The National Stroke Strategy – is it achievable?

TD REID, LJ FINNEY, AR HEDGES

Department of General Surgery, Princess of Wales Hospital, Bridgend, UK

ABSTRACT

INTRODUCTION Timing of intervention in symptomatic carotid disease is critical. The UK Department of Health's National Stroke Strategy published in December 2007 recommends urgent carotid intervention within 48 h, in appropriate patients, who have suffered a transient ischaemic attack (TIA), amaurosis fugax or minor stroke. Despite the running of a rapid-access clinic for patients with symptoms of TIA, the time from symptom to surgery is rarely less than 2 weeks. To date, there has been little published research on the UK public response to the symptoms of TIA, and no study at all of the response of primary care to such patients. The aim of this study was to ascertain both these responses to see whether a 48-h target is achievable.

PATIENTS AND METHODS A total of 402 men attending our aortic aneurysm screening sessions were asked to complete a questionnaire requesting their most likely response to an episode of amaurosis fugax or TIA. All 45 GP practices in the hospital catchment area were asked how they would respond to patients requesting to be seen with the symptoms used in the questionnaire.

RESULTS Nearly one in six patients would ignore the symptom unless it recurred, approximately half would request a GP appointment and a third would see an optician if they had amaurosis fugax. The mean waiting time to see a GP was 2 days for a routine appointment and within 24 h for an emergency appointment.

CONCLUSIONS It is clear that a significant number of people would ignore the first symptom of carotid ischaemia; for those with amaurosis fugax, nearly a third would initially seek help from their optician. Those given a routine GP appointment would have to wait a minimum of 2 days. If the Department of Health is serious about reducing the incidence of stroke and introducing a target of 48 h from symptom to treatment, then there needs to be a wide-spread public and healthcare education programme, in particular alerting opticians and GP receptionists that these symptoms constitute a medical emergency.

KEYWORDS

Stroke – Transient ischaemic attack – Amaurosis fugax – Carotid endarterectomy

CORRESPONDENCE TO

TD Reid, Department of General Surgery, Princess of Wales Hospital, Coity Road, Bridgend CF31 1RQ, UK

E: tomreid74@gmail.com

Stroke is the third largest cause of mortality in England, being responsible for 11% of deaths.¹ Of strokes 25% occur in those under the age of 65 years, and it is also the single largest cause of adult disability.¹ The treatment of stroke is an enormous financial burden, both directly to the NHS and to the economy in general as a consequence of disability and reduced productivity. The incidence of stroke is likely to increase as a result of the ageing population, possibly by as much as 50% by 2033.²

Approximately 80% of strokes are ischaemic, with the majority involving the carotid territory. Internal carotid artery/middle cerebral artery thromboembolism accounts for 50% of ischaemic strokes, with small vessel disease (25%), cardiogenic brain embolism (15%), haematological disease (5%) and non-atheromatous disease (5%) causing the remainder.³

Up to 25% of strokes are preceded by a transient ischaemic attack (TIA), with such an event representing a clear warning of the risk of a further stroke.⁴ This risk of

stroke is greatest immediately after the TIA, and has been estimated by meta-analysis of published data to be 3.1% at 2 days and 5.2% at 7 days.⁵

The safety and efficacy of carotid endarterectomy (CEA) for patients with symptomatic carotid stenosis has been firmly established through large prospective randomised trials.^{6,7} Historically, such patients underwent delayed CEA at 6 weeks following symptom onset. However, there now exists a wealth of evidence discrediting this approach and confirming the need to perform such surgery on a much more urgent basis. In particular, a recent re-analysis of previously published randomised trial data demonstrated that the earlier carotid surgery can be performed after symptoms, the more strokes can be prevented.⁸ Furthermore, by delaying surgery to 12 weeks, the benefits become so minimal it is likely the procedure then does more harm than good.⁸ The time window for carotid intervention is thus extremely short.

The 2004 National Clinical Guidelines For Stroke recommended the investigation of TIA patients in a neurovascular

clinic within 7 days of the event.⁹ Regrettably, the 2006 National Stroke Audit demonstrated practise falling woefully short of this recommendation with a median waiting time for neurovascular clinic appointments of 12 days (IQR, 7–17 days) and only 35% of patients assessed within 7 days.¹⁰ In an ambitious shift of political emphasis, the recent National Stroke Strategy recommends that carotid intervention for recently symptomatic carotid stenosis should be regarded as an emergency and undertaken within 48 h of symptoms.¹¹

Despite establishing a rapid-access vascular clinic in our unit, the time from symptom to carotid surgery remains at 2–4 weeks, with the main delaying factor being the time taken for patients to reach secondary care. Self-referral of patients to initiatives designed to speed up this process depends heavily on both public understanding of the symptoms of carotid ischaemia and appropriate help seeking behaviour, and it is these factors which form the basis of this study.

