

LEEDS STROKE REVIEW



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Welcome to the latest edition of
"Leeds Stroke Review"

This edition features an article on **“Intravenous thrombolysis (r-TPA)”** by Dr Ahamad Hassan, Consultant Neurologist/Stroke Physician, Leeds Teaching Hospitals Trust. **“Public Health benefit paper on Stroke”** by Dr Kamran Siddique, Consultant in Public Health, Leeds PCT. **“Transient Ischaemic Attack Service Change at Leeds Teaching Hospitals Trust”** by Jonathan Cooper, Consultant Physician with an interest in Stroke, Leeds Teaching Hospitals Trust. **“Stroke Services Redesign”** by Joanna Powell, Modernisation Development Manager, Leeds PCT.

If you would like to submit an article for the next edition of the Leeds Stroke Review please contact Olasupo Ogunyinka at the address below.

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Initial experience with intravenous thrombolysis (r-TPA)

Having been recently appointed as a consultant neurologist and stroke physician it was apt to be asked to make an assessment on thrombolysis in a stroke patient on my first day. Intravenous alteplase (r-TPA) has been available in Europe since 2002 for acute stroke within 3 hours under strict licensing conditions. The terms of the license included a program of accreditation to administer treatment and participation in a post marketing surveillance study *‘Safe Implementation of Thrombolysis’* (SITS). The latter was designed to control the rate of symptomatic intracerebral haemorrhage to levels comparable with randomised trials. Results from the pivotal thrombolytic trials had indicated 1 fewer dead or dependent patient at follow up per 10 treated with r-TPA. Approximately 1 in 14 patients were seen to have symptomatic haemorrhage, but this was not associated with an excess mortality with treatment over placebo.

There is now a growing awareness amongst medical professionals and the public of stroke as a medical emergency and the availability of thrombolysis as an effective treatment. This in turn means that more patients are likely to attend hospital within the 3 hour therapeutic time window and be potentially eligible for treatment.

In preparation for this in Leeds, a thrombolysis pathway has been developed and will be implemented in the near future. It is envisaged that the service would operate during working hours and the workload shared by the stroke consultants at the LGI. In the mean time, treatment could still be offered to appropriate patients on a case by case basis.

In this initial patient, the signs of stroke were recognised very quickly by his work colleagues who brought the patient to the emergency dept within 50 minutes. The potential for thrombolysis was appreciated by the admitting doctors and the appropriate bloods and brain scan were organised within 30 minutes. The brain scan excluded an intracerebral haemorrhage, but demonstrated thrombus in the middle cerebral artery and early ischaemic changes in the right hemisphere. I was called down to the CT scanner room, where the films were reviewed and the patient assessed clinically and the NIH stroke severity scale completed. A major problem was that the patient was dysphasic and no immediate family members were available to provide medical details or discuss the risks and benefits of treatment. Luckily they were eventually contactable by phone. There was no contraindication to thrombolysis and the family were in agreement with treatment administration. There was a further short delay whilst the drug was located and 150 minutes after stroke onset thrombolysis was administered in the A+E department. Fortunately there were no complications of treatment although the TPA did not prevent major stroke from which the patient is recovering.

This initial experience has provided some valuable lessons about the practicalities of implementing thrombolysis in a rapid seamless manner within 3 hours, which have been fed back to various teams. However, it has also demonstrated that thrombolysis can be undertaken safely if strict protocols are followed. Hopefully this treatment can be made available to more stroke patients in Leeds in the future.

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Leeds Teaching Hospital

Public Health benefit paper on Stroke

Purpose

The purpose of this report is to inform MLB implementation team on the aspects of stroke pathway that would give the biggest health and efficiency gain. It highlights some of the key evidence behind different aspects of stroke care pathway related to organisation of stroke services both inside and outside hospitals. Stroke is defined as sudden onset of a focal neurological deficit due to a vascular cause with symptoms lasting more than 24 hours. It is one of the major causes of death and disability in the Western world and in the UK, stroke accounts for nearly 5% of National Health Service expenditure¹. In 1990 the average cost of hospital treatment for a stroke survivor was GB £7500 in the UK.

