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ORIGINAL ARTICLE

Cochlear implantation in autistic children with profound sensorineural hearing loss☆

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KEYWORDS
Austism;
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Abstract
Introduction: Cochlear implants have become the method of choice for the treatment of severe-to-profound hearing loss in both children and adults. Its benefits are well documented in the pediatric and adult population. Also deaf children with additional needs, including autism, have been covered by this treatment.
Objective: The aim of this study was to assess the benefits from cochlear implantation in deafened children with autism as the only additional disability.
Methods: This study analyzes data of six children. The follow-up time was at least 43 months. The following data were analyzed: medical history, reaction to music and sound, Ling's six sounds test, onomatopoeic word test, reaction to spoken child's name, response to requests, questionnaire given to parents, sound processor fitting sessions and data.
Results: After cochlear implantation each child presented other communication skills. In some children, the symptoms of speech understanding were observed. No increased hyperactivity associated with daily use cochlear implant was observed. The study showed that in autistic children the perception is very important for a child's sense of security and makes contact with parents easier.
Conclusion: Our study showed that oral communication is not likely to be a realistic goal in children with cochlear implants and autism. The implantation results showed benefits that varied among those children. The traditional methods of evaluating the results of cochlear implantation in children with autism are usually insufficient to fully assess the functional benefits. These benefits should be assessed in a more comprehensive manner taking into account the limitations of communication resulting from the essence of autism. It is important that we share knowledge about these complex children with cochlear implants.

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PALAVRAS-CHAVE
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Perda de audição;
Aparelho auditivo;
Percepção da fala;
Implante coclear

Implante coclear em crianças autistas com perda auditiva neurossensorial profunda

Resumo
Introdução: Os implantes Cocleares tornaram-se o método de escolha para o tratamento da perda auditiva severa a profunda em crianças e adultos. Seus benefícios estão bem documentados nas populações pediátrica e adulta. Também as crianças surdas com necessidades adicionais, incluindo autismo, têm sido incluídas nesse tratamento.
Objetivo: O objetivo desse estudo foi avaliar os benefícios do implante coclear em crianças surdas com autismo como única deficiência adicional.
Método: Esse estudo analisa os dados de seis crianças. O tempo de seguimento foi de pelo menos 43 meses. Foram analisados os seguintes dados: histórico médico, a reação à música e ao som, teste dos seis sons de Ling, teste de palavra onomatopaica, reação ao nome falado da criança, resposta a pedidos, questionário aplicado aos pais, sessões de ajustes e dados do processador de som.
Resultados: Após o implante coclear, cada criança apresentou outras habilidades de comunicação. Em algumas crianças, foram observados sinais de compreensão da fala. Não foi observado aumento de hiperatividade associada com o uso diário de implante coclear. O estudo mostrou que em crianças autistas a percepção é muito importante para a sensação de segurança da criança e torna o contato com os pais mais fácil.
Conclusão: Nosso estudo mostrou que a comunicação oral não é uma meta realística provável em crianças com implantes cocleares e autismo. Os resultados do implante mostraram benefícios variáveis entre as crianças. Os métodos tradicionais de avaliação dos resultados do implante coclear em crianças com autismo são geralmente insuficientes para avaliar plenamente os benefícios funcionais. Esses benefícios devem ser avaliados de forma mais abrangente, tendo em conta as limitações de comunicação resultantes da essência do autismo. É importante que compartilhemos conhecimentos sobre essas complexas crianças com implantes cocleares.

Introduction

Cochlear implants have become the method of choice for the treatment of severe-to-profound hearing loss in both children and adults. Its benefits are well documented in the pediatric and adult population. Also deaf children with additional needs, including autism, have been covered by this treatment. However, there is limited available literature regarding benefits of cochlear implantation in children with autism as the only additional disability.[1–6]

More and more children with multiply handicaps have been receiving cochlear implants in our department as well,[7] among them 6 were diagnosed with autistic disorder as the only additional disability next to deafness and their results have been assessed and discussed in this study.

Etiology of autism still remains unknown. The disorder description covers impaired social interaction, abnormal verbal and non-verbal communication, restricted repetitive and stereotyped patterns of behavior. The symptoms usually develop in early childhood, mainly in the first two-three years of life.[8,9] When it comes to autism and hearing, the data from evoked potential studies indicates that in autistic patients there is an abnormal cognitive processing of auditory information despite normal basic sensory perception.[10–16] This is one of the reasons why cochlear implanted autistic children do not usually develop language skills as those with no additional disability.[1,5]

The aim of this study was to assess the benefits from cochlear implantation in deafened children with autism as the only additional disability.

Methods

This retrospective study analyzes data of 6 children with prelingual profound bilateral hearing loss and autistic disorder. Before the surgery all patients underwent very careful multidisciplinary evaluation to determine candidacy for cochlear implantation: severe to profound bilateral sensorineural hearing loss, prelingual onset of hearing loss, no benefit from appropriately fitted hearing aids, no medical nor radiological contraindications, desire in a family to improve child's hearing and communication with a child, good motivation running in the family. None of the presented children had completed and confirmed diagnosis of autism at the time of implantation (autism was suspected but the diagnosis was not clearly established at that time). Only one child seemed very clearly to be autistic before the implantation (patient no. 5, the oldest at the time of implantation).

All children underwent the implantation in our department. There were neither perisurgical nor postsurgical complications. All children were implanted unilaterally to the right ear with a multichannel cochlear implant. Five were implanted with Cochlear Nucleus, and one with Advanced Bionics (Table 1). Speech processor was activated