Understanding and reducing risk of stroke: A guide

Around 25% of care home residents have suffered from a stroke. The chance of someone who is over the age of 85 years having a stroke is 100 times greater than a person who is aged 35–45 years having one (Kwan, 2001). Therefore, it is important that care staff know how a stroke affects the body.

The age of the UK population is rising and it is understandable that the government’s target is to reduce the number of incidents of coronary heart disease and strokes (Department of Health, 1999).

World Health Organization data have shown that 4.5 million people die each year from stroke (Perkins, 2002). A stroke is the third most common cause of death in developed countries and is the most common cause of adult disability in the UK, with 150,000 people each year having a stroke (Rudd et al, 2000).

Strokes are not a new disease. Apoplexy, cerebrovascular accident and cerebrovascular events are all terms used for stroke (‘apoplexia’ is Greek for ‘a seizure’ and ‘plexia’ is Greek for ‘a stroke’). Ancient Greeks believed that if someone suffered a stroke (or any sudden incapacity), the gods had struck them down (MedicineNet, 2005).

How are they caused?
Strokes result from an impaired blood supply to a part of the brain. Onset can be sudden or gradual, causing temporary or permanent loss of function to part of the brain affected. Strokes vary greatly in severity depending on the location of the area of the brain that is affected, the extent of the impairment of blood supply and the degree of collateral blood supply.

There are two broad types of stroke (Rudd et al, 2000):

- **Cerebral haemorrhage (around 20%)**: A slow bleed that may occur after a fall or a sudden rupture of an artery (aneurysm), causing bleeding into or around the brain.
- **Cerebral thrombosis/embolism (around 80%)**: A blood clot or plaque, perhaps from another part of the body, causing blockage of blood vessels in the brain. Strokes do not only affect older people; babies and young people have them, often as a result of a thrombosis (formation of a blood clot) or weak blood vessels.

Mild transient ischaemic attacks (TIAs), termed ‘mini-strokes’, can result from a small thrombosis or emboli (tissue fragment that can obstruct blood flow) and the symptoms resolve in 24 hours (Rudd et al, 2000). The risk of developing a stroke after a hemispheric TIA can be as high as 20% within the first month, with the greatest risk within the first 72 hours (Intercollegiate Stroke Working Party, 2004).

TIAs should be viewed as warnings of impending, more severe or permanent stroke and referred to a doctor to ascertain the underlying cause. TIAs can result from

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Julie Swann explains the background to this disease and advises carers on what they can do to help prevent residents from having a stroke, which includes monitoring diet and weight.

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clots dislodging and travelling to the brain, or from weak cardiac walls, culminating in reduced cardiac output. Most stroke victims have warning signs that go unheeded (Box 1).

**Effects of stroke**

‘Silent’ strokes can go unnoticed; others cause only a short period of muscle weakness. Many strokes cause hemiplegia and loss of sensation. Speech, balance, perceptual and visual problems may occur.

Severe strokes can lead to unconsciousness, difficulty breathing and even death. Hemiplegia and other symptoms can be caused by other diseases and damage, such as head injury, encephalitis, cerebral tumours, cerebral abscess and multiple sclerosis. It is vital to find out the cause so correct treatment can be prescribed.

**Risk factors**

Several risk factors for stroke are unevenly spread across society, with poorer people often exposed to the highest risks. Some stroke risk factors are beyond control; for example, being male or over the age of 55 years, or having a family history of stroke. Afro-Caribbeans and South Asians are more likely to suffer a stroke than Europeans (Rudd et al, 2000).

Many medical risk factors can be controlled, such as diabetes, history of TIA, high cholesterol, arterial hypertension (high blood pressure), migraine, and heart and circulatory disease. Residents with a high risk of thrombosis may take drugs like aspirin or warfarin to reduce the risks of thrombosis and strokes.

**Lifestyle risk factors**

Several of the preventative measures for stroke are connected to those for obesity, secondary onset diabetes and heart disease. Several risk factors are interrelated, such as obesity and physical inactivity. Other risk factors are:

- Poor nutrition: Consuming too much fat and salt and not enough fruit and vegetables
- High blood pressure
- High LDL (low density lipoprotein) cholesterol levels
- Excess alcohol intake

**Prevention**

Care staff can encourage residents to have a healthy lifestyle, with a good varied diet. Consider weight control, regular exercise, regular checks of blood pressure, reduction of smoking, alcohol, caffeine and salt, and control of diabetes.

**Improving diet and reducing cholesterol levels**

Encourage healthier eating – consider foods that are low in fats, especially saturated fatty acids, and low in cholesterol. Stroke Awareness Week 2004 launched the ‘Eat a Rainbow – Beat a Stroke’ campaign, which highlights the benefits of eating five portions of fruit a day.

There are two sorts of cholesterol: ‘good’ high-density lipoprotein (HDL) and ‘bad’ low-density lipoprotein (LDL). LDL-cholesterol level can be lowered by eating a low-fat diet and, if required, by taking medication. Exercising can raise HDL cholesterol level. The ideal blood cholesterol level is less than 5 mmol/l. Statins can reduce cholesterol level (Collins, 2005).

**Weight control**

This task can be achieved by ensuring that residents have a balanced diet and encouraging them to be mobile and independent.

**Regular exercise**

Gentle exercise several times a week can help control weight and improve circulation. By reducing weight, the risk of high blood pressure, heart disease and adult-onset (type 2) diabetes decreases.