We looked at some key evidence for the following aspects of stroke service organisation using a recognised system of grading the strength of evidence²:

Early imaging after stroke

Thrombolysis in acute ischemic stroke

Stroke units

Early supported discharge schemes

Outpatient stroke rehabilitation services

Neurovascular or CVA clinic for rapid assessment of patients with TIA and suspected stroke

Stroke Liaison workers for stroke patients and carers

Home management of acute stroke

¹ Isard PA, Forbes JF. The cost of stroke to the National Health Service in Scotland. *Cerebrovasc Dis* 1992;2:47-50

² Øvretveit, J. 2003. *Reviewing Medical Management Research for Decision-Makers: Methodological Issues in Carrying Out Systematic Reviews of Medical Management Research*. Stockholm: Karolinska Institute

Early imaging after stroke

Definition

Early imaging after stroke implies a service that conducts CT scan as soon as possible after stroke and makes its report available to the doctor in charge to inform clinical decisions.

Evidence

The risk of stroke recurrence is high after first onset TIA or minor stroke³. Secondary prevention (aspirin etc) in 1,000 patients with recent ischemic stroke is likely to avoid nine early deaths and recurrent strokes, and about 13 deaths or dependency at 6 months. Similarly, patients from haemorrhagic stroke benefit from early reversal of anticoagulation, surgical treatment in appropriate cases and avoidance of anti-thrombotic treatment. Therefore, a CT scan within first few hours is the key investigation in making a diagnosis.

There is strong direct evidence (level 1) that in general, strategies in which most patients with stroke were “scanned immediately” cost least and achieved the most QALYs, compared to a “CT scan within 48hours” policy as the cost of providing computed tomography (even out of hours) was less than the cost of inpatient care. The strategy achieving least QALYs was ‘scan patients on anticoagulants, in a life-threatening condition immediately and the rest within 14 days’. The cost saving and health gain is achieved by increasing independent survival by even a small proportion of patients with ischemic stroke through early use of aspirin and avoiding aspirin in those with haemorrhagic stroke, and appropriate early management of those with other diagnosis^{4,5}. Even if patients are thought to have had

³ Lovett J, Dennis M, Sandercock P, Bamford J et al (2003) Very early risk of stroke after a first transient ischemic attack. *Stroke* 34: 138–40. Epub 2003 Jul 10.

⁴ Wardlaw JM et al. What is the best imaging strategy for acute stroke? *Health Technol Assess.* 2004 Jan;8(1):iii, ix-x, 1-180

a mild stroke, a CT scanning should be performed within 48 hours. If investigation is delayed, CT scanning may miss a small primary intracerebral haemorrhage or rare but devastating causes of stroke such as bacterial endocarditis may be overlooked.

A recent National Audit Office report highlighted that less than 20% of stroke units around the country have access to a CT scan within 3 hours of admission⁶. Similarly, only 22% of patients with stroke had a CT scan on the day of admission in 2004. On the other hand, most hospitals have the capacity to perform a CT scan within 24 hours of an admission. This report suggest underutilisation of the current capacity of hospitals to offer an immediate CT scan recommends that all stroke patients ought to have an immediate CT scan. Several proposals have been made to utilise current capacity e.g. use of Tele-medicine, training of medical consultants in reading brain CT-scans etc.

Thrombolysis in acute ischemic stroke

Definition

Thrombolytic (or clot-busting) drugs are seen as an important step forward in the acute treatment of ischemic stroke, which can reduce mortality and morbidity in eligible patients. These drugs may reduce brain damage from a stroke by restoring the blood flow if given early enough after a stroke, but also has the potential of causing serious bleeding in the brain if used indiscreetly.

Evidence

According to a Cochrane review based on 18 RCTs including 5727 patients, there appears to be a net benefit in giving thrombolysis in the acute phase of ischemic stroke in terms of

⁵ Wardlaw JM et al. Immediate computed tomography scanning of acute stroke is cost-effective and improves quality of life. *Stroke.* 2004 Nov;35(11):2477-83. Epub 2004 Sep 30

