Auditory Steady-State Response: investigation of the relationship between electrophysiological and behavioural thresholds

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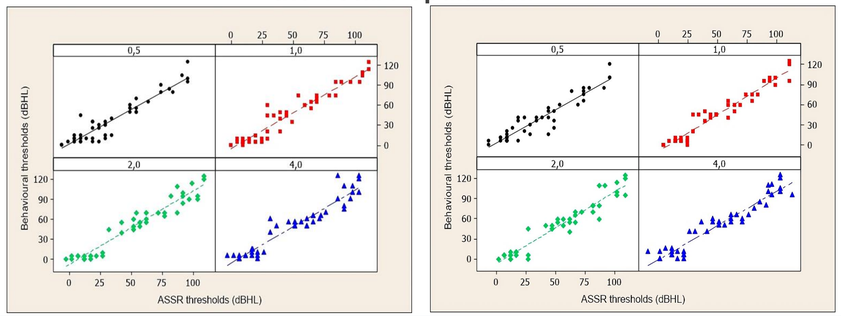
Abstract

This study examined the relationship between behavioural thresholds as measured by pure tone audiometry and electrophysiological thresholds measured by the Auditory Steady-State Response (ASSR) in children with normal hearing and sensorineural hearing loss.
The electrophysiological maximum in the group with normal hearing thresholds varied from 19 to 27 dB NA.

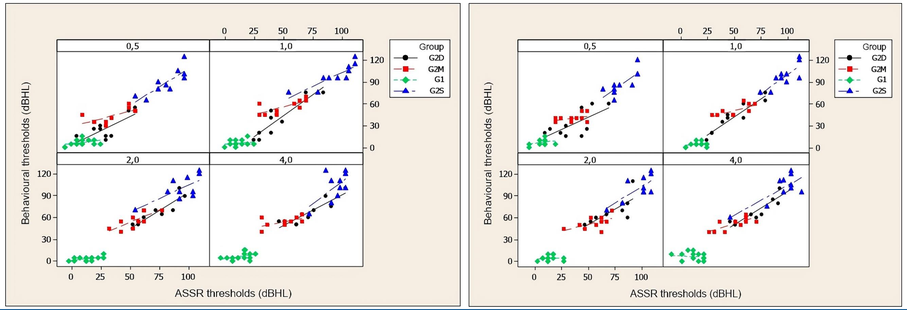
Résultats

The correlation in the group with moderate to moderately severe hearing loss was 0.42–0.74. The correlation in the steeply sloping hearing loss group was 0.68–0.94. The correlation in the group of people with profound and severe hearing loss was 0.59–0.86. The normal hearing group's mean differences in ASSR threshold and audiometric threshold ranged from −0.3 to 12 dB, in the moderate and moderately severe hearing loss group from −9 to 2 dB, in the steeply sloping hearing loss group from 1.4 to 7.5 dB, and in the severe and profound hearing loss group from −0.40 to 8.5 dB.

Comparison between Electrophysiological and Behavioural Thresholds in the Total Population.



Comparison between Behavioural and Electrophysiological Thresholds in Groups with Normal Hearing and Different Degrees of Hearing Loss.



Objectifs

This study aimed to verify the correlation between the electrophysiological thresholds obtained by the Auditory Steady-State Response (ASSR) and the behavioural thresholds obtained by puretone audiometry in children with normal auditory thresholds and those with sensorineural hearing losses of different degrees.

Conclusion

A strong correlation was found between electrophysiological and behavioural thresholds in the total population of 45 children, with the relationship being stronger in the groups with descending hearing loss and with severe and profound hearing loss.

Méthodes et Matériels

The final sample consisted of 45 children of both sexes aged between 5 and 15 years old, which were divided into the following two groups:Control Group (G1): 15 children with hearing thresholds within normal limits e Study Group (G2): composed of 30 children with sensorineural hearing loss, of whom 10 had moderate and moderately severe hearing loss (G2M), 10 had severe to profound hearing loss (G2S), and 10 had descending hearing loss (G2D). ASSR, tympanometry, acoustic reflex testing, pure tone audiometry,and speech audiometry (SRT and SDT) were performed.

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