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

Transient ischaemic attacks: "mini-strokes" with major but preventable consequences

John Gommans, P Alan Barber

Transient ischaemic attack (TIA) can be defined as symptoms consistent with stroke that resolve within 24 hours. The public and many health professionals refer to TIAs as 'mini-strokes', terminology that belies their potentially serious prognosis. Although people make a full recovery from a TIA, acute ischaemic lesions revealed on MRI scans occur in just under half of patients.

In the population-based OXVASC study, stroke risk following TIA was 8% at 1 week and 18% at 3 months.[1] There is nothing 'mini' about the strokes that follow a TIA with one in five fatal and two-thirds disabling.[2] Up to 80% of these strokes may potentially be avoided with prompt medical assessment and treatment.[3] However, the time window for intervention is brief as half of the strokes that follow a TIA occur within the first 48 hours.[3]

A traditional outpatient service response to TIA is no longer adequate. The New Zealand (NZ) clinical guidelines for stroke management recommend specialist assessment, investigation and early management in patients at high stroke risk within 24 hours of TIA, either via urgent admission or "rapid access" TIA clinics.[3] Recent NZ studies have found that most District Health Boards (DHBs) do not manage TIA as urgently as guidelines recommend. This represents a lost opportunity to prevent many of the strokes that follow TIA.[4,5]

Preventing stroke requires a 'whole of system' approach starting with public awareness of common stroke/TIA symptoms and the need to seek immediate assessment.

The FAST message (Face, Arm & Speech check = Time to act FAST) indentifies 90% of stroke and TIA cases and is used for public awareness campaigns in New Zealand, Australia, the USA, the UK and parts of Europe.[3] Despite this, recognition of stroke and TIA symptoms remains suboptimal.

TIA diagnosis is based on an accurate history and clinical assessment (remember, patients are usually seen after they have returned to normal) with brain imaging used to exclude stroke and TIA mimics. It is important to get the diagnosis of TIA and assessment of stroke risk right at the first point of contact. Unfortunately, this is often not the case with TIA over-diagnosed by as much as 30–50% in primary care and emergency departments.[3]

The NZ stroke guidelines recommend use of the ABCD2 tool with points for Age>60 years, Blood pressure≥140/90 mmHg, Clinical features (unilateral weakness and/or speech disturbance), Duration of symptoms (>10 & ≥60 minutes) and Diabetes.

By using the ABCD2 tool, diagnostic accuracy and risk prediction is improved. However, it is also important to assess other stroke risk factors not identified by the ABCD2 such as atrial fibrillation, carotid stenosis and crescendo TIA.

Stroke prevention is greatest following specialist assessment and urgent investigation and implementation of evidence-based therapies. These include antiplatelet therapy, anticoagulant therapy for those with atrial fibrillation, blood pressure and cholesterol lowering therapy, and early surgery for those with internal carotid artery stenosis. These recommendations are well documented in easily accessible guidelines.[3] That is the theory! The reality for the majority of people with TIA is that rapid and accurate TIA diagnosis and implementation of evidence-based therapy is simply not occurring.

In this edition of the *Journal*, Ranta and Cariga present the results of a survey of the management of hypothetical possible TIA patients by selected general practitioners (GPs), general physicians and stroke physicians.[6] The results are consistent with international literature in that stroke experts are more likely to make an accurate diagnosis and recommend evidence-based treatments than general physicians and GPs.

This is not new information. What is new is that Dr Ranta has developed a novel electronic decision support (EDS) tool for the assessment and management of suspected TIA cases seen in primary care. When the same theoretical cases were assessed using this EDS tool there was excellent agreement with stroke expert diagnosis, triage advice and guideline recommended therapy, even when used by non-doctors.

Furthermore, the EDS tool prompted higher rates of recommendations for non-pharmacological interventions such as dietary advice, smoking cessation and advice regarding driving restrictions. As the authors state, the 'check-list' nature and automatic prompts of an electronic tool are the likely explanation for this superior performance.

There is often limited access to stroke physicians and urgent investigations in NZ. A web based EDS tool embedded within electronic patient management systems that mimics expert advice should improve the diagnostic accuracy and utilisation of evidence-based therapy in a primary care setting. In addition to recommending immediate initiation of therapy, the triage function advises urgent transfer to secondary care for those TIA patients at highest stroke risk.

The EDS also generates appropriate referrals for rapid access outpatient investigations and TIA clinics for those at lower stroke risk. The hope is that an EDS tool may reduce the risk of a 'mini-stroke' turning into a major stroke. This remains to be proven but is being addressed in the FASTEST Trial; a randomised controlled trial examining the safety, efficacy, and cost effectiveness of this EDS tool in routine clinical practice (ACTRN12611000792921).

Competing interests: Dr Gommans is a co-investigator in the ongoing FASTEST Trial.

Author information: John Gommans, General Physician and Geriatrician, Hawke's Bay DHB, President of Stroke Foundation of NZ, and member of NZ Stroke Guidelines Reference Group, Hastings; P Alan Barber, Professor of Clinical Neurology, University of Auckland, Director of the Auckland City Hospital Stroke Service, and Member of the NZ Stroke Guidelines Reference Group, Hastings

Correspondence: Dr John Gommans, Hawke's Bay Hospital, Private Bag 9014, Hastings, New Zealand. Fax: +64 (0)6 8781319; email: john.gommans@hbdhb.govt.nz

References:

1. 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 organization of services. BMJ. 2004;328:326–8.
2. Johnston SC, Gress DR, Browner WS, Sidney S. Short-term prognosis after emergency department diagnosis of TIA. JAMA. 2000;284:2901–6.
3. Stroke Foundation of New Zealand and New Zealand Guidelines Group. Clinical Guidelines for Stroke Management 2010. ISBN (Electronic): 978-0-9582619-6-8 Wellington: Stroke Foundation of New Zealand. 2010. http://www.stroke.org.nz/stroke-health-professionals
4. Brownlee WJ, Fergus L, Bennett P, Gommans J, Fink J, Barber PA. Transient ischaemic attack services in New Zealand. N Z Med J. 2009:122(1299). http://journal.nzma.org.nz/journal/122-1299/3712/
5. Child N, Barber PA, Fink J, et al. New Zealand National Acute Stroke Services Audit 2009: organisation of acute stroke services in New Zealand. N Z Med J. 2011;124(1340). http://journal.nzma.org.nz/journal/124-1340/4810
6. Ranta A, Cariga P. Who should manage transient ischemic attacks? A comparison between stroke experts, generalists, and electronic decision support. N Z Med J. 2013;126(1372). http://journal.nzma.org.nz/journal/126-1372/5591