⁶ National Audit Office. Reducing Brain Damage: Faster access to better stroke care. Nov 2005. DoH. London

reduction in death and disability⁷. The benefit is more marked with giving intravenous rt-PA (a commonly used form of thrombolytic therapy) within first three hours of the event. However, there is an added risk of fatal intracranial haemorrhage and death from all causes with thrombolytic therapy. This requires caution in its use. The available evidence suggest that younger patients (<80 years of age) who can be treated within 3 hours of stroke onset have the most to gain, equivalent to about 100 more independent survivors per 1000 treated⁸. In patients with disturbances of consciousness and increasing age, increased in-hospital mortality is reported after receiving thrombolysis for their ischemic stroke. Another pooled analysis of six RCTs suggests that earlier thrombolysis (1.5 hours) results in maximum benefit and low risk⁹. There are benefits of thrombolysis beyond 3 hours but are associated with higher risks. The National Audit Office report strongly advocates thrombolysis for ischemic stroke where indicated within the first three hours of the onset. Currently only 1% of patients with ischemic stroke are thrombolysed in the UK. On the other hand, nearly 9% patients are given thrombolysis resulting in improved outcomes in 40% of these patients. Achieving Australian rates of thrombolysis in England would mean saving of over £16 million a year, with more than 1,500 patients avoiding disability each year.

Stroke units

Definition

Organised stroke unit care is referred to as a service that is provided by multidisciplinary teams exclusively managing stroke

⁷ Wardlaw JM, del Zoppo G, Yamaguchi T, Berge E. Thrombolysis for acute ischaemic stroke. *Cochrane Database of Systematic Reviews* 2003, Issue 3.

⁸ Lindley RI. Thrombolysis in acute ischaemic stroke: a guide to patient selection. *CNS Drugs*. 2005;19(6):539-51.

⁹ Hacke W et al. Association of outcome with early stroke treatment: pooled analysis of ATLANTIS, ECASS, and NINDS rt-PA stroke trials. *Lancet* 2004. Mar 6;363(9411):768-74

patients in a dedicated ward (stroke ward), with a mobile team (stroke team) or within a generic disability service (a mixed rehabilitation ward).

Evidence

The National Audit Office report on stroke recommends that Primary Care Trusts should ensure that acute stroke services are delivered through acute stroke units⁶.

There is strong direct evidence (Level 1) of the effectiveness of stroke units. A health technology assessment for the NHS concluded that all acute stroke patients should be admitted to a specialised stroke unit as soon as possible¹⁰. This report suggests that stroke units are more cost-effective than care provision in general medical wards even if supported by specialist teams.

A Cochrane review of 23 RCTs and quasi-RCTs concluded that stroke patients who receive organised inpatient care in a stroke unit are more likely to be alive, independent, and living at home one year after the stroke. The benefits were most apparent in units based in a discrete ward. There was no indication that organised stroke unit care resulted in increased hospital stay. This review showed a marked reduction in the odds of death recorded at final (median one year) follow-up (odds ratio 0.86; 95% confidence interval 0.71 to 0.94; P=0.005), the odds of death or institutionalised care (0.80; 0.71 to 0.90; P=0.0002) and death or dependency (0.78; 0.68 to 0.89; P=0.0003)¹¹. These benefits were seen for those under and over 75 years of age, male or female and those with mild, moderate or severe stroke. Length of hospital stay appears to be reduced by between two to ten days but this result is inconsistent between trials. The benefits of a

¹⁰ Kalra L. A randomised controlled comparison of alternative strategies in stroke care. *Health Technology Assessment* 2005; Vol. 9: No. 18

¹¹ Stroke Unit Trialists' Collaboration. Organised inpatient (stroke unit) care for stroke. *The Cochrane Database of Systematic Reviews* 2001, Issue 3.

stroke unit were seen in units that admitted patients directly from the community or took over their care within two weeks of admission to hospital. The evidence of benefit is most clear for units, which can provide several weeks of rehabilitation if required.

The numbers needed to treat for stroke unit care are:

For every 33 patients treated in the stroke unit there is one extra survivor (95% CI 20-100)

For every 20 patients treated in the stroke unit one extra patient is discharged back to their own home (95% CI 12-50)

For every 20 patients treated in the stroke unit there is one extra independent survivor (95% CI 12-50)

Early supported discharge schemes

Definition

Early supported discharge (ESD) schemes refer to the services that may accelerate the discharge of patients already admitted to hospital with stroke. These services have also been termed as 'accelerated discharge schemes' and 'post discharge support services'. These include any intervention, which aimed to accelerate discharge from hospital with the provision of support (with or without a 'therapeutic' rehabilitation intervention) in a community setting. The timing of the early discharge is dependent on the needs of the patient and situation at home assessed usually at an early home visit. Team input typically began on the day of discharge and ranged from daily input to 4 to 5 days per week. Teams would typically agree recovery goals with the patient and agree the termination of services usually within three months.

