THE NEW ZEALAND MEDICAL JOURNAL
Journal of the New Zealand Medical Association

Management of transient ischaemic attack: the importance of time and specialised clinics

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"Time is brain" is the mantra associated with stroke management in the 21st Century. This is because stroke treatments that actually work are now available, chiefly aspirin and thrombolysis. The message is that stroke is a medical emergency, usually requiring acute admission to hospital. But there is a limit to what can be achieved once stroke has taken place. So much better to prevent stroke before it happens.

Good management of transient ischaemic attack (TIA), the harbinger of stroke, is crucial. The risk of a stroke within 90 days ranges from 9 to 17%, with the risk in the first 48 hours as high as 10%.[1] Management of TIA depends on the underlying aetiology, but for most TIAs there are effective strategies: management of treatable risk factors, (especially hypertension), antiplatelet agents, statins, endarterectomy for carotid stenosis and anticoagulation for atrial fibrillation. None of these are effective if a stroke occurs before treatment starts. Thus it is important that not only stroke, but TIA is managed in a prompt and efficient way.

One difference between stroke and TIA is that many stroke victims need hospital care by virtue of their neurological deficits and the need to be nursed. In contrast, TIA should theoretically be manageable in an ambulatory setting. The problem with this is that obtaining investigations quickly can be difficult. Radiology services are under pressure, and sometimes it is necessary to admit patients to coordinate the investigations in a timely fashion. In the case of TIA, investigations usually include brain imaging (either computerised tomography or magnetic resonance imaging), diagnostic ultrasound of the carotids, electrocardiograpy and echocardiography.

Admission of TIA patients to facilitate these investigations is enormously expensive and not really affordable. That is why TIA clinics are important. In the current issue of the *NZMJ*, Brownlee et al report improvement in the availability of TIA clinics in New Zealand, together with improvements in other stroke management parameters such as waiting times for imaging and carotid endarterectomy.[2]

TIA clinics facilitate investigation and treatment of TIAs in a cost-effective way, that is probably just as safe as inpatient investigation.[3,4] They are cost-effective because the alternative is hospital admission or, if stroke is not prevented, a more prolonged hospital admission and considerable ongoing costs thereafter.

Clearly the mere existence of a stroke clinic is not enough. Factors such as the frequency of the clinics and the speed of access to the clinic and the necessary investigations are crucial. The availability of carotid endarterectomy without undue delay is also important. It is estimated that about 50% of TIA referrals are for stroke/TIA mimics,[5] so TIA clinics need to be staffed by clinicians with expertise in diagnosis.

TIA clinics do come at a cost, but this is offset by the clinical and financial benefits. In smaller centres, with a smaller population base, providing a TIA service may be more difficult, and less cost-effective, so that an inpatient model may be preferable in certain environments.

Of paramount importance is rapid access. General practitioners need to recognise possible TIA and know where to send the patients. Ideally, TIA clinics should see high-risk patients within 24 hours; low risk patients within a week. General practitioners need easy access to the TIA clinic. They also need to bypass the TIA clinic if the case is too urgent to wait for the next available clinic. For example, multiple TIAs have a higher risk and may best be managed through the emergency department.

Scoring systems have become important, notably ABCD2 which is the one most widely used. These enable stratification of TIA with a view to planning investigation according to risk of stroke, and also assist in distinguishing TIA from its mimics. Variants to the ABCD2 score, incorporate additional factors, such as MRI findings, and are more accurate in assessing stroke risk.

There have been a number of other changes in the way we think about TIA. The definition has traditionally been "an episode of neurologic dysfunction caused by focal cerebral ischemia with complete recovery within 24 hours".[6] In fact, most TIA last less than an hour and MRI has shown that about a third of the TIAs diagnosed clinically are in fact minor strokes.[7]

MRI is a more sensitive test for stroke than CT, but CT is the more widely used initial form of imaging. If MRI is used instead of CT it is important to include sequences which will detect haemorrhage.[8] Dual therapy with aspirin and clopidogrel may be better than a single agent in the early stages following TIA and stroke.[9] For patients with atrial fibrillation, alternatives to warfarin have become available in the form of new oral anticoagulants.[10]

Whatever options become available for stroke management and prevention in the future, their timely application will be critical for their success. Stroke units and TIA clinics are reducing the incidence and improving the outlook of stroke. The availability and manner in which these are organised will determine who benefits, and it is very appropriate to audit this area of healthcare.

Adequate funding will be necessary to optimise the benefits and cost-savings country-wide. The article in the current issue provides evidence of good progress, but there are no grounds for complacency.

Competing interests: Nil.

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