

## Transient Ischemic Attacks and Minor Strokes Put Patients at High Risk for Repeat Stroke

Coull AJ, Lovett JK, Rothwell PM. Population based study of early risk of stroke after transient ischaemic attack or minor stroke: implications for public education and organisation of services. *BMJ* 2004;328:326.

### Study Overview

**Objective.** To estimate early stroke risk following a transient ischemic attack (TIA) or minor stroke.

**Design.** Population-based cohort study.

**Setting and participants.** 174 patients who presented to medical attention with a TIA ( $n = 87$ ) or minor stroke ( $n = 87$ ) were recruited from 9 general practices in Oxfordshire, England, from April 2002 to April 2003.

**Main outcome measures.** Risk of recurrent stroke after 7 days, 1 month, and 3 months after a TIA or minor stroke.

**Main results.** Following a TIA, recurrent stroke occurred in 8% of patients at 7 days (95% confidence interval [CI], 2.3%–12.7%), 11.5% of patients at 1 month (95% CI, 4.8%–18.2%), and 17.3% of patients at 3 months (95% CI, 9.3%–25.3%). The risk of recurrent stroke after a minor stroke was 11.5% at 7 days (95% CI, 4.8%–11.2%), 15% at 1 month (95% CI, 7.5%–22.5%), and 18.5% at 3 months (95% CI, 10.3–26.7%).

**Conclusion.** Risk of early recurrent stroke after a TIA or minor stroke is higher than previously reported. Urgent efforts to prevent recurrent stroke need to be further studied.

### Commentary

Major ischemic stroke is a devastating disease and continues to be the third leading cause of death and a leading cause of disability. At least 30% of major strokes are preceded by the milder neurologic syndromes of TIA or minor stroke, which indicates substantial opportunity for secondary prevention. Proven interventions to prevent recurrent stroke include the use of antiplatelet agents after a cerebral ischemic event, use of oral anticoagulation in patients with atrial fibrillation or cardiac embolic source, and surgical correction of symptomatic carotid stenosis. While physicians already recognize that minor cerebral ischemic events can herald major events, there is conflicting information on the timing of the recurrence and thus the urgency of preventative efforts. The authors point to

previous data suggesting that the risk of early stroke after TIA is only 1% to 2% at 7 days and 2% to 4% at 1 month. No equivalent data are available for minor stroke. These data likely underestimate the risk, since patients were recruited several weeks after TIA and patients who experienced an early major stroke were excluded. Furthermore, these risk estimates do not account for the use of new prophylactic therapies.

The authors found that recurrent strokes following a TIA or minor stroke occur many times more frequently than previously quoted, occurring in approximately 1 out of 6 patients by 3 months. The higher event rates reported in this study are likely due to enrollment of patients immediately after their initial ischemic events and diligent efforts to capture subsequent strokes by contacting primary care physicians, reviewing hospital admission records, and reviewing results of brain or carotid imaging. The high rate of recurrent stroke indicates that current secondary prevention efforts are not sufficiently effective or are being delivered too late. The authors suggest that the window of opportunity to prevent recurrent events may be as little as hours after the initial event. In practice, the workup of a patient with neurologic symptoms consistent with a TIA or minor stroke often requires hospital admission. Further research is needed to ensure that this is the most cost-effective strategy and to determine whether early aggressive interventions decrease the risk of recurrent stroke.

### Applications for Clinical Practice

A TIA or minor stroke is a red flag that requires urgent evaluation and treatment. Systems of care should be streamlined so that the necessary diagnostic tests and treatment can be completed within several days of the index event.

—Review by Josh F. Peterson, MD, MPH

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