Evidence

A Cochrane review including 11 trials demonstrated significant reductions in the length of hospital stay equivalent to approximately 8 days indicating a strong direct evidence (level 1)

for the effectiveness of ESD schemes. Overall, there were significant reductions in the odds of death (10%), death or institutionalisation (26%), death or dependency (21%) at the end of scheduled follow up. The greatest benefits were seen in the trials evaluating a co-ordinated ESD team¹². These results indicate that the greatest benefit in clinical outcomes was with the mild and moderate groups but the greatest reduction in hospital bed days was with the severe subgroup. In these trials, a co-ordinated multidisciplinary team who assessed individuals during hospital admission, co-ordinated their discharge and provided post-discharge rehabilitation provided ESD schemes. Most services excluded those with very mild or very severe stroke and were available for approximately 30% of all hospitalised stroke patients. A systematic review of the economic evidence of ESD schemes suggest "moderate" evidence of modestly lower costs of ESD services compared with usual care¹³. However, these savings will depend on 1) intensity and type of rehabilitation services provided after discharge at home 2) the type and severity of stroke 3) level of informal care provided at home. The evidence for ESD schemes preventing hospital readmissions is conflicting.

Outpatient stroke rehabilitation services

Definition

Outpatient stroke rehabilitation services can be considered as any intervention delivered by rehabilitation personnel, which aims at reducing the disability and handicap often experienced after stroke. These services usually have the following features:

a) Outpatient: Interventions targeted towards stroke patients living at home (e.g. domiciliary, day hospital, outpatient clinic

¹² Early Supported Discharge Trialists. Services for reducing duration of hospital care for acute stroke patients. The Cochrane Database of Systematic Reviews 2005, Issue 2

¹³ Brady BK et al. Systematic review of economic evidence on stroke rehabilitation services. Int J Technol Assess Health Care. 2005 Winter;21(1):15-21

b) Therapy-based rehabilitation: it is provided by qualified physiotherapy, occupational therapy or multidisciplinary staff, or under their supervision aimed at improving patients' task-orientated behaviour (e.g. walking, dressing, leisure) to reduce disability.

Evidence

A Cochrane review concluded that therapy-based rehabilitation services for patients living at home after stroke reduces the odds of a poor outcome i.e. death or deterioration (28%) in ability to perform activities of daily living, and has a beneficial effect on a patient's ability to perform personal activities of daily living and extended activities of daily living¹⁴. Based on an odds ratio of 0.72 and an overall event rate of 37.5% (observed in controls in the review) the NNT to prevent one avoidable deterioration comes as 14 (95% CI 9 to 52) within first year of stroke. This review does not make a distinction between therapy-based services delivered in domiciliary or outpatient's settings. Therefore, the evidence for the exact settings of therapy-based rehabilitation services is unclear and the most effective way to structure the provision of these services is not known. The evidence for the economic benefit of outpatient-based services is still unclear¹³. The European Stroke Initiative in 2003 suggested that active rehabilitation should be administered as long as an objective improvement in neurological dysfunction is observed in patients¹⁵. However, at present, there is no agreed consensus about the benefits of such a service more than one year after stroke. In conclusion, there is strong direct evidence (Level 1) of the effectiveness of this service at least within first year after stroke.

¹⁴ Outpatient Service Trialists. Therapy-based rehabilitation services for stroke patients at home. The Cochrane Database of Systematic Reviews 2003, Issue 1.

¹⁵ Hacke W, Kaste M, Olsen TS, Orgogozo JM, Bogousslavsky J. European Stroke Initiative (EUSI) recommendations for stroke management. The European Stroke Initiative writing committee. *European Journal of Neurology* 2000;7:607-23

Neurovascular or CVA clinic for rapid assessment of patients with TIA and suspected stroke

Definition

This refers to a specialist service where patients with TIA or suspected stroke can be referred instead of acute services for a rapid assessment within 7 to 14 days of the episode.

Evidence

No Cochrane review is available providing a summary of the current evidence for the effectiveness of this service. However, it is recommended by the Royal College of Physicians, UK on the existing evidence.

