COCHLEAR IMPLANT - PREOPERATIVE SELECTION

FP443

COCHLEAR IMPLANTS SELECTION CRITERIA IN BORDERLINE PATIENTS
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On 212 implanted subjects there was 114 adults and 98 children. Regarding the adult population the authors focus the presentation on the indication in severe to profound sensorineural hearing loss. The audiometrical criteria define in the European Clinical Trial are monosyllabic words discrimination at 70 dB SPL with well adapted hearing aids between 10% and 30%.

Regarding the 98 children implanted, 58% of these children were implanted between 2 and 5 years old, and implantation before the age of 7 years represents 78% of the total population. 89% were congenital and prelingual children. The authors insisted on the fact that it can be associated with various neurologic and other diseases.

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AN EVALUATIVE PROCEDURE FOR HEARING AID SELECTION WITH THE SEVERELY AND PROFOUNDLY HEARING-IMPAIRED
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Selection of the most appropriate hearing aid frequency response characteristic is of great importance, especially with the severely and profoundly hearing impaired. Where such individuals are being considered for inclusion in a cochlear implant program, it is particularly important that the hearing aid fitting is optimal in order that a correct decision is made with regard to the most appropriate device.

A number of studies which have indicated the need for special amplification strategies for this group are reviewed in this paper, but it will be pointed out that few of these, apart from the NAL-R formula, are based on empirical data. A number of studies on adults and children by the author and others, based on such data will be described which indicate that, whilst the appropriate frequency response can be predicted to some extent from the audiogram using a modified version of the NAL-R formula, there is considerable individual variation.

Simple evaluative method based on a paired comparison of filtered running speech will be described, which allows for "fine tuning" of the hearing aid frequency response, and which has been used reliably with adults and with children over the age of seven.

COCHLEAR IMPLANT SELECTION CRITERIA IN BORDERLINE PATIENTS

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The accurate assessment of hearing thresholds in prospective cochlear implant candidates is essential. As the minimum age of implantation has reduced, audiologists have been faced with the complicated task of obtaining precise audiometric information in children whose immaturity may severely restrict the assessment process. Clearly for these young candidates, there is a place for a reliable, objective measure of residual hearing in the pre-operative test battery. This paper examines the degree of accuracy with which the click-ABR and the steady-state evoked potential (SSEP) techniques can provide estimates of hearing level in subjects with severe/profound hearing loss. ABR and SSEP thresholds elicted from 105 such children, were compared with hearing levels obtained behaviourally. Results indicated that the click-ABR test with it's broadband stimulus and presentation level restrictions (< 100 dBHL), could offer only limited insights into the hearing losses of these subjects. The SSEP technique, employing modulated tones at levels as high as 120 dBHL on the other hand, was able to provide precise threshold estimates for a range of frequencies in ears with little or no residual hearing. As such, the steady-state evoked potential test can offer an important safeguard in the paediatric selection process, potentially identifying children whose hearing might be better than suggested by behavioural test results.

Radiological evaluation of cochlear implant patients, after fulfilling audiological and non-audiological selection criteria, is essential. High resolution computed tomography is the standard technique. It is helpful for surgical orientation and its main value is to detect contraindications for cochlear implantation surgery. In this paper we are reporting on pertinent radiological findings of 30 patients examined for cochlear implant candidacy. Special emphasis was focused on the CT scan findings and the value of MRI examination as a pre-operative evaluation of patients for cochlear implantation. A comprehensive reporting sheet is used for recording the findings of the CT examination. MRI examination supplemented the examination in selected cases as it provides better resolution of soft tissue structures. It is specially valuable in cases of congenital hearing loss and in cases with possible massive labytoblique obliteration.

The value of post-operative imaging is to be discussed.

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Title:
The use of click-ABR and steady state evoked potentials for hearing assessment in young cochlear implant candidates [Abstract]

Date:
1997

Citation:

Persistent Link:
http://hdl.handle.net/11343/27009

File Description:
The use of click-ABR and steady state evoked potentials for hearing assessment in young cochlear implant candidates [Abstract]