

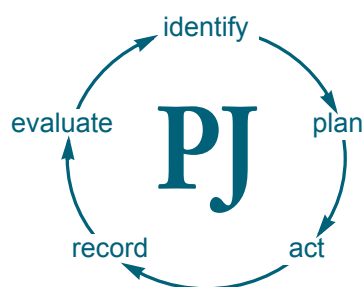
NSF FOR OLDER PEOPLE

## (4) STROKE

By Susan Livingston, PhD, MRPharmS

Each year 110,000 people in England and Wales have their first stroke, and 30,000 of these people go on to have another one.

This article focuses on how pharmacists can help prevent and manage stroke



### identify gaps in your knowledge

1. List three common symptoms of stroke.
2. What is a TIA and how is it managed?
3. List three interventions to prevent stroke.

Before reading on, think about how this article will make you better able to do your job.

The Royal Pharmaceutical Society's areas of competence for pharmacists are listed in "Plan and record," (available at: [www.rpsgb.org.uk/education](http://www.rpsgb.org.uk/education)). This article relates to "common disease states" and "health promotion" (see appendix 4 of "Plan and record").

The fifth standard of the National Service Framework for Older People<sup>1</sup> aims to reduce the incidence of stroke in the population and ensure that those who have had a stroke have prompt access to integrated stroke services. It states that people who are thought to have had a stroke should have access to diagnostic services, should be treated appropriately by a specialist stroke team and, subsequently, should participate in a multidisciplinary programme of secondary prevention and rehabilitation with their carers.

Stroke can have a dramatic impact on people's lives. It starts as an acute medical emergency and is the single biggest cause of severe disability. It is the third most common cause of death in the United Kingdom and other developed countries. Thirty per cent of patients die in the first month after a stroke, most in the first 10 days. After a year, 65 per cent of stroke survivors can live independently but the rest remain significantly disabled and many need considerable help with daily tasks. About 5 per cent of stroke survivors are eventually admitted to long-term residential care.

### TYPES OF STROKE

A stroke occurs when part of the brain is damaged because of a blood clot or haemorrhage. There are two main types of stroke:

- **Ischaemic stroke** About 80 per cent of strokes are ischaemic. These occur when a blood clot in a cerebral blood vessel interrupts blood flow, which in turn causes brain cells in the area to die from lack of oxygen. Ischaemic strokes can be thrombotic (the clot forms in a cerebral blood vessel) or embolic (the clot forms in another part of the body and is carried to the brain)
- **Haemorrhagic stroke** Haemorrhagic stroke is less common than ischaemic stroke. It occurs when a cerebral blood vessel bursts and blood leaks into the brain causing damage. Bleeding can occur within the brain (intracerebral haemorrhage) or around the membrane surrounding the brain (subarachnoid haemorrhage)

The type and extent of disability caused by a stroke will depend on the area of the brain that has been damaged, how widespread the damage is and the patient's general health at the time. For example, damage in the right cerebral hemisphere will affect the left side of

the body. Patients can experience a number of problems as a result of a stroke:

- Difficulties with movement, balance and walking
- Swallowing problems
- Difficulty speaking (dysarthria) and writing
- Difficulty understanding speech or writing (aphasia)
- Day-to-day activities such as getting dressed, washing, eating and going to the toilet can become unmanageable
- Depression commonly follows a stroke
- Pressure sores due to immobility (a reddened spot is the first warning sign)

### WHO IS MOST AT RISK FROM STROKE?

The risk of stroke increases with age, although younger people can be affected too. Each year 10,000 people under 55 years and 1,000 people under 30 years will have a stroke. A recent survey in England found that the prevalence of stroke was between 40 and 70 per cent higher among African-Caribbean and South Asian men than that of the general population, after adjusting for age. Unskilled manual workers are 60 per cent more likely to have a stroke than professional workers. Mortality rates are also 50 per cent higher in unskilled manual workers than in professional workers.

The risk factors for stroke are highlighted in the NSF under three categories: cardiovascular disease, metabolic disease and lifestyle (see Panel 1, p20). Having atrial fibrillation increases the risk of having a stroke by between three and seven times. In younger people, there are additional significant risk factors for stroke, including sickle cell disease, congenital heart disease, blood clotting abnormalities and arteriovenous malformations of the brain.

Transient ischaemic attacks (or TIAs) are sometimes described as "mini strokes". In a TIA, interruption of blood flow is temporary. Although the symptoms of a TIA resolve within 24 hours, having a TIA increases the likelihood of having a subsequent stroke so it is important that these are investigated. ECGs, brain scans, blood pressure measurements and ultrasound of the carotid artery (the artery in the neck that is commonly diseased and where clots can form) can be performed.