There is one UK based study showing that this service may be cost-effective¹⁶. Another study in Scotland showed that this service may be an efficient way of delivering diagnostic and therapeutic service to TIA and stroke patients¹⁷. However, these studies are based on weaker evidence.

One study concluded that a rapid access neurovascular service is unlikely to be effective in preventing stroke unless patients can be seen and treated on the same day that they present¹⁸. Rapid-access neurovascular clinics can be efficient in selecting patients for carotid intervention, but this is at a cost and the number of potential strokes prevented is small¹⁹.

¹⁶ Blight A et al. A single consultation cerebrovascular disease clinic is cost effective in the management of transient ischaemic attack and minor stroke. *J R Coll Physicians Lond.* 2000 Sep-Oct;34(5):452-5

¹⁷ Karanaratne PM et al. Analysis of six months' referrals to a "one-stop" neurovascular clinic in a district general hospital: implications for purchasers of a stroke service. *Health Bull (Edinb).* 1999 Jan;57(1):17-28

¹⁸ Widjaja E et al. Is the rapid assessment stroke clinic rapid enough in assessing transient ischaemic attack and minor stroke? *Journal of Neurology Neurosurgery and Psychiatry* 2005;76:145-146

¹⁹ Widjaja E et al. *Imaging findings and referral outcomes of rapid assessment stroke clinics.* *Source Clinical Radiology.* 60(10):1076-82, 2005 Oct.

In conclusion, there is only limited evidence (level 5) for supporting a one-stop Neurovascular clinic or a CVA clinic as a cost-effective alternative to direct hospital access. More research is needed especially RCTs.

Stroke Liaison workers for stroke patients and carers

Definition

A stroke liaison worker can be defined as someone who assists in returning patients and their carers to normal roles by providing psychosocial support and information to stroke patients and their families and liaise with services with the aim of improving participation and quality of life for patients. A stroke liaison worker may be a health or social care professional, or be from the voluntary sector. Such services have been evaluated under different names, such as 'social work', 'specialist nurse support', 'stroke family care worker', and 'stroke family support organiser'.

Evidence

The evidence of the effectiveness of this aspect of stroke care is currently under review by a Cochrane group. An earlier review found that the studies conducted in this area provide little evidence for the effectiveness of such strategies²⁰. The authors argued for better-designed trials. One RCT found that the family support significantly increased social activities and improved quality of life for carers, with no significant effects on patients²¹. A recent RCT demonstrated that an educational resource and three domiciliary visits by a social worker trained in counselling maintained family functioning, and in turn led to improved

²⁰ Knapp P, Young J, House A, Forster A. Non-drug strategies to resolve psycho-social difficulties after stroke. *Age & Ageing* 2000;29:23-30.

²¹ J. Mant, J. Carter, D. Wade, S. Winne. Family support for stroke: a randomised controlled trial. *The Lancet*, Volume 356, Issue 9232, Pages 808-813

functional and social patient outcomes alone year after the stroke²².

Home management of acute stroke

Definition

This refers to any intervention, which aimed to provide physical support (with or without a "therapeutic" rehabilitation intervention) in a community setting with an aim of preventing admission to hospital.

Evidence

Care at home is an attractive idea for patients with acute stroke. However, based on the results of four trials, a Cochrane review suggest that currently there is no evidence (level 6) to support a radical shift in the care of acute stroke patients from hospital-based care²³. A recent NHS health technology assessment reported that specialised care at home has achieved variable success as an alternative to in-patient hospital care²⁴. It did not support the role for specialist domiciliary services for acute stroke as an alternative to the hospital based in-patient care. The Royal College of Physicians, UK guidelines suggest that this should only happen only in those circumstances where a specialist stroke team provides the home care.

Conclusion & recommendations (Table 1)

Strong direct evidence

²² Clark SM et al. A randomized controlled trial of an education and counselling intervention for families after stroke. *Clinical Rehabilitation*, Volume 17, Number 7, October 2003, pp. 703-712(10)

²³ Langhorne P, Dennis M, Kalra L, Shepperd S et al (1999) Services for helping acute stroke patients avoid hospital admission (Cochrane Review). Issue 1, 2004. Chichester, UK: John Wiley and Sons.

