Management of patients with transient ischemic attack in the emergency department

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An estimated 5 million people in the United States have experienced a TIA.[1] Most of these people visited an emergency department for their immediate evaluation and treatment. The decisions regarding what investigations will be performed, what treatments will be initiated, and in what setting these events will occur vary greatly across the country.

Studies done in the 1990s found a 90-day stroke risk of approximately 10%, with about half of events within the first 2 days.[2] Subsequently, researchers in the United Kingdom and France found that very rapid evaluation and treatment (i.e., within 24 hours) in specialty TIA clinics reduced the risk by approximately 80%.[3,4] Other groups in the United States and Australia have implemented clinical decision or TIA units in the emergency department for the same purpose, using either CT- or MRI-based protocols with neurovascular imaging and cardiac evaluation all within a 24-hour period.[5–7] Outcomes at 90 days with emergency department–based evaluation and management appear to be similar to those of outpatient specialty TIA clinics.

In this issue of *Neurology*®, Kapral et al.[8] in Ontario, Canada, searched a province-wide registry of patients with minor stroke or TIA who presented to the hospital from 2008 to 2011. Of 8,540 patients seen in the emergency department, about half (47%) were admitted to the hospital. Among discharged patients, 68% (3,076/4,509) were referred to a stroke prevention clinic while 32% (1,433/4,509) were not. Admitted patients were much more likely to receive diagnostic evaluations as follows: brain imaging within 24 hours (more than 98% of the time, neuroimaging was a head CT only), carotid imaging within 48 hours, echocardiography within 30 days, cardiac rhythm monitoring within 30 days, and assessment by a neurologist. Admitted patients were also more likely to receive stroke prevention treatments, including antithrombotic therapy at discharge, anticoagulation at discharge in those with atrial fibrillation, antihypertensive therapy within 30 days, lipid-lowering therapy within 30 days, and carotid revascularization within 14 days. At 1 year, overall case-fatality was similar in admitted and discharged patients. However, after adjustment for age, sex, and comorbid conditions, discharged patients who were referred to specialty clinics had a lower risk of death than those who were not referred to specialty clinics (hazard ratio 0.49; 95% confidence interval 0.38–0.64). Stroke and TIA rates at 1 year were 10.6%, 16.0%, and 17.9% in patients who were admitted, discharged with specialty clinic follow-up, and discharged without specialty follow-up, respectively. Median length of stay among admitted patients was 4 days.

There are many strengths of this study, including a large sample size, complete sampling of all hospitals, and multiple data elements that were collected. The authors acknowledge some limitations of the study, including that the results were observed within the context of a universal health care system, which may not be generalizable to other health care systems. In addition, clinical decision or TIA units were not part of the system of care, so their potential effect on outcomes for patients who were discharged from the emergency department is not known. The authors do not advocate for admission of all patients, but rather additional strategies to improve access to high-quality outpatient TIA care.

Despite the known stroke risk after TIA, hospital admissions are no longer routinely reimbursed in the United States. As a result, there is interest in how best to maintain quality care for TIA patients while balancing fiscal responsibilities. Depending on the health system and available resources, clinical protocols for TIA evaluation and management may include facilitated workup and treatment in the hospital, in emergency department observation units, or at specialty TIA clinics. The study by Kapral et al. does not suggest that all TIA patients should be admitted. Indeed, rapid evaluation and treatment regardless of

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environment in this population-based study seemed to yield similar patient outcomes.

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REFERENCES

1. Mozaffarian D, Benjamin EJ, Go AS, et al. Heart disease and stroke statistics—2015 update: a report from the American Heart Association. Circulation 2015;131:e29–e322.
2. Johnston SC, Rothwell PM, Nguyen-Huynh MN, et al. Validation and refinement of scores to predict very early stroke risk after transient ischaemic attack. Lancet 2007;369:283–292.
3. Rothwell PM, Giles MF, Chandratheva A, et al. Effect of urgent treatment of transient ischaemic attack and minor stroke on early recurrent stroke (EXPRESS Study): a prospective population-based sequential comparison. Lancet 2007;370:1432–1442.
4. Lavallée PC, Meseguer E, Abboud H, et al. A transient ischaemic attack clinic with round-the-clock access (SOS-TIA): feasibility and effects. Lancet Neurol 2007;6:953–960.
5. Olivot JM, Wolford C, Castle J, et al. Two aces: transient ischemic attack work-up as outpatient assessment of clinical evaluation and safety. Stroke 2011;42:1839–1843.
6. Wasserman J, Perry J, Dowlatshahi D, et al. Stratified, urgent care for transient ischemic attack results in low stroke rates. Stroke 2010;41:2601–2605.
7. Sanders LM, Srikanth VK, Jolley DJ, et al. Monash transient ischemic attack triaging treatment: safety of a transient ischemic attack mechanism-based outpatient model of care. Stroke 2012;43:2936–2941.
8. Kapral MK, Hall R, Fang J, et al. Association between hospitalization and care after transient ischemic attack or minor stroke. Neurology 2016;86:1582–1589.