Implications for driving based on the risk of seizures after ischaemic stroke

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Driving a motor vehicle is an important skill set. Its evaluation is relevant to patients who had a stroke. These patients struggle to get back to driving because of physical deficits, including challenges from neglect and apraxia and the risk of unexpected future complications like seizures. Advances in acute stroke management have led to improved survival after stroke, and, therefore, more people are expected to have poststroke epilepsy (PSE). It has become critical to determine which patient who had a stroke is at a greater risk of PSE and should consequently be warned about driving. Galovic *et al* originally developed the SeLECT score to predict the risk of PSE at follow-up.[1] Schubert *et al* analysed the SeLECT data (n=4452 adults, nine centres) to determine the chance of seizure in the next year (COSY) and seizure-free interval (SFI).[2] The authors should be congratulated because these data will now allow neurologists to guide patients about driving decisions after the first ischaemic stroke.

The authors used SeLECT 2.0 to model COSY.[1] In this score, patients who had a stroke with acute symptomatic seizures scored 3,[1] and those with acute symptomatic status epilepticus scored 7. The patients with early acute symptomatic seizures demonstrated substantial heterogeneity; the COSY at 3 months was 2%–91%. In patients with early acute status epilepticus, COSY ranged from 14% to 92%. The authors found the lowest COSY, 7%–11%, for patients *without* acute symptomatic seizures. According to the authors, in many jurisdictions, people without early seizures with a COSY <20% may be considered safe for private driving.

The acute symptomatic seizure patient group is heterogeneous. We need to determine the sources of heterogeneity and identify patient-specific features that will reliably identify patients with higher COSY, for example, >20%. One source of heterogeneity is haemorrhagic transformation risk, and an increasingly greater risk of COSY is expected in patients with haemorrhagic infarction and parenchymal haematoma (PH) 1 and PH2. Efforts to reliably determine the scalp electroencephalogram channels with gamma and ripple fast oscillations and the regions of seizure onset zone early are underway.[3 4] Interictal discharges have an impact on a person's cognition and fitness to drive and need focused investigation in the stroke population.[5] Bioinformatics offers opportunities to assess the biofluid biomarkers of epileptogenicity.[6] Analysis of these multidimensional data to build a COSY prediction model is now possible, thanks to advances in computational neurosciences.

The driving guidelines about when to resume driving are arbitrary and vary by jurisdiction. In the real world, we should strive to examine patients comprehensively and determine COSY and other risks like neglect and apraxia that could impede safe driving. Schubert *et al*'s work highlights that one single SFI is not valid. There is now a critical need to join hands, including with colleagues who offer driving assessments and generate evidence to guide when to resume driving in the stroke population.

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Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval Not applicable.

Provenance and peer review Commissioned; internally peer reviewed.

To cite Mishra NK. *J Neurol Neurosurg Psychiatry* Epub ahead of print: [*please include* Day Month Year]. doi:10.1136/jnnp-2024-333772

Received 10 April 2024
Accepted 14 April 2024

► https://doi.org/10.1136/jnnp-2024-333505

J Neurol Neurosurg Psychiatry 2024;**0**:1. doi:10.1136/jnnp-2024-333772

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