

ABSTRACT

EEG MEASURES IN LEFT BRAIN DAMAGED APHASIC PATIENTS NON-BRAIN DAMAGED CONTROLS

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Galin and Ornstein (1972) have reported that right handed normal subjects demonstrate more fast EEG activity in the right than in the left hemisphere when performing a visuospatial task. During a language task the opposite occurred.

This measure of EEG asymmetry may be used as an indicant of hemispheric dominance specifically to determine which hemisphere is assuming control during recovery from aphasia. With this in mind we recorded EEG activity from left and right parietal areas referenced to vertex in ten left brain-injured aphasic patients and ten normal controls during four conditions. One condition was relaxation, and the other three were delayed match to sample tasks (word to picture, word to word, and picture to picture matching) designed to increase differentially left or right hemisphere activity. Left and right parietal activity was integrated to yield a quantitative measure of asymmetry. Two recordings were obtained on each subject to obtain some estimate of reliability. The ten aphasic patients also received the Porch Index of Communicative Ability (PICA), so EEG activity could be compared with severity of aphasia.

Our results revealed that EEG asymmetry did not differ between the aphasic patients and the control subjects nor did it change as a function of the linguistic or nonlinguistic nature of the tasks. Comparison of initial and retest recordings indicated that EEG asymmetry in our subjects was not a reliable measure; however, average 5-15 Hz activity showed adequate reliability. Finally, severity of aphasia as measured by the PICA was significantly related with EEG asymmetry. Patients with mild to moderate aphasia show less 5-15 Hz activity in the right hemisphere relative to the left than normals as well as severe aphasics. This very tentatively suggests the possibility that right hemisphere activity may be related to the language recovery seen in these patients.