Understandying the right hemisphere’s role in communication abilities: a study in Temporal Lobe Epilepsy patients.


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Summary. Objective: Language research in epilepsy has previously been focused on dominant hemisphere processing evaluation. Communication skills that enable social functioning and in which the right hemisphere has a central role, have remained unexplored till now. The purpose of this study was to investigate discoursive, pragmatic and prosodic abilities in patients with right lateralized medial temporal lobe epilepsy (TLE). Methods: 60 patients with TLE and hippocampal sclerosis that were candidates for surgical treatment were evaluated: 28 with a right epileptic zone (EZ) (RTLE) and 32 with a left EZ (LTLE). Subjects underwent a battery of tests that measure abilities on: sentence to text comprehension; conversational and narrative discourse; prosody; social inference, indirect speech and idiom expressions’ comprehension; verbal fluency; naming and logic-temporal sequencing. Disease related variables and general neuropsychological data were evaluated. Results: RTLE compared to LTLE patients, showed interictal conversational and narrative discourse impairments, a tendency to tangential and disintegrated speech, lack of hierarchical and categorized codification, and misinterpretation of social intention. RTLE showed lower performance in conversational discourse, narrative comprehension retelling and production, idiom expressions’ and indirect speech’s comprehension, social meaning inference, emotional prosody, strategies for lexical and categorization. Otherwise, LTLE group showed lower performance in logical temporal sequencing. Significance: RTLE patients showed deficits which are similar to what has been described in right hemisphere damaged patients. It is therefore important to evaluate these skills in RTLE patients to detect potential impairments. Medial and anterior temporal lobe structures seem to have a key role in discourse processing as a link between semantic, world knowledge, and social cognition associated areas to construct a contextually related coherent meaning. Key words: temporal lobe epilepsy, right hemisphere, language, communication, discourse, narrative.