(S63) CENTRAL AUDITORY PROCESSING DEFicits IN MULTIPLE SClerOSIS PATIENTS
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Background: Demyelination of axons in patients with multiple sclerosis (MS) can cause a wide spectrum of symptoms, including difficulties processing auditory stimuli. Behavioral test results indicate that these perceptual problems are a result of central auditory processing (CAP) deficits. Objectives: 1) To conduct behavioral assessments of CAP in MS patients and compare the results with those from age-matched control subjects. 2) To record a variety of auditory evoked potentials (AEPs) from patients with MS and compare the responses with those recorded from control subjects. These electrophysiologic results will be correlated with behavioral tests of CAP. Methods: Behavioral tests of central auditory function included 1) the Staggered-Spondaic Word (SSW) test, 2) the Dichotic Digits Test (DDT), 3) the Frequency Pattern Sequences Test, 4) the Gaps-In-Noise (GIN) test, 5) masking-level-difference (MLD) measurements for a 500-Hz pure tone, 6) the Words-In-Noise (WIN) Test, and 7) the SCAN-A battery. AEPs were recorded from scalp surface electrodes and included auditory brainstem responses (ABRs), middle latency responses (MLRs), and long-latency responses (LLRs) to repeated click and tonal stimuli. LLR recordings included the auditory P300 component, an indicator of cognitive processing that includes memory and selective attention. Results: To date, data have been collected from 20 MS patients and 20 control subjects. Significant differences between these subject groups were observed for the following behavioral tests: SSW, DDT, GIN, WIN, SCAN-A. AEP results indicate significant differences in amplitude of the binaural interaction component (BIC) and auditory P300 component between these populations, which suggests impaired central auditory processing in the MS group. Conclusions: MS contributes to a variety of CAP deficits that can be identified via particular behavioral and electrophysiologic tests. Results from this study can be used to facilitate improvements in patient evaluations, development of rehabilitative interventions, and assessments of treatment efficacy.

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