Ischaemic stroke subtypes had different short term and long term functional outcomes, mortality, and recurrence rates

**QUESTION:** In patients who have had a first ischaemic stroke, are short term and long term functional outcomes, mortality rates, and recurrence rates different for subtypes of stroke (large vessel cervical or intracranial atherosclerosis with stenosis, cardioembolic, lacunar, and unknown cause)?

**Main results**
Patients with different subtypes of ischaemic stroke had different functional status before the stroke and at maximal deficit, 90 days after stroke onset, and 1 year (table). Stroke subtype did not predict 30 day mortality but did predict 5 year mortality. Stroke subtype predicted early recurrence depending on the subtype of ischaemic stroke.

**Conclusion**
Patients had varying rates of function, mortality, and recurrence depending on the subtype of ischaemic stroke.


**COMMENTARY**
The study by Petty et al confirms what other studies have shown: patients with small vessel strokes generally function well, and patients with large vessel strokes, either from atherosclerosis or cardiac embolism, do not. What is surprising about the study is the high 30 day recurrence rates (18%) for patients with atherosclerosis, a rate higher than that in other prospective studies, although the registries used in the studies were not population based.

The early stroke recurrence data need to be confirmed in other studies. If they are confirmed, what are possible explanations of this high rate? The authors point toward iatrogenesis as a potentially preventable cause of early stroke; 4 of the 13 strokes in the atherosclerosis group were related to iatrogenesis. This finding stresses the need for hospitals and physicians to track and study their own complication rates to reduce medical error and improve patient safety. A residual non-iatrogenic increased risk for early recurrence in the atherosclerosis group still exists and needs to be reduced. In addition to the increased rate of early recurrence, patients with atherosclerotic stroke also had a higher long term rate of stroke recurrence, a finding that reinforces the need to promptly evaluate patients, identify the most likely stroke mechanism, and provide targeted treatment.

Finally, the investigators have good data to develop a patient outcome prediction model based on stroke subtype, age, and sex that could be useful for clinicians and patients.

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