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A new era for stroke patients

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Introduction

Stroke is one of the most significant healthcare conditions in the UK, with over 120,000 occurring each year. It is the third most common cause of death and is the leading cause of adult disability. Inevitably this leads to huge pressure on the health service both in terms of manpower and finance. Stroke involves numerous medical specialties, other healthcare professionals and friends and families who care for stroke victims. Over the last 10 years the management of stroke has advanced and the profile of the condition has been raised. New technology (such as thrombolysis) has proven that stroke is a treatable condition and should be classed as a medical emergency. New guidelines (from the National Institute for Health and Clinical Excellence[1] and the Royal College of Physicians[2]) and a commitment from government in the form of the National Stroke Strategy have placed stroke at the forefront of NHS priorities. However, there is still much work to do. Guidelines need to be implemented, standards need to be raised and more research is needed into areas of uncertainty. This conference focused on the recently published guidelines and investigated how stroke should be managed in the future.

Acute stroke and transient ischaemic attacks

Primary care has a major role to play in the management of acute stroke and transient ischaemic attacks (TIAs). The role of the general practitioner (GP) in stroke management has been neglected but it is most often the first port of call between patients and medical services. A more rapid action, cardiac-type model is being adopted in which patients with TIA/stroke symptoms have early clinical assessment but not to the detriment of a rapid transfer time to the accident and emergency department (A&E) (eg not doing a home visit but instead calling an ambulance directly). This rapid action model requires public education in symptoms of TIA/stroke. The FAST[3] score may facilitate recognition of the symptoms of stroke and allow early action to be taken. The ABCD2[4] scoring system (Table 1) allows clinicians to quantify the risk of stroke after TIA and triage patients appropriately: a score of four or more indicating high risk of progression to stroke and the need for urgent specialist review (within 24 hours); less than four indicating lower risk and less urgent review (within one week). If neurological symptoms have not resolved, patients should be treated as a stroke and sent to hospital. Generally GP treatment of TIA, for example the immediate prescription of aspirin, is good. However blood pressure (BP) reduction and lipid management are performed less well.

General practitioners have a key role in managing the long-term consequences of stroke care. When patients are discharged from hospital follow-up, GPs have to deal with emotional issues and a reported lack of information post-stroke. Primary stroke prevention is also a management goal for GPs with regards to BP/cholesterol control and anticoagulation for atrial fibrillation.

The need for aggressive treatment of TIA has led to the creation of challenging guidelines. After TIA there is high risk of progression to stroke, especially within the first 24 hours. Those at highest risk are those strokes caused by large vessel disease (predominantly carotid), hence the benefit of early endarterectomy within two weeks of symptoms. For all stroke types the combined benefit of aspirin, statin and BP management may decrease progression to full stroke by 80%.[5] Some centres are using 75 mg of clopidogrel in dual antiplatelet therapy but this is not evidence based, may increase the risk of bleeding and requires more research.

Early assessment and treatment reduces the risk of stroke recurrence. The EXPRESS[5] study found that rapid, more aggressive treatment could reduce this risk from 11.3% to 1.9%. Imaging is an essential part of the stroke pathway. In suspected acute stroke computed tomography (CT) scanning remains the first choice due to its rapidity and convenience. Use of ASPECT scores facilitate more accurate, systematic reporting by non-radiologists. Magnetic resonance imaging (MRI) may be seen as second line to CT but diffusion-weighted imaging (DWI) is invaluable for some cases due to its increased sensitivity for detecting acute ischaemia. It should be considered first line in posterior circulation events or where vascular territory is in doubt.

The 2006 National Sentinel Stroke Audit showed that only 42% of suspected stroke patients have brain imaging within

Table 1. The ABCD2 scoring system.

- One point for age 60 or older
- One point for blood pressure at or above 140 mmHg systolic or 90 mmHg diastolic
- Two points for unilateral weakness
- One point for speech impairment without weakness
- Two points for TIA duration of 60 minutes or more
- One point for TIA duration 10 to 59 minutes
- One point for diabetes

TIA = transient ischaemic attack.

