STEADY-STATE EVOKED POTENTIALS (SSEPS) : A NEW TOOL FOR THE ACCURATE ASSESSMENT OF HEARING IN COCHLEAR IMPLANT CANDIDATES

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Determining hearing thresholds is crucial in assessing cochlear implant candidates; never more so than in young children unable to undergo behavioural audiometry. In these children an objective measure of hearing is desirable. Steady-state evoked potentials (SSEPs) are potentials recorded from the scalp and simultaneously analysed. Stimuli are amplitude and frequency modulated pure tones. A system has been developed which allows the presence of such a response to be automatically detected and the technique thus permits an objective, frequency specific assessment of hearing threshold to be made in sleeping or awake subjects (1). This paper investigates the use of SSEPs in determining hearing thresholds in young profoundly deaf children who are candidates for cochlear implants. Responses in such patients are compared with thoses obtained in normal adults, neonates and experimental animals. Results indicate that the SSEP can provide a consistent and reliable measure of threshold and the technique appears to have a number of advantages over the auditory brainstem response: automated response detection removes the subjective element of threshold determination, higher levels of stimulus presentation are possible, low frequency threshold determination is more accurate and the tesing procedure is quicker.

(1) Cohen, LT, Rickards, FW & Clark, GM (1991) A comparison of steady-state evoked potentials to modulated tones in awake and sleeping humans. Journal of the Acoustical Society of America (in press: publication November/December).

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Title:
Steady-state evoked potentials (SSEPS): a new tool for the accurate assessment of hearing in cochlear implant candidates [Abstract]

Date:
1992

Citation:
Burton, M. J., Rance, G., Rickards, F. W., Cohen, L. T., & Clark, G. M. (1992). Steady-state evoked potentials (SSEPS): a new tool for the accurate assessment of hearing in cochlear implant candidates [Abstract]. In International Symposium - Cochlear Implants - New Perspectives, Toulouse.

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