had not any examination are controlled consistently. We managed to reach an unbroken documentation of all screening results by close cooperation with the “pediatric metabolism monitoring” of Saxony-Anhalt. By these efforts it could be possible to ensure that all children with conspicuous findings in the hearing screening will be tracked consistently. First of all the documentation system was installed in Magdeburg and in Halle, all the other institutes will follow step by step. We aim on diagnosing hearing disorders of early childhood within the first three month of life and starting an efficient therapy until the sixth month.

Key words: newborn hearing screening, OAE-Screening, tracking system, sensorineural hearing loss

Introduction

The incidence of newborn hearing loss in Germany is 1-2/1000 healthy newborns, in cases of newborns under risk 50-100/1000 newborns. It is necessary to avoid disorders of the development of affected children by accomplishing early diagnostics and adequate therapy. Hearing losses in the early childhood have an influence on speech development, personality development, social, emotional and intellectual development. Additional normal hearing is important for the development of hearing nerves in the first years of life.

Risk factors for hearing loss in the early childhood are: Hearing loss in the family, infectious diseases prenatal, perinatal or postnatal, deformities of the skull, bleeding in the early gravidity, prematural birth, asphyxia, hyperbilirubinemia, cerebral hemorrhage, oxygen deficiency and other.

Characteristics of “screening” are: Disease must be serious, disease must be frequently enough, all criterions for diagnosis must be general accepted, therapy should be possible. The optimal time for beginning any therapy should be before the time of beginning without any screening. Methods should be available to confirm the diagnosis and to begin the therapy.

The Interdisciplinary Consensus Conference for Newborn Hearing Screening (IKKNHS) gives a consensus paper with recommendations for the Hearing Screening [1, 2].

So we aim to detect hearing loss in the first three months of life, and the beginning of therapy should begin in the first six months of life.

We have two different objective methods to detect hearing loss in the early childhood: BERA (acoustic evoked potentials) and OAE (otoacoustic emissions).

BERA-method based on reaction of averaged EEG on acoustic stimulation. Location of hearing loss can be determined and hearing threshold can be detected.

OAE are acoustic sounds emitted from outer hair cells.

Most important therapy in the case of sensorineural hearing loss is the fitting of hearing aids. In cases of profound hearing loss cochlear implantation is necessary. This technical rehabilitation must be combined with the early education for

hearing handicapped children for the encouragement of communication.

Methods and results

Primarily the delivery hospitals and institutions were debriefed by questionnaire. We asked for the kind of screening, the technical and personal conditions, rate of coverage and reasons for children without screening.

We asked the 30 delivery institutions in Saxony-Anhalt. 25 of them are using the OAE-screening, two of them are using OAE combined with the BERA-screening. Three clinics do not have the necessary equipment at all, they are using a subjective test with the bell.

The institutions take different equipments, and the rate of children without screening is 5% or lower. Reasons for the fail of hearing screening are home delivery, ambulant delivery, a very short hospitalisation time after delivery or defects of the screening equipment.

In the most institutions screening is used at the second or third day of life. The screening is carried out in most cases by nurses, in rare cases by physicians. The analysis of the results in most cases is the task of physicians. Only in rare cases parents refuse the screening. Children who fail the screening were sent to the ENT specialist by most institutions, in some cases to the pediatric.

Further procedure

After analysing the current state of Newborn Hearing Screening, our endeavours primarily aimed on the equipment of all delivery hospitals and institutions in Saxony-Anhalt. We looked for sponsoring to make the OAE screening possible in all delivery institutions. We are in contact with “LIONS”, a charity organisation with the aim to support newborn hearing screening. In the next time we hope that all delivery institutions have the equipment for OAE-Screening.

The screening centre in the Oberpfalz [3] recommend combination from OAE- and BERA-screening, because the rate

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of conspicuous findings is lower than in cases from OAE-screening alone. But in the case of Saxony-Anhalt it is to expensive to accredit all delivery institutions with two different screening equipments.

The next step was to build up an efficient „tracking system“. That means that children who had conspicuous findings in the screening and those who had not any examination get controlled consistently. The parents have to get all the necessary information about facilities which are able to accomplish the screening, further diagnostics and therapy. Moreover, the documentation of all registered data is very important to achieve these aims.

We managed to reach an unbroken documentation of all screening results by close cooperation with the “pediatric metabolism monitoring” of Saxony-Anhalt. By these efforts it could be possible to ensure that all children with conspicuous findings in the hearing screening will be tracked consistently.

First of all the documentation system was installed in 9 institutions, all the other institutes will follow step by step. For controlling children with a suspicious OAE-screening or without an examination all the otolaryngologists and pedaudiologists of the state are playing an important role. That’s why we organized information meetings in Magdeburg and Halle which were frequently visited to inform all the colleagues about the whole system,

Conclusion

We aim on diagnosing hearing disorders of early childhood within the first three months of life and starting an effi-

cient therapy until the sixth month. It is important in the cases of profound hearing loss to test the results of hearing aids. If there is no speech development and no reaction on acoustic stimuli, we must recommend the Cochlear Implant therapy in the early childhood.

Our efforts have the aim to minimize the effects of hearing handicaps, and we want to improve communication, education possibilities, social integration and finally quality of life of hearing handicapped children.

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