²⁴ Kalra L. A randomised controlled comparison of alternative strategies in stroke care. *Health Technology Assessment* 2005; Vol. 9: No. 18

There is strong evidence for providing inpatient care to patients with stroke through specialist stroke units with dedicated multidisciplinary teams

There is also strong evidence for early supported discharge schemes aimed at accelerating discharge from the hospital with provision of appropriate support at home.

Therapy-based rehabilitation for patients living at home within one year after stroke is effective in resulting in better outcomes. There is strong evidence to support its implementation.

The evidence to support an immediate CT-scanning in patients with stroke is strong. Such strategies are shown to be cost-effective.

There is strong direct evidence to support thrombolysis treatment in a selected group of stroke patients.

Limited evidence

The current evidence to support Neurovascular or CVA clinics for early assessment of patients with TIA and stroke is weak. More research is required before wider recommendation.

There is limited evidence to support liaison support work to provide psychosocial support to patients and their carers.

No evidence

There is currently no evidence for the effectiveness of alternative schemes aimed at avoiding hospital admission for patients with stroke.

Table 1: Summary of interventions and recommendations in the order of priority

Intervention	Evidence of effectiveness	Evidence of efficiency	Relevance to Leeds	Recommendation (priority score)
Specialist stroke units	Strong direct evidence	Strong direct	Yes	Yes (1)
Immediate CT scan	Strong direct evidence	Strong direct	Yes	Yes (2)
Thrombolysis in ischemic stroke	Strong direct evidence	Strong indirect	Yes for a defined group of patients	Yes with clear clinical policies and guidelines (3)
Early supported discharge scheme	Strong direct evidence	Moderate	Yes	Yes (4)
Therapy based rehabilitation at home within one year of stroke	Strong direct evidence	Limited	Yes	Yes (5)
Stroke Liaison worker for patients and carers	Limited evidence	No evidence	Yes	Lower priority (6)
Neurovascular or CVA clinics	Limited evidence	No evidence	Yes	No (on the basis of evidence)
Alternate schemes to avoid hospital admissions	No evidence	No evidence	No	No

Kamran Siddiqi
Mike Robinson
5th July 2006

Transient Ischaemic Attack Service Change at Leeds Teaching Hospitals Trust

The healthcare and public attitude towards stroke is changing. So often perceived as a disease of 'old age' with low priority often cumulating in delays in detection, investigation and focused management, there is now a significant evidence base of data and guidance emphasising stroke as a medical emergency. This emphasis on accurate detection, early exclusion of differential diagnoses, targeted use of resources and clinical interventions for selected patients to enhance survival and reduce long term disability and death.

In addition to various Government publications exploring strategic change, of which stroke is perceived an integral part, the National Audit Office publication, *Reducing Brain Damage: Faster access to stroke care*¹ concluded that, "a key feature of effective stroke care is rapid access to specialised acute stroke services", but also discusses other models of stroke care with focus on economic and patient benefits. This can be achieved through efficient care pathways, better education and training, improved communication between health care communities.

Furthermore, there is an evolving 'medical' evidence base for this acute stroke care including; identification of patients with transient ischaemic attack (TIA) at high risk for stroke, selection of patients for early carotid endarterectomy, reperfusion of acute cerebral infarction with thrombolysis, and perhaps recombinant Factor VIIa for intracerebral haemorrhage.

From a local perspective, at Leeds Teaching Hospitals Trust we are striving to design the hyper acute and acute service model to triage potential patients for consideration of these examples of intervention, deselect those who would not benefit and / or who could be managed in our existing stroke pathway or rapid access outpatient TIA service. The aim of this article is to briefly overview the planned model of care for TIA.

Existing TIA service in Leeds

There are three clinics across Leeds Teaching Hospitals Trust providing an age based referral system (less than 65 years of age to Neurology; Drs Bamford and Hassan, and over 65 years of age to Drs Cooper and Wanklyn at Leeds General Infirmary). Patients with TIA over 65 years of age at St James Hospital are currently seen within the departmental new patient clinics. Referrals are accepted from any source, but predominantly come from general practitioners and the Emergency Department and vary in volume, enlisting a mixture of high and low risk TIA as well as stroke mimic. Some clinics have resources for stroke specific tests such as CT neuroimaging and carotid duplex and provide a platform for enrolment in the Leeds Stroke Database and clinical trials. National Clinical Guidelines for stroke expect patients to be seen within one week of their TIA or minor stroke, but at times we fall short of this.

