



Stroke Fact Sheet

Key Facts

- Stroke is a medical and sometimes a surgical emergency
- It accounts for 5 million deaths annually and is the second leading cause of death worldwide
- Age, gender, race and lifestyle can all have an impact on an individual's risk of stroke
- More patients survive stroke today than in the past, but a large proportion of them will be disabled for the rest of their lives

What is stroke?

A stroke is a medical and sometimes a surgical emergency.¹ It is caused by an interruption of the blood supply to the brain, usually because a blood vessel bursts or is blocked by a blood clot (thrombosis). This cuts off the supply of oxygen and nutrients, causing damage to the brain tissue resulting in a number of physical symptoms.² Disability following a stroke varies greatly depending on factors such as the part of the brain affected, how quickly treatment was given, and the extent of the damage to the brain.² A very severe stroke can cause sudden death.³

The scale of the problem

Annually, 15 million people worldwide suffer a stroke,⁴ of these, 5 million die, making it the second leading cause of death. Of these another 5 million are left permanently disabled, placing a burden on family and community.³

The incidence of stroke is declining in many developed countries, largely as a result of better control of high blood pressure, and reduced levels of smoking. However, the absolute number of strokes continues to increase because of the ageing population.⁴

How severe is stroke?

Stroke is associated with significant morbidity as well as mortality, leaving many survivors permanently disabled. More patients survive stroke today than in the past, but a large proportion of them will be disabled for the rest of their lives. Thus a primary goal of stroke management is improving the outcome.¹

Of those who survive a stroke, about 3 in 10 are fully independent within three weeks, and this rises to about 5 in 10 within six months. Over time, damaged brain tissue can recover or other parts of the brain learn to compensate with the help of rehabilitation and appropriate therapy. However, it is common for some degree of disability to remain.²

The cause of stroke

Ischaemic stroke - This type of stroke is usually caused by a blood clot in an artery which blocks the flow of blood, causing reduced blood and oxygen supply, resulting in tissue damage. The blood clot may form within the artery itself, perhaps over a patch of fatty material called an atheroma (also known as furring or hardening of the arteries). In some cases, the blood clot forms in another part of the body, and then travels in the bloodstream to the brain (an embolus). Seven strokes out of ten are ischaemic.²

Haemorrhagic stroke - In the case of an intracerebral haemorrhage, a blood vessel bursts inside the brain. This can cause the affected brain cells to lose their oxygen supply, and become damaged or die. This accounts for about one in ten strokes. Alternatively, a subarachnoid haemorrhage is when a blood vessel bursts in the subarachnoid space (the narrow space between the brain and the skull). About one in twenty strokes are caused this way.²

'Transient ischaemic attack' (TIA) - Also known as a mini-stroke, a TIA is a set of symptoms similar to a stroke, but which last less than 24 hours. It is due to a temporary lack of blood to a part of the brain usually caused by a tiny blood clot which is quickly overcome. It can be an indicator of a more severe stroke to follow.²

Other causes - Less than 1% of strokes are caused by a blood clot in the veins of the brain itself (the cerebral veins). Abnormalities of clotting increase the risk of this type of stroke.⁵

Risk Factors

There are a number of risk factors associated with developing a stroke.

- ⤴ **Age** - people who are over 65 years of age are most at risk from having strokes, although 25% of strokes occur in people younger than this, and even children can have strokes.⁵
- ⤴ **Gender** - although men have a higher risk of stroke, women are one and a half times as likely to die from stroke as men.⁶
- ⤴ **Race** - people of South Asian or African-Caribbean origin living in Europe are at increased risk of stroke.⁶
- ⤴ **Lifestyle** - smoking, being overweight, lack of exercise and a poor diet are also risk factors for stroke. Additionally, high blood pressure, high cholesterol, atrial fibrillation (an irregular heartbeat) and diabetes, increase the risk of stroke.⁵

Diagnosis

A stroke is usually diagnosed by the typical symptoms and signs which develop suddenly. Tests which are commonly done include:

- ▲ **CT Scan** (Computer Tomography) can determine the type of stroke (ischaemic or haemorrhagic) and is helpful in determining if immediate treatment with thrombolytic medication to break-down the clot is required
- ▲ **MRI Scan** (Magnetic Resonance Imaging) is used to locate the site of a stroke when it is small or unusually located
- ▲ **Chest X-ray and ECG** (a heart tracing) to check for heart or lung conditions which may be a cause of stroke (for example, atrial fibrillation)
- ▲ **Ultrasound** scan of the carotid arteries in the neck to check if there are large patches of atheroma in these arteries.²

Signs and symptoms of stroke

The signs of stroke vary depending on which part of the brain is affected, and on the size of the damaged area. The most common signs are sudden weakness or numbness of the face, arm or leg; confusion, difficulty speaking or understanding speech; difficulty seeing with one or both eyes; difficulty walking, dizziness, loss of balance or coordination; severe headache with no known cause; fainting or unconsciousness.²