The two-fold aims of this study were to: (i) identify the public response to symptoms suggestive of transient carotid ischaemia; and (ii) estimate the primary care response to patients requesting appointments with symptoms of transient carotid ischaemia.

Patients and Methods

A consecutive group of 402 men voluntarily attending abdominal aortic aneurysm (AAA) screening sessions between February and April 2008 were studied prospectively. It was considered that such patients would be very close to a normal male population, in the correct age range to be potentially affected by transient carotid ischaemia, and possibly health conscious given that attendance at AAA screening is voluntary. All patients were asked to complete a questionnaire consisting of three scenarios: amaurosis fugax, TIA and collapse. Collapse is not a sign of carotid territory TIA; however, it is a regular presentation of patients referred to the 'rapid-access carotid' clinic. The questions asked are given in Appendix 1.

In addition, all of the 45 GP practices in the hospital catchment area were contacted by telephone, asked how they would respond to patients contacting them with the same three scenarios, and questioned about their waiting time for routine and emergency appointments.

Statistical analysis was performed with SPSS v.15 software (SPSS Inc, Chicago, IL, USA). All variables were categorical and compared with the chi squared test. A result was considered statistically significant where $P < 0.05$.

Results

Table 1 summarises the public response to the three different symptoms assessed. Nearly one in six patients would

Table 1 Public response to symptoms

Scenario and responses	All questionnaire responders (<i>n</i> = 402)	
	<i>n</i>	%
Amaurosis fugax		
(a) Ignore	52	13
(b) Telephone NHS Direct	19	5
(c) Optician appointment	118	29
(d) GP appointment	188	47
(e) A&E Department	24	6
(f) Call 999	1	0
Transient ischaemic attack (TIA)		
(a) Ignore	66	16
(b) Telephone NHS Direct	27	7
(c) GP appointment	227	56
(d) A&E Department	75	19*
(e) Call 999	7	2*
Collapse		
(a) Ignore	7	2**
(b) Telephone NHS Direct	44	11***
(c) GP appointment	65	16**
(d) A&E Department	181	45**
(e) Call 999	105	26**

* $P < 0.001$ TIA compared to amaurosis fugax; ** $P < 0.001$ collapse compared to TIA or amaurosis fugax; *** $P = 0.023$ collapse compared to TIA/amaurosis fugax.

ignore the symptoms of TIA (16%) and amaurosis fugax (13%) unless they happened again. Approximately half of the patients with TIA (56%) or amaurosis fugax (46%) would arrange to see their GP. Almost a third of patients with amaurosis fugax would arrange to see an optician. Symptoms of TIA (21%) are more likely to prompt contact with secondary care than amaurosis fugax (6%; $P < 0.001$). The use of NHS Direct hardly featured in the responses to TIA and amaurosis fugax. Collapse was generally taken much more seriously than the carotid ischaemia symptoms, with over 70% opting for secondary care, 16% contacting their GP and only 2% of patients ignoring the episode.

Table 2 summarises the primary care response to patients seeking advice for the same three symptoms. For both amaurosis fugax (47%) and TIA (44%), almost half of requests would be passed through to a GP by the receptionist. Of the remainder, approximately half would get a routine GP appointment (amaurosis fugax 20%, TIA 27%) and half would get an emergency appointment (amaurosis fugax/TIA 27%). Two surgeries would suggest an optician

Table 2 Primary care response to patients requesting appointments with symptoms of carotid ischaemia

Scenario and GP receptionist responses	All GP surgeries (<i>n</i> = 45)	
	<i>n</i>	%
Amaurosis fugax		
Re-assure patient & ask to call back	1	2
Routine appointment	9	20
Emergency appointment	12	27
Advise go to A&E	0	0
Advise to call 999	0	0
Pass call to GP	21	47
Advise optician appointment	2	4
Transient ischaemic attack (TIA)		
Re-assure patient & ask to call back	1	2
Routine appointment	12	27
Emergency appointment	12	27
Advise go to A&E	0	0
Advise to call 999	0	0
Pass call to GP	20	44
Collapse		
Re-assure patient & ask to call back	1	2
Routine appointment	3	7
Emergency appointment	6	13
Advise go to A&E	5	11
Advise to call 999	9	20
Pass call to GP	21	47

appointment for amaurosis fugax, whilst one surgery would reassure the patient for both amaurosis fugax and TIA. No practices would recommend either A&E or a 999 call for amaurosis fugax or TIA. In contrast, collapse was generally treated as much more of an emergency, with almost a third of practices (30%) referring immediately to secondary care.

The mean waiting time for routine GP appointments was 2 days (range, 1–8 days), whilst all 45 GP practices offered emergency appointments in less than 24 h.

