

Brainstem auditory evoked potential study in children with autism

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Abstract

Background and Objective: Autism is a neurodevelopmental disorder of the brain, which occurs in the first few years of life, and is characterized by symptoms such as qualitative impairments in verbal and non-verbal communication, reciprocal social interactions, inability to communicate with others, stereotyped patterns of behavior, loss of eye contact and inappropriate facial expressions. Its prevalence is 2-5 in 10000 children and is greater in boys. Due to retarded language development, differential diagnosis other than those used with communication, behavioral and sensorial deficits should be made with sensorineural or conductive hearing loss. The aim of this study was to determine whether children with autism have abnormalities affecting the cochlear nerve or auditory pathway in the brainstem.

Materials and Methods: In this case – control study, auditory brainstem responses were recorded from 12 autistic children and 12 normal children aged 3-12 years in the Rehabilitation Zafar Center in Tehran – Iran during 2005. Absolute latency values of waves I, III and V and interpeak latencies of I-III, III-V and I-V were compared with the results of 12 normal children as the control group.

Results: Wave V could be traced down to 25 dB nHL in both normal and autistic groups. Absolute latency of Wave V and interpeak latencies of III-V and I-V were significantly prolonged in autistic children in comparison with the control group.

Conclusion: This study showed a slowing in nerve conduction in the auditory pathway in the brainstem of autistic patients. The brainstem lesion may be a part of neurological damage in autistic children that accounts for deviant language, cognition and social development. Prolongation of wave V, III-V and I-V IPLs can be a marker for early diagnosis of autism.

Keywords: Central auditory processing, Autism, Auditory brainstem response

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