

# Revisiting Post-stroke Epilepsy

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Post-stroke epilepsy is one of the common causes of seizures in the adult population. Nearly 5–20% of all individuals who have a stroke will have subsequent seizures.<sup>1</sup> Post-stroke seizure could be early or late. Early post-stroke seizures occur in around 3–6% of ischemic and 10–16% of hemorrhagic stroke. Late post-stroke seizures occur in around 6% of ischemic and 12% of hemorrhagic strokes over a 5–10-year follow-up period.<sup>2</sup> There is wide variation in various studies regarding post-stroke seizures due to stroke etiology, study methodology, definitions of early and late unprovoked seizures, the timing of antiepileptic drug administration, small sample size, and ambiguities in seizure identification. The risk factors for early post-stroke seizures in ischemic stroke could be male population, hemorrhagic transformation, cortical location of the stroke, atrial fibrillation, severe stroke (NIHSS (National Institutes of Health stroke scale) >11), partial seizures, status epilepticus, and abnormal electroencephalogram (EEG).<sup>3</sup> The risk factors for recurrence of early seizures in hemorrhagic stroke could be cortical location, age less than 65 years, status epilepticus, hemorrhagic volume >10mL, and abnormal EEG.<sup>2,3</sup> In the absence of RCTs a strong recommendation cannot be made on the initiation of antiepileptic drugs for secondary prophylaxis of early post-stroke seizures. However in practicality when antiepileptic drugs are initiated after acute symptomatic seizures, they should not be continued more than a month of therapy.

In the study by Hesdorffer et al. the 10-year recurrence rate of late unprovoked seizure after one post-stroke, the unprovoked seizure is around 70%.<sup>4</sup> As per the recent definition of epilepsy a single unprovoked late post-stroke seizure is equivalent to post-stroke epilepsy.

In this context, there are certain prediction tools for the assessment of seizure recurrence risks namely the CAVE score and SELECT score. In the CAVE score the following points namely cortical involvement, age <65 years, volume >10 mL, and early seizures are noted and if all the four points are present the 5-year recurrence risk of seizures in hemorrhagic stroke is around 46%.<sup>5</sup> Similarly in ischemic stroke the SELECT score gives a risk stratification for recurrence of unprovoked seizures following an ischemic stroke.<sup>6</sup> The SELECT score includes the severity of the stroke, large artery atherosclerosis, early seizures, cortical involvement, and MCA territory involvement. The maximum score could be nine which suggests a 5-year recurrence rate at 83%.

The given study which is probably a descriptive study shows nearly three-fourth of patients with post-stroke seizures being hemorrhagic which is slightly higher than the existing data in the

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literature. Nearly two-thirds of the patient developed post-stroke seizures. As already pointed post-stroke seizures remain the commonest cause for new-onset seizures in the elderly population. In the given study nearly 24 out of the 34 patients fall in the age group between 60 years and 80 years of age. In the SELECT score, the cortical location and MCA territory are two important variables that stratify risk. In the given study, the majority of the patients with stroke had cortical involvement namely MCA territory strokes.

The above study has made certain critical cross-sectional observations on the demographic/risk factors for post-stroke epilepsy. However, a prospective follow-up study would help in elucidating more Indian data in this regard.

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