

Risk Factors for Seizures in Ischemic Stroke: Mainly Cortical Involvement?

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Stroke is the single most important cause of seizures and status epilepticus in the elderly population^(1,2). In this issue, Chiang et al. investigated the risk factors for seizures after first-ever ischemic stroke⁽³⁾. This is a hospital-based prospective study on 143 patients. Prognostic variables were analyzed based on Cox's proportional hazards model for a minimum follow-up of over six years.

Seizures occurred in 18 patients (9.1%), with acute symptomatic seizures in two and unprovoked seizures in 11. Only the cortical involvement of the cerebral infarcts was found to be independently associated with seizures. Furthermore, atrial fibrillation might be a significant risk factor for post-stroke seizures.

This study is important because it provides pertinent information on the predictive factors and outcome of seizures after the first-time ischemic stroke in a sufficiently long period of follow-up. The findings include (1) cortical involvement of ischemic stroke is predictive of seizure occurrence; (2) atrial fibrillation is a major underlying disease for post-ischemic stroke seizures; and (3) incidence of seizures following the first-time ischemic stroke is low, and the majority of the patients have late-onset seizures.

The relatively low incidence of seizures in this study might be due to the exclusion criteria. Patients with multiple infarcts or silent infarcts as well as patients with

pre-existing neurological conditions were excluded. However, the causes of seizures in the elderly group were often multifactorial⁽⁵⁾. Therefore, high risk group of ischemic stroke was excluded in this study. Furthermore, patients with brainstem or cerebellar infarctions were also excluded. Therefore, the title of this study may be changed to "Risk factors for seizures after first-time cerebral hemispheric ischemic stroke".

The present finding that cortical involvement is the most important predictive factor for seizures in ischemic stroke is consistent with other studies^(6,7). However, the latter studies also had another predictive factor of severe clinical disability. It is not clear in the present study whether those patients with seizures had more severe stroke, or the seizures were related to the locations of infarcts, in addition to cortical involvement.

Some of the early studies on seizures in the elderly group came from Taiwan^(1,2,4,5,8). Unfortunately, those studies were not mentioned and discussed. In one early study, 118 patients out of approximately 2,000 cases of presumed cerebral infarction had seizures⁽⁵⁾. The occurrence of seizures had a bimodal distribution with one peak period within 2 weeks, and another peak from 6 to 12 months after stroke. Fifteen patients (13%) had status epilepticus. Epilepsy developed in 35% of patients with early seizures and in 90% of patients with late seizures. Therefore, it may be important in this study to delineate

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the factors for early and late seizures because their prognoses are quite different.

Apparently more patients and/or more data analysis are needed in the present study for more definite conclusions on the risk factors for predicting seizures in ischemic stroke.

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