



FAQ

Stroke

Frequently asked questions about stroke

At Neurotorium, our mission is to improve awareness and knowledge about the brain and its diseases. We provide free, unbiased educational content for clinicians, educators, and anyone interested in the brain, developed and regularly updated by leading experts in psychiatry, neurology, and neuroscience. Neurotorium also awards educational grants and organizes scientific meetings and educational events at international conferences to foster dialogue between neurology and psychiatry.

This document was reviewed by Prof. Dr. Matthew Kiernan

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1. What is a stroke?¹⁻⁴

A stroke occurs when blood flow to part of the brain is interrupted, either because an artery is blocked by a clot (ischaemic stroke) or because a blood vessel ruptures and bleeds into or around the brain (haemorrhagic stroke). In both cases, brain cells are deprived of oxygen and nutrients, and in the second case of a haemorrhagic stroke, the brain may also be damaged due to the effects of pressure. As a result, brain cells begin to die within minutes, making a stroke a medical emergency that requires immediate medical attention. Among these two types of strokes, ischaemic strokes are more common. Roughly 80% of strokes are ischaemic, and the remaining 20% are haemorrhagic.

2. What are the causes of stroke?^{1,5-10}

Stroke results from multiple, often interacting risk factors, particularly vascular ones. The biggest vascular risk factor for stroke across all age groups is high blood pressure (hypertension), which puts extra strain on the blood vessels and the heart, damaging the arteries that supply the brain.

High cholesterol is another leading cause. It can build up in the arteries, including those in the brain, reducing blood flow and increasing the risk of ischaemic stroke. Other modifiable lifestyle factors also play a significant role, including alcohol use, obesity, smoking, and elevated blood sugar levels (diabetes).

3. How common is stroke?^{4,7,11,12}

Stroke remains a significant global health issue. Over the past few decades, the number of strokes has increased, with the rates of stroke growing fastest in low and middle-income countries, representing about 87% of the global stroke burden. Although the risk of stroke rises with age, 16% of strokes occur in people under 50. The World Stroke Organization states that more than 12 million people worldwide experience their first stroke each year.

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4. What are the symptoms and signs of a stroke?^{5,6}

BE FAST is a phrase developed to help people identify the most common symptoms of stroke – drooping face, arm weakness, and speech difficulties:

Balance - Is the person suddenly having trouble with balance or coordination?

Eyes - Are they experiencing sudden blurred or double vision, or a sudden loss of vision in one or both eyes, without pain?

Face drooping - Is one side of the face drooping?

Arm weakness - Is there sudden weakness in the arms or legs?

Speech difficulties - Is there a sudden difficulty with speech?

Time to act - Call for an ambulance

5. How is stroke diagnosed?^{14,15}

Diagnosis typically involves a combination of neurological examination, structural brain imaging (such as CT scan or magnetic resonance imaging, MRI), and blood tests (including blood clotting factors).

6. What treatment options are available for stroke?^{1,16-23}

Stroke treatment depends on the type of stroke. If treated early, an ischemic stroke can be managed with thrombolytic drugs that dissolve blood clots and restore blood flow to the brain, or through procedures to remove the clot. Most recently, treatment focuses on the possibility of endovascular therapy, where the blood clot can be removed via a device inserted in the groin or wrist. This treatment typically must be undertaken within some hours of stroke onset, prior to the death of any brain cells in the vascular territory. For a haemorrhagic stroke, treatment focuses on identifying and controlling the source of bleeding in the brain. Surgical approaches include methods to stabilize aneurysms and the use of shunt catheters that divert blood flow in the brain.

A stroke can have many different effects on the brain

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and lead to significant neurobehavioral consequences. One of the serious conditions that can occur after a stroke is delirium, particularly in individuals with underlying cognitive problems, and is associated with poorer outcomes for the individuals who experienced a stroke. Many people may experience neuropsychiatric symptoms such as depression, anxiety, apathy, and fatigue following a stroke. Stroke can also affect memory and thinking skills, leading to cognitive impairment and dementia. Cognitive impairment involves trouble with thinking, memory, or making decisions. Dementia is a more severe outcome, with about one in ten people developing dementia after their first stroke, and over one-third developing it after a second stroke.

In terms of post-stroke care, rehabilitation for stroke aims to improve individual outcomes and can benefit people at any stage post-stroke. The process involves continuous practice and repetition of functional tasks, primarily focusing on physical and functional recovery. However, less is known about the intensity of therapy needed for psychological, cognitive, or sensory effects of stroke.

7. What strategies can support management and quality of life in stroke?^{1,24,25}

Approximately 90% of the burden of stroke is driven by modifiable vascular risk factors. Therefore, management and quality of life after stroke can be supported by effective control of these modifiable factors, including managing hypertension, improving diet, increasing physical activity as tolerated, reducing alcohol consumption, and stopping smoking. These strategies help prevent complications, reduce recurrence, and support long-term well-being.

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Lexicon^{2,3,10,13-16,25-28}

Aneurysm: A weak, bulging spot in the wall of an artery that can burst and cause bleeding in the brain.

Arteries: Blood vessels that carry oxygen-rich blood from the heart to various parts of the body, including the brain.

Cholesterol: A type of fat found in the blood. High levels can lead to the formation of plaques in the arteries, increasing the risk of blockages and stroke.

Blood clot: A mass of coagulated blood that can obstruct blood flow in the arteries, leading to potential complications.

CT (Computed tomography) Scans: An imaging method that uses X-rays to create detailed pictures of the brain, used to detect and diagnose various conditions.

Haemorrhage / haemorrhagic (including subarachnoid/subdural or intraventricular haemorrhage and intracerebral haemorrhage): Bleeding in the brain, which can be classified into subarachnoid (bleeding between the brain and the thin tissues covering the brain), subdural (bleeding between the brain surface and the tough outer covering), intraventricular (bleeding into the brain's ventricular system), and intracerebral (bleeding within the brain tissue).

Ischaemia / ischaemic stroke: When a blood clot blocks an artery carrying blood to the brain, causing a lack of oxygen and nutrients needed for the tissue to function properly.

MRI (magnetic resonance imaging): Imaging tests that use magnetic fields and radio waves to produce detailed images of the brain, aiding in diagnosis and evaluation of brain conditions.

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Modifiable Lifestyle Factors: Elements of a person's lifestyle, such as diet, physical activity, smoking, and alcohol consumption, that can be altered to reduce health risks.

Obesity: A condition characterized by excessive body fat, which increases the risk of various health issues due to its association with high blood pressure, diabetes, and other conditions.

Shunt Catheter: A shunt catheter is a tube used to redirect fluid from one part of the body to another.

Thrombolytic Drugs: Medications designed to dissolve blood clots, helping to restore blood flow to affected areas of the brain.

Vascular: Anything related to the body's blood vessels (arteries, veins, and capillaries) and the circulation of blood. In medicine, a "vascular" risk factor or disease is one that affects these vessels and blood flow.

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