Future strategy for TIA services in Leeds

There is a great degree of overlap for our TIA service plan and the proposed hyper acute stroke service strategy (primarily for identifying selected patients for thrombolysis presently). Firstly it requires the expedient detection of patients who are at high risk of early stroke using the Rothwell ABCD Scale² as a clinical tool (*tables 1 and 2*) and those with scores greater than 5 should be advised to attend Hospital (at Leeds General Infirmary this will be the Emergency Department's Clinical Decision Unit). The Brain Attack Team will be contacted and further assessment made on vascular risks, fitness / willing to consider potential vascular surgery and arrange carotid ultrasound the same working day. If $\geq 50\%$ symptomatic carotid stenosis is detected, same day referral is made to the on-call vascular team. There has been agreement across specialties (Emergency Department, Radiology, Vascular Surgery and Stroke) for this to take place. Those patients with a Rothwell score 4 or less presenting to the

ED or those not suitable / willing for surgery will be triaged into the existing TIA outpatient setting. It is hoped by triaging high risk patients for emergent investigation, 'space' will be created for those at lower risk of stroke, who will be seen within seven working days in existing TIA clinics (The algorithm is outlined in figure 1).

In addition, data exploring patients with stroke who suffered a preceding TIA, it is clear that the *highest* risk in this group is within the first 72 hours. Patients already in hospital for TIA investigation could then effectively be managed with hyper acute therapy if fresh stroke develops.

The change in services for TIA (and those planned for the hyper acute service) has been undertaken with great cooperation from interdisciplinary departments outlined above. As a group the stroke service is working hard to develop a seamless pathway and we are hopeful of enrolling a Stroke Pathway Coordinator to facilitate the identification of patients for both TIA and acute stroke investigation and treatment.

Dr Jon Cooper

1. Reducing Brain Damage: Faster Access to Better Stroke Care (November 2005)

www.nao.org.uk/stroke/

2. A simple score (ABCD) to identify individuals at high early risk of stroke after transient ischaemic attack.

[Rothwell PM](#), [Giles MF](#), [Flossmann E](#), [Lovelock CE](#), [Redgrave JN](#), [Warlow CP](#), [Mehta Z](#).

[Lancet](#). 2005 Jul 2-8;366(9479):29-36.