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## PANEL 1: RISK FACTORS FOR STROKE<sup>1</sup>

### Cardiovascular disease

- Previous stroke or TIA
- Hypertension
- Atrial fibrillation
- Carotid stenosis
- Other cardiovascular disease such as coronary heart disease or peripheral vascular disease

### Metabolic disease

- Diabetes
- Hyperlipidaemia
- Obesity

### Lifestyle factors

- Alcohol misuse
- Poor diet
- Little physical activity
- Smoking

## EDUCATION

Pharmacists are in a good position to help raise awareness of the symptoms of stroke. Many people who have a stroke may not gain the full benefits of available treatment because they do not recognise the symptoms and seek medical attention too late. For example, one study showed that if ischaemic stroke is treated with tissue plasminogen activator (alteplase) within three hours of onset, clinical outcomes are improved.<sup>2</sup> Another study showed that when asked what they would do in response to a stroke, 90 per cent of the general public said that they would call an ambulance or go to hospital. However, when the same people were asked what they would do in the event of a stroke symptom (not mentioning stroke), less than half of these people said they would respond in the same way.<sup>3</sup> The symptoms of stroke are sudden in onset and commonly include:

- Weakness or numbness of a limb or the face, usually on one side of the body
- Disturbed vision in one or both eyes
- Confusion or problems with speaking or understanding
- Problems with balance or co-ordination
- Dizziness
- Severe headache (no known cause)

These can be accompanied by nausea, fever and vomiting and brief loss of consciousness. Panel 2 lists some descriptions of symptoms given by stroke patients.<sup>3</sup>

## ACUTE MANAGEMENT OF STROKE PATIENTS

Patients who have had a stroke will usually require urgent hospital admission and should be treated by a specialist stroke team within a designated stroke unit. The NSF advises that the immediate management of stroke should include:

- A brain scan within 48 hours (to confirm diagnosis)
- Appropriate control of blood pressure without jeopardising cerebral blood flow
- Maintenance of hydration
- Management of hyperglycaemia
- Management of fever
- Maintenance of oxygen level/saturation
- Treatment of co-existing medical conditions (eg, heart failure)

## PANEL 2: DESCRIPTIONS OF STROKE SYMPTOMS GIVEN BY STROKE PATIENTS<sup>4</sup>

- "Feeling funny, feel heavy, strange feeling on my face"
- "Speech sounds like a bird or as if drunk"
- "Light-headedness"
- "No headache, just bang and crying"
- "Tongue was a bit funny for a while"
- "The left side of my face, especially my mouth area, felt strange and tingly"
- "I lost the use of my left arm and collapsed"
- "I had no feeling in my right arm, my face went a bit funny"
- "Balance and double vision"

The NSF also advises that the National Clinical Guidelines on Stroke produced by the Royal College of Physicians should be followed.<sup>4</sup> These recommend that 300mg aspirin should be given as soon as possible after the onset of stroke symptoms, but only if a diagnosis of haemorrhage is considered unlikely. Anticoagulants should be considered for patients with atrial fibrillation, but usually should only be given after 14 days and not until intracerebral haemorrhage has been excluded.

The aim of treatment is to stabilise the condition and prevent complications (eg, deep vein thrombosis and chest infections).

In 1996, the Food and Drug Administration approved alteplase as a treatment for ischaemic stroke in the United States. Although this drug poses a risk of cerebral haemorrhage, the benefits appear to outweigh the risks.<sup>2</sup> However, the use of this drug is still subject to debate. In September 2002, the European Union approved alteplase for treating stroke under strict guidelines. Administration must be supervised by a doctor trained in neurological care, in a hospital with appropriate facilities for the diagnosis and management of acute stroke. Haemorrhagic stroke must be ruled out (by CT scan) and the drug can only be given within three hours of the onset of stroke.

Drugs undergoing clinical trials include "neuroprotective agents" (eg, glutamate antagonists and calcium antagonists) to limit the damage produced by ischaemia. The search for more treatments includes research on desmoteplase, an enzyme found in bat saliva.

Aspirin and anticoagulants must not be given to patients with haemorrhagic stroke and current treatment aims to control intracranial pressure. The surgical removal of blood clots is being researched.

**Specialist stroke teams** The NSF recommends that managing stroke patients in hospital will mean establishing specialist stroke teams led by a clinician with expertise in stroke. Stroke teams should also include a pharmacist, as well as the following:

- A clinical specialist nurse with expertise in stroke
- A speech and language therapist, physiotherapist and occupational therapist
- A dietitian
- A clinical psychologist
- A social worker

## action: practice points

Reading is only one way to do CPD and the Society will expect to see various approaches to CPD in a pharmacist's portfolio.

1. Spend some time speaking to a stroke survivor and finding out about his or her experience of having a stroke and the recovery process.
2. Find out what protocols for identifying and treating patients at risk of stroke and those who have had a TIA are followed by your local general practice.
3. Order resources to increase stroke awareness in your pharmacy. Leaflets and posters are available free from the Stroke Association ([www.stroke.org.uk](http://www.stroke.org.uk)).

## evaluate

To be presented as CPD, you need to evaluate your reading and any other activities. Answer the following three questions:

What have you learnt?

How has it added value to your practice (eg, have you applied this learning or had any feedback?)

What will you do now and how will this be achieved?

