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Volumetric evaluation of contralateral hippocampus in unilateral mesial temporal sclerosis

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Introduction: In temporal lobe epilepsies (TLE), mesial temporal sclerosis (MTS) is characterized by gliosis and atrophy in the ipsilateral hippocampus of epilepsy center and associated limbic structures.

Aim: This study aimed to examine whether there was a volumetric change in the contralateral hippocampus showing normal signal characteristics in patients with unilateral MTS.

Materials & Methodology: The patients diagnosed of TLE and applied to radiology clinic between 2008 and 2010 for visualization, were evaluated retrospectively. Sixty nine patients (35 males, 34 females) with unilateral MTS and no EEG (Electroencephalogram) in other focus were selected as the treatment group. Forty nine patients (20 males, 29 females), who applied to the clinic due to headache complaint, underwent cranial MRI (Magnetic Resonance Imaging) and diagnosed of normal in neurological examination, were selected as the control group. The hippocampus volume of both sides in the control group and the side thought to be normal during visualization in the treatment group was evaluated using the area calculation method. The visualization of all patients was performed using an 8-channel head coil in 1.5T magnet system.

Results: Patients' age range was 8-58 years in the treatment group and 15-49 years in the control group. MTS was diagnosed in the right side of 29 patients and in the left side of 40 patients. The mean hippocampal area in the normal side of the patients in treatment group was statistically significantly lower than the mean hippocampal area of the patients in control group ($p<0.05$).

Conclusions: It is argued in recent years that there may be volumetric changes in white and gray matter on the normal accepted side and non-hippocampal regions of patients with unilateral MTS. This study results support the views advocated in recent years. It is thought that this study and similar studies will contribute to understand functional and anatomic changes in epilepsy cases, neurodegenerative diseases, natural aging process and limbic system.

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