The importance of specialized stroke care for patients with TIA

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TIA as a medical emergency requires early appropriate management to minimize the risk of adverse outcomes.[1] Traditionally, we addressed this challenge by admitting all patients with TIA to the hospital, presuming that this would offer the best care available with the least possible delay. Over the past decade, increasing evidence has emerged that not all patients with TIA require hospital admission, and that some or even most patients can be safely managed in the outpatient setting.[2]

However, some patients may still require hospital admission because outpatient management would incur unacceptable treatment delays, the patient has comorbidities that are difficult to manage as an outpatient, or perhaps when a high risk of early stroke justifies close observation for potential thrombolysis/thrombectomy.[3,4] In both the in- and outpatient settings, rapid access to specialist input represents a key intervention in TIA management, but the definition of "specialist" remains unclear.[5]

In this issue of *Neurology*®, Cadilhac et al.[6] describe a large registry-based study, comprising 3,007 patients, using propensity score matching to assess outcomes; the primary aim was to compare admitted TIA patients managed in a stroke unit vs those managed on an alternate ward. They found that compared with management elsewhere in the hospital, management on a stroke unit was associated with improved survival at 180 days post event (3.2% vs 5.2%; hazard ratio 0.57, 95% confidence interval 0.35–0.94; $p = 0.029$). This finding clearly indicates that hospital admission in and of itself is not sufficient to optimize patient outcomes. Instead, admission to a stroke unit with care provided by an expert interdisciplinary stroke team provides the desired treatment benefit.

What about stroke units offers the added benefit? Patients undergoing stroke unit care had earlier and more consistent use of antithrombotics, and possibly antihypertensives, although this information was only available or conclusive for a subset of the data. Thus, it is difficult to draw firm conclusions about the entire sample. However, it is certainly plausible and consistent with prior evidence that lack of stroke expert involvement results in lower rates of optimal secondary prevention.[7]

Patients managed in the stroke unit setting were also more often discharged home rather than to aged residential care facilities when compared to patients discharged from other wards. This might be explained by greater expertise in stroke-specific interdisciplinary management on stroke units.

These new data do not provide any information about whether patients with TIA ought to be managed as in- or outpatients. Rather, they tell us that *stroke* specialist care benefits patients beyond the outpatient TIA clinic setting where this has previously been demonstrated.[1,8] Leaving admitted patients overnight in an emergency department or general medical ward is insufficient.

This study also raises some important questions about TIA management in general.

First, there was an indication that patients managed on stroke units were less often disadvantaged. While there was no clear correlation between socioeconomic status and outcomes, this could nonetheless suggest disparity in accessing important stroke unit–level care. This is an important finding that requires further exploration to help address potential health inequity.

Second, the observed 90-day stroke risk of 8% was higher than that observed in recently reported outpatient TIA service models (0.9%–3.2%).[2] This may in part be attributable to the tendency for outpatient-based studies to include TIA mimics, and when mimics were removed the risk increased (1.6%–4.2%).[2] The remainder of the difference may be a spurious finding or may, as the authors suggest, be attributable to a difference in case mix, with patients at higher risk and higher comorbidity preferentially admitted to the hospital. This is of interest because some authors have argued that risk stratification to assist with prediction of poor outcome is ineffective[9]; however, this report would suggest that high-risk patient identification for admission is indeed feasible. Nevertheless, one does wonder exactly what benefit is achieved through hospital admission if the 90-day

See page 2042

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stroke rate remains high for this subgroup of patients. Is it possible that hospitalization, especially to a non–stroke unit setting, may in fact result in worse outcomes than rapid outpatient specialist management? Potential reasons for this could include lower risk of hospital-acquired infections, less immobilization that could result in deconditioning, or greater risk of being managed by a nonstroke specialist compared with patients seen in urgent expert-run outpatient TIA clinics.

Unfortunately, the study did not include information about the risk stratification or clinical risk factors of patients that may have influenced triage decision beyond age and inability to ambulate. Also, while the registry is clearly an excellent source of comprehensive and high-quality stroke data, it provides no information about primary care or outpatient management pre- or postadmission. A whole system perspective, not limited to admitted patients, is most useful when assessing TIA service provision. TIA patients transition across multiple care settings from initial treatment to long-term management, and the quality of especially prehospital management can influence eventual patient outcomes.[10] It would also be useful if future studies included more information about specific features of stroke unit care, as this is a complex intervention, and prespecified 90-day stroke risk as a key primary outcome to allow study comparison and data pooling.

In summary, Cadilhac et al.[6] provide us with excellent data to support the need for specialized stroke unit–level care for our admitted TIA patients, similar to stroke patients. Just as outpatient TIA clinics are led by stroke experts so should be TIA inpatient care. This will assist in health care planning and should influence government targets. Ongoing research is required to determine optimal TIA management from a whole-of-system perspective.

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