Contemporary thinking in stroke prevention and management

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Stroke is the third largest cause of death in the UK, after heart disease and cancer, and the largest single cause of severe adult disability (Stroke Association, 2003). Specialist and consultant stroke nurses are playing a growing role in rapid assessment clinics and acute care, as well as in coordinating rehabilitation and other follow-up services, including secondary prevention clinics.

Health promotion to reduce the risk of stroke is also an important consideration and an area where nurses can play a leading role. Risk prevention measures and behaviours include physical activity, and cutting down on smoking and alcohol intake.

A healthy diet is also a major factor in reducing stroke risk. This year Stoke Awareness Week, which starts on 29 September, is focusing on the importance of eating a colourful variety of fruit and vegetables, with the message: ‘Eat a rainbow. Beat a stroke.’

Each year, about 110,000 people in the UK have a first stroke and another 30,000 have a second or subsequent stroke (Bath and Lees, 2000). A further 30,000–40,000 have a transient ischaemic attack (TIA), a mini-stroke with symptoms that last for up to 24 hours.

Epidemiology

One-third of some 140,000 people who have a stroke each year die within six months of the episode and a further one-third are left heavily dependent on others (Bath and Lees, 2000). Although it is most common in older people, about one in 10 strokes occur in people aged under 55. The main risk factors are listed in Box 1.

Types of stroke

Eighty-five per cent of strokes are ischaemic, while 15 per cent are haemorrhagic (Bath and Lees, 2000). Ischaemic stroke is caused by the narrowing or blockage of one of the major arteries to the brain, or by embolism arising in the heart.

Occlusion most commonly follows atherosclerosis and thrombus formation in one or both internal carotid arteries just after the point of separation from the external carotid, or from small-vessel disease deep in the brain. The cause of a TIA is similar to that of an ischaemic stroke. But the arterial obstruction is only temporary, so there is no permanent damage.

Haemorrhagic stroke arises from the effects of long-standing high blood pressure in an atherosclerotic vessel or from a burst aneurysm. This usually occurs in a large artery on or near the brain, so that blood leaks beneath the arachnoid membrane. The latter is known as a subarachnoid haemorrhage.

Acute care

Initial interventions include:

- Hydration and restoration of electrolyte balance;
- Dealing with swallowing problems and fitting a nasogastric tube if problems fail to improve within 48 hours;
- Managing arrhythmias or other electrocardiogram (ECG) abnormalities;
- Administering insulin if glucose levels are found to be significantly raised;
- Administering paracetamol and antibiotics if there is evidence of fever;
- Administering oxygen therapy if oxygen saturation is less than 95 per cent;
- Administering antihypertensive treatment (only if blood pressure is very high).

Long-term management

Rehabilitation

Most people need some form of rehabilitation therapy after a stroke. This is most successful when it is carried out by a multidisciplinary team of nurses, physiotherapists, doctors, occupational therapists, speech and language therapists, dietitians, continence advisers, counsellors and social workers.

The aim of rehabilitation is to enable patients to overcome or cope with the effects the stroke has had on daily life. Task-specific training is increasingly favoured over treatment that focuses on specific impairment (Royal College of Physicians, 2002).

Giving patients the opportunity to practise the sort of tasks they will need to master for everyday life is a major element in improved outcomes. Much of the improvement that occurs after a stroke happens quite quickly, within weeks or months.

But people will continue to get better for a long time after a stroke, especially if they can relearn or learn new skills and techniques to overcome their disabilities. Although much formal rehabilitation happens in the weeks immediately after a stroke, it is never too late to ask for further assessment and help months or even years after a stroke.
Secondary prevention

A patient who has had a stroke runs a seven per cent annual risk of further stroke (Royal College of Physicians, 2002). But over the past decade there have been medical and surgical approaches to secondary prevention.

Blood pressure control has been an integral part of long-term stroke management and secondary prevention policies for many years. But research suggests that even stroke and TIA patients with normally normal blood pressure levels are likely to benefit from treatment (PROGRESS Collaborative Group, 2001). The study shows that lowering blood pressure by 9/4mmHg reduces the risk of subsequent stroke by 28 per cent over four years. Reducing blood pressure by 12/5mmHg cuts stroke risk by 43 per cent. The treatments used were the angiotensin-converting enzyme (ACE) inhibitor perindopril with or without the diuretic indapamide.

Cholesterol reduction has also been shown to reduce the risk of stroke, even in people with relatively normal lipid levels. One study reported a reduction of incidence of fatal or non-fatal stroke by about a quarter in patients with heart or other occlusive arterial disease who took simvastatin 40mg daily for five years (Heart Protection Study Collaborative Group, 2002).

Benefits were seen in those with total cholesterol levels below 5mmol/l and low-density lipoprotein cholesterol (LDL-cholesterol) below 3mmol/l.

The National Stroke Guidelines (Royal College of Physicians, 2002) recommend that anyone with a history of ischaemic heart disease and a cholesterol level over 5mmol/l who has had a stroke should be considered for statin treatment. Patients who have had a stroke or TIA with ultrasound evidence of carotid stenosis greater than 70 per cent should be considered for surgery to remove the occluding material from the vessels (Royal College of Physicians, 2002; European Carotid Surgery Trialists’ Collaborative Group, 1998).

Specialists estimate that 5,000–10,000 carotid endarterectomies to clear blood vessels are being carried out each year. But many patients who might benefit from such surgery are missing out because of a lack of facilities and surgeons.

The hospital stay for this procedure involves only a few days, and some patients opt to have surgery under local anaesthetic. An estimated 200 strokes are prevented for every 1,000 operations carried out.

But concerns about the complication rate, especially blood clots with the potential to cause strokes, continue to limit wider availability of surgery. A 6–7 per cent rate of fatal or disabling stroke in the month after surgery is thought to be typical.

Health promotion issues

Key messages for stroke prevention include:

- Do not smoke: smoking doubles the risk of arterial damage that can lead to TIA’s and stroke. Quitting can halve the risk of a stroke, whatever your age or however long you have smoked;
- Be more physically active: this helps to lower blood pressure and control weight, both of which are important for reducing stroke risk;
- Drink alcohol in moderation: excessive consumption is linked to stroke. Stick to two to three units of alcohol per day for women and three to four units per day for men. Do not save up units for a binge – binge-drinking is bad for you;
- Avoid being overweight: this increases the risk of strokes, heart attacks and many other diseases;
- Patients, and their GPs, also need to understand the importance of having regular blood-pressure checks and ensuring concordance with long-term medication to lower blood pressure and cholesterol, as well as other long-term therapies;
- Eat a healthy diet: aim to eat at least five portions of fruit and vegetables every day and keep the fat (especially the animal fat) and salt content of your diet as low as you can.

This year’s Stroke Awareness Week promotes healthy eating with the message ‘Eat a rainbow. Beat a stroke’, highlighting the importance of eating a variety of fruits and vegetables.

Conclusions

A lack of awareness about the benefits of having a prompt diagnosis means many stroke patients wait too long before receiving specialist assessment and care. Growing recognition of the importance of early differentiation between ischaemic and haemorrhagic stroke, and of the benefits of acute treatment, is bringing a new urgency to stroke management.

Specialist stroke and other nurses are involved at all stages of stroke care, from arrival in A&E, through acute management and early stages of rehabilitation, to secondary prevention of further events.