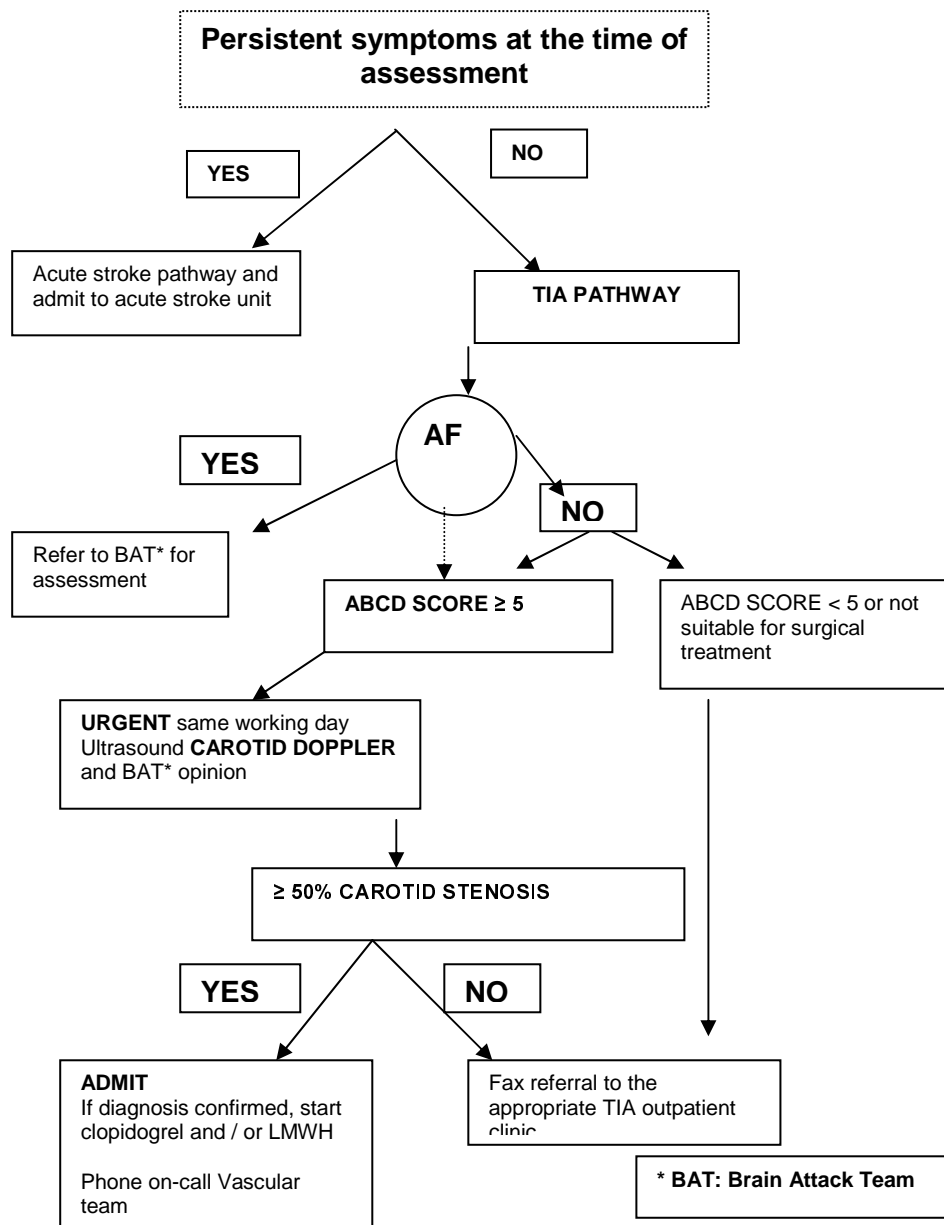
(Table 1) Rothwell ABCD Scale²

ABCD PARAMETER	VALUE	SCORE
AGE	> 60 years old	1
BLOOD PRESSURE	>160mmhg and / or > 90mmhg	1 1
CLINICAL FEATURES	Unilateral motor weakness	2
	Speech disturbance without weakness	1
	Other	0
DURATION SYMPTOMS	≥ 60 minutes	2
	10 – 59 minutes	1
	< 10 minutes	0

(Table 2) 7 day stroke risk according to score²

ABCD SCORE	7 DAY STROKE RISK (%)
< 1	0
2	0
3	0
4	2.2
5	16.3
6	35.5

Figure 1. Algorithm for patients with acute TIA presenting to the Emergency Department



Stroke Services Redesign

The redesign of stroke services continues to be an integral part of Making Leeds Better. The Neurology pathway is part of the Long Term Conditions family of pathways, these pathways are 'early implementers', although it is recognised that a lot of work needs to be done before the Leeds Stroke Pathway is implemented.

Work so far on the Neuro Care Pathways

- Following the initial workshop for the Neuro care pathway, the pathway was submitted in August 2005. Debbie Neal left this post – for an AHP Consultant role in Dorset – in August 2005.
- Joanna Powell was appointed as Neurology Care pathway lead for Making Leeds better in March 2006. The neurology Board has continued to be chaired by George McIntyre.
- Further work has been done to refine the pathway, although further work is needed to clarify the Community part of the pathway. Sub groups of the Board have been set up to look at
 - Primary and Secondary Prevention
 - The acute end of the Pathway (Public awareness of stroke information, Ambulance Trust and Acute Trust)
 - Rehabilitation (Clarifying levels of rehabilitation – who gets what, by whom and where)
- A stroke pathway implementation group has been reformed at Leeds Teaching Hospitals Trust – whilst not directly responsible to the Neurology Board it is closely linked to the Board.

- Autumn 2006 has seen a series of Patient and Public Involvement events – the main findings of which will be reported to the Board

The Board is moving towards topic based meetings. The meeting in September included sessions on

1. Health Equity audits
2. Outcome measurement – both for patients and of the pathway
3. Links with Mental Health Services
4. Rehabilitation

The next Board meeting in December will focus on the Community part of the pathway and in particular the implications for Social care.

For further information or to get involved in the Neurology Care Pathways work, please contact:

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