THE P2 VISUAL EVOKED POTENTIAL AND THE DIAGNOSIS OF PROBABLE ALZHEIMER'S DEMENTIA: A PSYCHOMETRIC STUDY

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Previous research has identified a delay in the flash visual evoked potential (FVEP) that may represent the deterioration of cholinergic pathways of the circumstriate visual cortex in Alzheimer's patients. The P2 component of the FVEP is selectively delayed in demented patients of the Alzheimer type when compared to age-appropriate demented patients not of the Alzheimer type and controls. If true, the FVEP may be useful in the early detection of Alzheimer's dementia (AD). However, an AD associated delay has not been reported by all. Differences in flash intensity or in the methods used, including the choice of electrode site, may have reduced the FVEP reliability and may account for these discrepancies. The purpose of the present investigation was to identify the most reliable P2 component of the FVEP using an assortment of electrode sites and flash intensities. Participants were 20 college students ages 18-25 years who reported no history of psychiatric or neurologic illness. Participants were presented with 100 trials of five flash intensity levels (1.4, 2.8, 5.5, 11.0 22.0 lumens/ft2). Participants experienced each of the five intensity levels with eyes closed. Each of the conditions were repeated 30 minutes later. Referential (A1+A2) recordings were made with a 64-channel NeuroScan system. Reliabilities obtained at the posterior sites > .80 for both amplitude and latency were considered potential sites to be retained for their diagnostic utility. Potential sites are 46 (Pz, parietal midline), 54 (Pzp, parietal-occipital midline), and 58 (O1, occipital left hemisphere). These results may explain the failure of several previous investigators to find the P2 delay in the FVEP of AD patients.

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