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This conference took place at the Royal College of Physicians (RCP) on 14 October 2008 and was organised by the RCP

Conference programme

ACUTE STROKE AND TIA

Chair: Dr Tony Rudd, chairman, NICE Guidelines Development Group for Acute Stroke and TIA; consultant physician in stroke medicine, Guy's and St Thomas' NHS Foundation Trust, London (*Conference organiser*)
TIA management
Professor Peter Rothwell, professor of clinical neurology, University of Oxford
Management of stroke and TIA in primary care
Dr Richard McManus, general practitioner and clinical senior lecturer, University of Birmingham
Acute stroke management
Dr Pippa Tyrrell, honorary consultant physician in stroke medicine, Salford Royal NHS Foundation Trust
Imaging in stroke and TIA
Dr Andrew Clifton, consultant neuroradiologist, St George's Healthcare NHS Trust, London

LONGER TERM STROKE CARE

Chair: Professor Derick Wade, professor of neurological rehabilitation, Oxford Centre for Enablement
Management of disability
Professor Marion Walker, professor in stroke rehabilitation, University of Nottingham
Management of psychological problems
Dr Audrey Bowen, senior lecturer in psychology (speech and language therapy), University of Manchester
Secondary prevention
Dr Gavin Young, Association of British Neurologists and consultant neurologist, James Cook University Hospital, Middlesbrough
Chair: Professor Gary Ford, director, Stroke Research Network, Newcastle University; honorary consultant physician, Royal Victoria Infirmary, Newcastle upon Tyne

KEYNOTE ADDRESS

The future for stroke care
Professor Roger Boyle CBE, national director for heart disease and stroke

GETTING GUIDELINES INTO PRACTICE

Chair: Professor Roger Boyle CBE
The patient perspective
Mr Alan Bowmaster, NICE guideline patient representative
Guidelines into practice – improving care through collaboration
Dr Maxine Power, senior research fellow, School of Medicine, University of Manchester
Greater Manchester Cardiac and Stroke Network
Dr Pippa Tyrrell
A plan for London
Dr Chris Streather, medical director, St George's Healthcare NHS Trust, London
The Stroke Improvement Programme
Dr Damian Jenkinson, clinical director, Stroke Unit, Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust
The contribution that a trust chief executive can make to improving stroke services
Mr David Dalton, chief executive, Salford Royal NHS Foundation Trust

24 hours and this figure is even worse at weekends.[6] To change this service is a massive logistical operation and will require a shift in practice and increased allocation of resources. In the future radiology may have an increased role in stroke with exciting new therapies such as intra-arterial thrombolysis and clot extraction on the horizon.

There is increasing evidence for the benefits of specialist treatment of acute stroke but areas of uncertainty still exist. Rapid recognition, assessment, scanning (especially for patients being considered for thrombolysis and those on anticoagulation) and treatment is the key. Thrombolysis is now an established, safe therapy. The recent ECASS3 trial has shown that the procedure can be both safe and beneficial up to four and a half hours post-onset although the earlier it can be given the more likely that it will be effective.[7]

Longer term stroke care

Acute stroke care is of course important but the majority of time spent as a stroke patient is during the period of rehabilitation. This area is more difficult to research and there is less evidence to support specific interventions, which needs to be addressed. Two weeks after stroke the majority of patients remain significantly impaired and for many this continues into the longer term. Rehabilitation can influence these outcomes and there is good evidence that occupational therapy can improve personal activities of daily living and hence independence.

Optimally stroke patients would be treated in a stroke unit, have access to early supportive discharge, undergo repetition of activities and have ongoing care in the community. Although services are improving, the National Sentinel Stroke Audit shows 23% of stroke patients are not admitted to an acute stroke unit, staffing resources are limited with patients receiving less than 60 minutes per day of rehabilitation activity and there is little ongoing care after the first six months.[6] To improve performance evidence must be used to inform clinical practice, find innovative ways to maximise rehabilitation time (robotics, computers etc) and to regularly review patients and offer further rehabilitation if needed.

Effective secondary prevention of stroke is highly important (Table 2). All modifiable risk factors should be assessed on an individual patient basis. Treatment should start as soon as possible: for TIA immediately; for stroke, some delay may be appropriate, for example in BP reduction or initiating anticoagulation. When to stop treatment, however, is uncertain. A useful mantra for secondary stroke prevention is do it, do it all and do it quickly.