**Monitoring blood pressure**

Regular blood pressure checks are important. For adults, normal blood pressure is around 120/80 and a blood pressure over 140/90 is considered high. Smoking, obesity, lack of exercise and stress can all raise blood pressure.

Lowering blood pressure even by 5–6 mmHg (Perkins, 2002) reduces the risk of both stroke and heart disease. High blood pressure causes 40% of all strokes in the UK (The Stroke Association, 2005).

**Reducing smoking**

You cannot expect elderly people to stop smoking, but residents may be persuaded to reduce their consumption of cigarettes. Smoking increases the heart rate and raises blood pressure. It causes increased ‘stickiness’ between blood platelets, which can

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**Box 1. WARNING SIGNS OF A STROKE (STANFORD STROKE CENTER, 2005)**

- Sudden weakness, numbness or paralysis of the face, arm or leg (especially on one side of the body)
- Loss of speech or trouble talking or understanding language
- Sudden loss of vision, particularly in only one eye
- Sudden, severe headache with no apparent cause
- Unexplained dizziness, loss of balance or coordination (especially if associated with any of the above symptoms)

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**SOME COMMONLY USED MEDICAL TERMS**

- Aneurysm: Swelling of the wall of a blood vessel that may burst and cause a stroke
- Apraxia: Difficulties using everyday objects or carrying out activities
- Ataxia: Loss of control of muscle function
- Atheroma/atherosclerosis: Fatty deposits in blood vessels that restrict blood flow
- Hemianopia: Loss of half the visual field in both eyes
- Hemiparesis: Weakness or partial paralysis on one side of the body
- Hemiplegia: Loss of power or voluntary movement on one side of the body
- Infarction: Area of brain damaged tissue
- Thrombosis: Clot of blood that can cause blocking of an artery
- Spasticity: Increase in muscle tone, causing impaired movements
cause thrombosis. Post-mortem examinations on smokers show more atherosclerosis than those on non-smokers.

Reducing alcohol intake
‘Binge drinkers’ are twice as likely to have a stroke compared to non-drinkers (The Stroke Association, 2005). Alcoholic drinks should be reduced to two drinks a day.

Reducing caffeine and salt intake
Caffeine intake should be reduced to 4 cups a day and salt to less than 3 g a day. This can help to reduce high blood pressure (MedicineNet, 2005).

Controlling diabetes
Untreated diabetes can damage blood vessels throughout the body and lead to atherosclerosis.

Medication
The incidence of another stroke within 5 years of a first stroke is 30–43% (Mant et al, 2004), so it is equally as important to help prevent its recurrence. Preventative medication falls into two major categories: anticoagulants (such as warfarin or ximelagatran) and antiplatelet agents (such as aspirin, dipyridamole and clopidogrel).

Acute medical management of a stroke depends on the cause. Wiebers (2001) comments: ‘To put it bluntly, you don’t fix a clogged pipe the same way you fix a leaky one.’

Medication to ‘thin blood’ and ‘clot-busting’ drugs could save the life of someone with ischaemic stroke but may worsen the condition of someone suffering haemorrhagic stroke.

Conclusion
Care staff should refer to the Intercollegiate Stroke Working Party’s (2004) National Clinical Guidelines for Stroke for more information on this disease. In addition, the Stroke Association launched a ‘Stroke is a Medical Emergency’ campaign in autumn 2005, to raise awareness of warning signs of a stroke and to ensure that people suffering a stroke receive diagnosis and treatment as soon as possible after the first symptoms.

Some people may not necessarily be admitted into hospital after a stroke, particularly if no surgical intervention is anticipated. After a stroke, early gradual mobilisation is important.

The next article will discuss the physical aspects of treatment and how care staff can help reduce some of the effects of a stroke. We are not biologically designed to live on high-fat diets or to smoke or drink excessively, and our cardiovascular systems pay the price for overindulgence.

‘In the next hour, 12 people in the UK will have a stroke. Four of those people will recover, four will have permanent disabilities and four will die.’ (The Stroke Association, 2005)

Useful contacts/information
British Brain and Spine Foundation
7 Winchester House
Kennington Park
London SW9 6EJ
Helpline: 0808 808 1000
Website: www.bbsf.org.uk

Chest, Heart & Stroke, Scotland
Edinburgh EH2 3LT
Adviceline: 0845 077 6000
Website: www.chss.org.uk

Different Strokes
Wolverton Mill
Milton Keynes MK12 5NF
Helpline: 0845 130 71 72
Website: www.differentstrokes.co.uk

The Stroke Association
Stroke House
London EC1V 2PR
Stroke helpline: 0845 30 33 100
Website: www.stroke.org.uk

MedicineNet – Stroke:
www.medicinenet.com/stroke/article.htm

National Stroke Association:
www.stroke.org

BUPA fact sheet on stroke:
http://hcd2.bupa.co.uk/fact_sheets/html/stroke.html

Royal College of Physicians conference report on stroke:
www.rcplondon.ac.uk/pubs/journal/journ_34_jan_conf1.htm


KEY POINTS
- A stroke is generally caused by blockage of blood flow to the brain, or rupture of an artery.
- Sudden tingling, weakness or paralysis on one side of the body or difficulty with balance, speaking, swallowing or vision can be symptoms of a stroke.
- Stroke prevention involves reducing risk factors like high blood pressure, raised cholesterol and smoking.
- Healthy diets and exercise should be encouraged.
- Risk factors for strokes and heart disease are similar.

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