Following the immediate event, persistent symptoms can include:

- ▲ **Weakness of one side of the body** causing problems with walking if a leg is affected, or problems using an arm or hand properly
- ▲ **Problems with balance** and co-ordination
- ▲ **Swallowing difficulties** which also poses the risk that food and drink may get into the windpipe and then into the lungs, leading to chest infections and pneumonia
- ▲ **Speech and communication difficulties** ranging from issues with being unable to find the occasional word to being completely unable to speak, problems understanding speech, reading and writing
- ▲ **Difficulty with vision** which might include double vision, or loss of a field of vision
- ▲ **Difficulties with mental processes**, such as learning, concentration and memory
- ▲ **Inappropriate emotions** - crying or laughing at times for no apparent reason
- ▲ **Tiredness.**²

Treatment

The time window for treatment of acute stroke is narrow, particularly the minutes and hours immediately after the stroke.¹ Treatment in a dedicated stroke unit has been shown to reduce death, dependence and need for long term institutional care in comparison to a general medical ward.¹

Ischaemic strokes

- ▲ **Thrombolysis** therapy with alteplase is used to break down a blood clot (thrombosis). However, it is only effective if started during the first few hours after the onset of the stroke, and not all patients are suitable for thrombolysis treatment. If the blood clot can be dissolved shortly after symptoms begin, it can improve outcome as brain cells that would have died can survive.
- ▲ **Antiplatelet medication** is usually given to reduce the 'stickiness' of platelets, helping to prevent blood clots forming inside arteries, and reducing the risk of a further stroke. Aspirin is the most commonly used antiplatelet drug.
- ▲ **Anticoagulants** also prevent blood clots, such as heparin and warfarin, and are often prescribed for people who have an irregular heartbeat that can cause blood clots.
- ▲ **Antihypertensives** are used to lower blood pressure if it is too high. Two medicines that are commonly used are thiazide diuretics, which reduce the amount of water in the body and widen blood vessels and angiotensin converting enzyme (ACE) inhibitors, which also widen blood vessels and thus reducing blood pressure.
- ▲ **Statins** are used to reduce the level of cholesterol in the blood by blocking an enzyme in the liver that produces cholesterol.
- ▲ **Carotid endarterectomy** is a surgical procedure used to remove an atheroma that has built up in one of the carotid arteries in the neck. The surgeon makes an incision in the neck to open up the carotid artery and remove the fatty deposits.²

Haemorrhagic strokes

Emergency surgery is often needed to remove any blood from the brain and repair any burst blood vessels. This is usually done using a surgical procedure known as a craniotomy. If a patient was previously taking an anticoagulant like warfarin, then treatment to reverse the effect of the anticoagulation is given. (Pat UK) Patients will usually also be given antihypertensives, such as ACE inhibitors, to lower blood pressure and prevent further strokes from occurring.⁵

TIA

This involves addressing the risk factors that may have led to it, to try to prevent a bigger, more serious stroke. Individuals may be given any of the above mentioned treatments, depending on their risk factors, including carotid endarterectomy if a build-up of fatty plaques in the carotid artery has been found.⁵

Impact on the lives of those affected and carers

Six months after a stroke, five out of every ten stroke patients remain dependent in some way, with long term problems including physical pain, weakness or paralysis - usually on one side of the body (hemiplegia), poor balance, difficulty swallowing, tiredness or difficulty sleeping.

Aphasia is common, which is a problem understanding other people or struggling to find words, as well as other difficulties with speaking, reading or writing. Eyesight problems,

which can cause clumsiness or seemingly odd behaviour may be experienced as well as difficulty with mental processes, including memory loss and an inability to concentrate. Some stroke sufferers have emotional problems, such as depression, anger, anxiety, sadness and lack of confidence.⁶

Caring for somebody who is recovering from a stroke can be physically and emotionally draining. Carers can have similar emotional difficulties to the person they care for, including depression, anxiety or anger.⁶

Unmet needs

No matter what advances there are in high-technology medicine, the fundamental message is that any major reduction in deaths and disability from cardio-vascular disease including stroke, will come from prevention, rather than treatment, and will therefore involve robust reduction in risk factors.⁴

For example, globally, if diastolic blood pressure can be reduced by 2% (and by 7% in those with diastolic blood pressure over 95 mmHg), a million deaths a year from coronary heart disease and stroke could be averted by 2020 in Asia alone.⁴

Further information

- European Stroke Association <http://www.eso-stroke.org>
- World Stroke Association <http://www.world-stroke.org>
- The Atlas of Heart Disease and Stroke
http://www.who.int/cardiovascular_diseases/resources/atlas/en/

References

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