Getting guidelines into practice

There has been increased recognition by government agencies of the impact of stroke on society and the quality of care needs to be improved. An ambitious National Stroke Strategy has been formulated and generally well received. Twenty quality markers of stroke care have been set. There are few surprises but the bar

Table 2. Secondary prevention of stroke (80% of recurrent strokes are preventable with multifactorial intervention).

- Blood pressure – the lower, the better. Class effect unlikely
- Atrial fibrillation – warfarin is under prescribed. Await the impact of new, oral thrombin inhibitors
- Antiplatelets – ? Combination as in cardiology, more research needed
- Carotid stenosis – the risk varies with the degree of stenosis and number needed to treat rises with increasing delay
- Statin treatment – a decrease in the low-density lipoprotein corresponds with a fall in vascular events. The risk of rhabdomyolysis is probably exaggerated

has been set high and to achieve them will take considerable work. They are mandatory for each primary care trust and increased funding until 2011 has been made available. Hopefully this change will be reflected in forthcoming sentinel audits, which may be expanded to include acute, primary and community stroke care. There is appreciation that achieving all the quality standards may take some time and service development should not be rushed at the expense of patient safety. Ultimately all the above work should be patient centred and care has been taken to ensure patient input into the development of guidelines.

Case study

Salford Royal NHS Foundation Trust is running a research programme based on health improvement theory that aims to deliver 90% compliance with the sentinel audit by 2010 in participating hospitals in the north west of England. A 'stroke champions' model was introduced in the trust with regular monthly meetings, data collection and the publication of results. Learning sessions were run to achieve goals and action periods allowed to bring about change. Strong leadership, good data collection and celebrating success were found to be key and a sentinel score of 95% was achieved. Taking quality improvement further the concept of bundles of care are also being introduced, where groups of interventions are considered as a whole and to score positively the patient has to receive all the interventions, all the time. The analogy used was if a car only started eight times out of 10, it would not be deemed a success. The chief executive of the Salford Royal described how having strong leadership, committed to quality improvement can have a major impact on clinical practice.

Stroke networks

The use of networks has been well established in the field of cardiology and the National Stroke Strategy suggests establishing similar networks for stroke. The Stroke Improvement Programme (part of the NHS Improvement Programme) has been developed to help create a stroke care network. It runs educational events, supports service improvement and guides the commissioning process. The National Sentinel Stroke Audit has shown the differences in care between stroke units, even those in the same city. The use of a stroke network should enable all patients with TIA/stroke to have equal access to a fully integrated service. Greater Manchester has been one of the first to establish such a network. An engagement process, involving healthcare commissioners, providers, clinicians and the public was established to agree on what to achieve and how. A model was designed based on a comprehensive stroke centre, a few primary stroke centres and district stroke centres. Evaluation criteria were established and a bidding process arranged for each trust. London is currently rolling out a similar system with a few hyperacute stroke units admitting all patients with a return to their district unit within 72 hours. Such systems will require financial commitment and a change in workforce with significant training implications.

References

1 National Institute for Health and Clinical Excellence. *Stroke: the diagnosis and initial management of acute stroke and transient ischaemic attack*. London: NICE, 2008.

2 Intercollegiate Stroke Working Party. *National clinical guidelines for stroke*, 3rd edn. London: Royal College of Physicians, 20083.

3 Nor AM, McAllister C, Louw SJ *et al.* Agreement between ambulance paramedic- and physician-recorded neurological signs with face arm speech test (FAST) in acute stroke patients. *Stroke* 2004;35:1355–9.

4 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;369:283–92.

5 Rothwell PM, Giles MF, Chandratheva A *et al.* Early use of existing preventive strategies for stroke (EXPRESS) study. 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;370:1432–42.

6 Royal College of Physicians. *National Sentinel Stroke Audit 2006*. London: RCP, 2007.

7 Hacke W, Kaste M, Bluhmki E *et al.* Thrombolysis with alteplase 3 to 4.5 hours after acute ischemic stroke. *N Engl J Med* 2008;359:1393–5.

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