- A trained bi- or multi-lingual co-worker to reflect language needs of local populations
- A stroke care co-ordinator

### REHABILITATION

Following a stroke, partially damaged brain cells may recover and, sometimes, parts of the brain that were not damaged can take over the function of those parts that were destroyed. However, dead brain tissue will not regenerate and the degree of recovery is often limited.

The majority of recovery usually occurs in the first 18 months after the stroke.

Once a patient's condition is stabilised, a rehabilitation programme is designed to help him or her regain as much independence as possible. The patient may need help with relearning skills or learning ways to deal with disability. The programme can include a range of health care professionals such as physiotherapists, occupational therapists, ophthalmologists and dietitians. Equipment to support independent living can be useful. Stroke can make swallowing difficult and pharmacists may be asked for advice on drug administration, especially via enteral feeding tubes.

### STROKE PREVENTION

The NSF for Older People advises that stroke prevention depends on reducing risk factors across the whole population, as well as in those at relatively greater risk of stroke. Increasing levels of physical activity, encouraging healthy eating (reducing salt intake and increasing fruit and vegetable consumption in the diet) and encouraging smoking cessation are all-important in reducing stroke in the general population.

The NSF advocates that patients identified as being at particular risk of stroke should be offered advice and support to make the necessary lifestyle changes. It highlights the two most effective interventions in stroke prevention:

- Maintaining blood pressure within recommended limits
- Ensuring that people with atrial fibrillation receive antithrombotic treatment (eg, warfarin or aspirin)

In the UK, it is estimated that over half of the 10 million people aged over 65 years are hypertensive and the risk of stroke for people with hypertension can be reduced by 37 per cent with the appropriate treatment.<sup>1</sup> The NSF states that it is not enough to prescribe antihypertensives or antithrombotics and that it cannot be assumed that patients and their carers understand the potential benefits of treatment. It adds that pharmacists have an important role to play in providing information and in answering questions about treatment and there is evidence that such interventions can improve blood pressure control. In one published study,<sup>4</sup> pharmacists followed a protocol of guided questioning relating to problems experienced by the patient with their medication, adherence or side effects. They then responded with written or verbal information, speaking to the patient's general practitioner or referring the patient to their GP.

Pharmacists in south Essex have identified patients who did not appear to be receiving aspirin or warfarin where a prescription for digoxin was used as an indicator of atrial fibrillation and patients were asked to complete a questionnaire. Patients who were not taking aspirin and who had no history of ulcer or allergy to aspirin were referred to the GP for addition of an antithrombotic drug. A similar scheme in Bradford identified that 31 per cent of the patients prescribed digoxin received neither aspirin nor warfarin.

**Secondary prevention** Between 25 to 30 per cent of people who have had one stroke will have another. The National Clinical Guidelines on Stroke produced by the Royal College of Physicians recommends that as well as controlling hypertension and adopting a healthier lifestyle, all stroke patients not taking anticoagulants should be taking 50 to 300mg aspirin daily, or a combination of low-dose aspirin and modified release dipyridamole. Clopidogrel (75mg daily) or dipyridamole MR (200mg twice daily) should be used for patients who cannot take aspirin.

### MILESTONES

The NSF set an early target that by April 2002, every general hospital that cares for stroke patients should have plans to introduce a specialised stroke service. By April 2003, every hospital that cares for older people with stroke should have established clinical audit systems to ensure delivery of the Royal College of Physicians' stroke care guidelines.

Furthermore, by April 2004, primary care trusts should ensure that:

- Every general practice, using protocols agreed with local specialist services, can identify and treat patients identified as being at risk of a stroke because of high blood pressure, atrial fibrillation or other risk factors
- Every general practice is using a protocol agreed with local specialist services for the rapid referral and management of those with TIA

Stroke was also one of the priorities, alongside cerebrovascular disease, set out in the white paper "Saving lives: Our Healthier Nation" published in 1999. One of the targets was to reduce the death rate from coronary heart disease, stroke and related diseases in people under 75 years by at least two fifths by 2010 saving up to 200,000 lives.

### REFERENCES

1. National Service Framework for Older People. London:Department of Health, March 2001. Available at: [www.gov.uk/nsf/olderpeople.htm](http://www.gov.uk/nsf/olderpeople.htm) (accessed on 16 June 2003).
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3. Yoon SS, Byles J. Perception of stroke in the general public and patients with stroke: a qualitative study. *BMJ* 2002;324:1065.
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5. Blenkinsopp A, Phelan M, Bourne J, Dakhil N. Extended adherence support by community pharmacists for patients with hypertension: a randomised controlled trial. *IJPP* 2000;8:165-75.

### RESOURCES

- "The NSF for older people — a guide for community pharmacists" is available on the PSNC website ([www.psn.org.uk](http://www.psn.org.uk)). The PSNC also provides a web-based database giving examples of extended role initiatives.
- The NSF for Coronary Heart Disease available at [www.doh.gov.uk/nsf](http://www.doh.gov.uk/nsf) gives more detailed information about monitoring the risk factors for stroke.
- A leaflet entitled "Drug administration via enteral feeding tubes — a guide for general practitioners and community pharmacists" is available from the British Association for Parenteral and Enteral Nutrition (tel 01527 457 850).