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Anti-epileptic drugs improved serial 7s scores on the Mini-Mental State Examination in elderly with cognitive impairment and epileptiform discharge on electroencephalography

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Abstract

Aim: As the population ages, epilepsy among elderly people is increasing. Epileptic seizures in the elderly are mostly complex partial seizures without convulsions, so more caution is needed in the diagnosis of epilepsy. If epileptic seizures in the context of memory impairment are overlooked, epilepsy may be misdiagnosed as dementia. However, in older patients with epilepsy, there is a possibility that cognitive function may be impaired in the interictal phase. This study aims to investigate the efficacy of anti-epileptic drug (AED) treatment for patients with cognitive impairment and interictal epileptiform discharge (IED) on electroencephalography.

Methods: The outcome of AED administration in 50 patients who exhibited IED was retrospectively investigated. Their cognitive functions were assessed by the Mini-Mental State Examination (MMSE) at both baseline and after AED administration.

Results: In all patients who underwent electroencephalography, IED were temporal spikes, and re-examination of the 50 patients revealed that the frequency of temporal spikes had decreased or else disappeared in 41 patients (82%) after AED administration. In these 41 patients, the mean MMSE score significantly increased from 23.4 ± 3.7 at baseline to 24.7 ± 4.8 after AED treatment ($P < 0.01$). Similarly, the mean serial 7s score (MMSE subscale) also improved significantly from 2.5 ± 1.8 to 3.6 ± 1.6 ($P < 0.01$). The MMSE score was significantly improved only in the 41 patients with recovery of IED.

Conclusion: AED treatment for elderly amnesic patients with temporal spikes was effective in improving cognitive decline and related electroencephalographic abnormalities. A more thorough search of IED is necessary in elderly amnesic patients because there is a possibility that IED modifies cognitive function.

Keywords: MMSE; anti-epileptic drug; attention; cognitive impairment; interictal epileptiform discharge.

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