

Seizures and Epilepsy Related to Stroke

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The only multicenter prospective study on seizures after stroke shows an incidence of 8.9% occurring in a stroke population. In subarachnoidal haemorrhage the incidence is 8.5% [1]. This is an underestimation as seizures occurring at stroke onset were not taken in to account and non-convulsive spells are rarely recognized as such.

Seizures are classified as those of early onset (up to 15 days after the instauration of the stroke) and the late-onset ones, mainly occurring after 6 months up to 2 years. The difference between early- and late-onset seizures is arbitrary as 20% of the seizures occurring in patients with a previous cerebral infarct are the clinical expression of a new stroke [2].

Late-onset seizures are the most frequent and mainly occur in patients with a partial anterior circulation syndrome, the presence of a large cortical infarct with irregular borders and located in the parietal-temporal regions. They can also occur after a silent stroke and be single or with secondary generalization. Patients with recurrent cardio-embolic strokes are more at risk. Lacunar infarcts and ischaemic white matter lesions are not as a possible cause of seizures. Arterial hypertension, coronary and valves disorders, diabetes and hypercholesterolemia are no significant risk factors. On the other hand, patients with chronic obstructive pulmonary disease have a higher risk, independently from their kind of treatment. The recurrence rate of late-onset seizures is approximately around 50%. The recurrence of post-stroke seizures increases the disability of the stroke patients and promotes the occurrence of vascular cognitive impairment [3].

Early-onset seizures are mainly due to large haemorrhagic infarcts or haematomas. These patients have a poor prognosis with a high in hospital mortality rate. The recurrence rate of early-onset seizures is rather low. Early-onset seizures in patients with ischaemic stroke are not prevented by a recombinant tissue plasminogen activator (rt-PA) treatment [4]. On the other early rt-PA treatment seems to have some preventing effect for the occurrence of late-onset seizures [5].

Patients with early-onset seizures do not need chronic sustained anti-epileptic drugs (AEDs) after the initial treatment. It is recommended to start with AED treatment only after the first late-onset seizure as the recurrence rate is high and affects the further neurovascular status. Levetiracetam or Lamotrigine appears to be the first drugs of choice [6].

Seizures related to stroke need special attention and should not be considered as benign complications occurring during the long-standing course of a cerebrovascular disease.

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