Discussion

The current body of evidence is firmly in favour of prompt carotid intervention following TIA or minor stroke,^{8,12} and with the Department of Health's latest recommendation for a symptom to surgery time of 48 h,¹¹ there is now also political emphasis on improvement. Adequate patient understanding of the symptoms of transient carotid ischaemia, and the ability to seek medical help expediently, therefore, become essential prerequisites to meeting such ambitious targets.

Several studies, of varying methodology, have previously sought to investigate patient understanding and behaviour following TIA. Authors from Switzerland and the US demonstrated only 8.3%¹⁵ and 8.6%¹⁴ of the public sampled understood the symptoms of TIA. In addition, only 2.8% of the public appreciated the need for urgent medical attention following TIA.¹⁵ A prospective UK study of TIA patients demonstrated better initial patient understanding, with 42.4% correctly identifying the diagnosis at symptom onset.¹⁵ However, the same study also confirmed a lack of public awareness that TIA is a medical emergency, with correct patient recognition of the diagnosis at the time of symptoms failing to prompt the seeking of emergency medical help.¹⁵ A Dutch study even demonstrated on-going poor patient understanding of the symptoms in those who had suffered a TIA 3 months' previously.¹⁶

The results of our study highlight a similar lack of both knowledge of transient carotid ischaemia, and awareness of the need to treat such an event as a medical emergency, in our local population. The fact that one in six patients would ignore the symptoms of amaurosis fugax and TIA unless they happened again is extremely worrying. Although there is some evidence that amaurosis fugax is a lower stroke risk than hemispheric symptoms,¹⁷ this was clearly the least well understood symptom amongst the patients in our study, as demonstrated by the 29% who would arrange to see an optician in the first instance.

Although almost half of patients with symptoms of amaurosis fugax or TIA would contact their GP surgery immediately, many would then wait an average of 2 days to be seen on a routine basis. At this point, they would not have even been referred to secondary care, let alone undergone carotid artery investigation or intervention. The fact that not a single one of the 45 GP surgeries questioned would recommend immediate presentation to secondary care for either amaurosis fugax or TIA serves to illustrate a similarly poor awareness of the seriousness of carotid ischaemia amongst those in primary care responsible for training reception staff. Unlike amaurosis fugax and TIA, collapse is a non-specific presentation with a range of both benign and sinister causes, yet this is consistently treated as an emergency by the both the public and GP receptionists alike. This may reflect relatively greater public awareness of conditions such as cardiac disorders that attract more generous media coverage than carotid disease.

In February this year, since undertaking our study, the Department of Health together with The Stroke Association has launched the 'F.A.S.T.' campaign in the media.¹⁸ This is a 3-year national campaign aimed at raising awareness of the symptoms of stroke and emphasising the need to seek emergency medical help. Whilst we strongly welcome any initiative that raises public awareness of cerebrovascular symptoms, there remains a necessity for further education

centred on TIA specifically. The F.A.S.T. campaign website states the need to take transient symptoms as seriously as non-resolving ones; however, the TV, radio and press adverts all fail to mention this, being concerned solely with stroke.¹⁸ It is, therefore, possible that patients with very rapidly resolving TIA symptoms may still fail to seek emergency assistance, despite having seen or heard the F.A.S.T. adverts. Furthermore, F.A.S.T. makes no mention of eye symptoms, whilst this study reveals amaurosis fugax to be the least well understood carotid symptom. Unfortunately, NHS Direct featured so rarely in the public responses in this study, that it seems very unlikely this telephone service can be used to expedite the treatment of patients in need of carotid intervention.

Our results demonstrate poor understanding of the seriousness of transient carotid ischaemia amongst patients, and frequently routine rather than emergency responses from GP surgeries. As a result there are unacceptable delays at every stage of the patient pathway to secondary care, which will continue to prolong the symptom to surgery time, despite significant improvements made within secondary care to 'fast track' patients through imaging to surgery. At present, the vast majority of centres in the UK are nowhere near achieving the 48-h target.

Conclusions

The 48-h target from symptom to surgery for carotid ischaemia is not achievable. There is a need for widespread public education in both the symptoms of carotid ischaemia and the most appropriate way to seek medical help. Like collapse, transient carotid ischaemia must be treated as a medical emergency, with rapid access to duplex imaging and vascular or medical expertise.

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Appendix 1: Patient questionnaire

Question 1

If you had had an episode where you lost the vision in one eye (often described as a black curtain coming down) for a period of 5 min, which then returned to normal, what would you do?

- (a) Ignore it unless it happened again
- (b) Telephone NHS Direct
- (c) Make an appointment with your optician
- (d) Make an appointment with you GP
- (e) Go to the nearest A & E Department
- (f) Call 999

Question 2

If you had an episode where your left arm became numb and difficult to move but returned to normal in 5 min, what would you do?

Same answers as above, excluding (c)

Question 3

If a friend you were with suffered a 5-min episode of a collapse (lost consciousness) and then appeared normal, what would you do?

Same answers as above, excluding (c)