

# What is vascular dementia?

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**Vascular dementia is the second most common type of dementia (after Alzheimer's disease), affecting around 150,000 people in the UK. The word dementia describes a set of symptoms that can include memory loss and difficulties with thinking, problem-solving or language. In vascular dementia, these symptoms occur when the brain is damaged because of problems with the supply of blood to the brain. This factsheet outlines the causes, types and symptoms of vascular dementia. It looks at how it is diagnosed and the factors that can put someone at risk of developing it. It also describes the treatment and support that are available.**

## Causes

Vascular dementia is caused by reduced blood supply to the brain due to diseased blood vessels.

To be healthy and function properly, brain cells need a constant supply of blood to bring oxygen and nutrients. Blood is delivered to the brain through a network of vessels called the vascular system. If the vascular system within the brain becomes damaged – so that the blood vessels leak or become blocked – then blood cannot reach the brain cells and they will eventually die.

This death of brain cells can cause problems with memory, thinking or reasoning. Together these three elements are known as cognition. When these cognitive problems are bad enough to have a significant impact on daily life, this is known as vascular dementia.

## Types of vascular dementia

There are several different types of vascular dementia. They differ in the cause of the damage and the part of the brain that is affected. The different types of vascular dementia have some symptoms in common and some symptoms that differ. Their symptoms tend to progress in different ways.

### Stroke-related dementia

A stroke happens when the blood supply to a part of the brain is suddenly cut off. In most strokes, a blood vessel in the brain becomes narrowed and is blocked by a clot. The clot may have formed in the brain, or it may have formed in the heart (if someone has heart disease) and been carried to the brain. Strokes vary in how severe they are, depending on where the blocked vessel is and whether the interruption to the blood supply is permanent or temporary.

### Post-stroke dementia

A major stroke occurs when the blood flow in a large vessel in the brain is suddenly and permanently cut off. Most often this happens when the vessel is blocked by a clot. Much less often it is because the vessel bursts and bleeds into the brain. This sudden interruption in the blood supply starves the brain of oxygen and leads to the death of a large volume of brain tissue.

Not everyone who has a stroke will develop vascular dementia, but about 20 per cent of people who have a stroke do develop this post-stroke dementia within the following six months. A person who has a stroke is then at increased risk of having further strokes. If this happens, the risk of developing dementia is higher.

### Single-infarct and multi-infarct dementia

These types of vascular dementia are caused by one or more smaller strokes. These happen when a large or medium-sized blood vessel is blocked by a clot. The stroke may be so small that the person doesn't

notice any symptoms. Alternatively, the symptoms may only be temporary – lasting perhaps a few minutes – because the blockage clears itself. (If symptoms last for less than 24 hours this is known as a ‘mini-stroke’ or transient ischaemic attack (TIA). A TIA may mistakenly be dismissed as a ‘funny turn’.)

If the blood supply is interrupted for more than a few minutes, the stroke will lead to the death of a small area of tissue in the brain. This area is known as an infarct. Sometimes just one infarct forms in an important part of the brain and this causes dementia (known as single-infarct dementia). Much more often, a series of small strokes over a period of weeks or months lead to a number of infarcts spread around the brain. Dementia in this case (known as multi-infarct dementia) is caused by the total damage from all the infarcts together.

### **Subcortical dementia**

Subcortical vascular dementia is caused by diseases of the very small blood vessels that lie deep in the brain. These small vessels develop thick walls and become stiff and twisted, meaning that blood flow through them is reduced.

Small vessel disease often damages the bundles of nerve fibres that carry signals around the brain, known as white matter. It can also cause small infarcts near the base of the brain.

Small vessel disease develops much deeper in the brain than the damage caused by many strokes. This means many of the symptoms of subcortical vascular dementia are different from those of stroke-related dementia.

Subcortical dementia is thought to be the most common type of vascular dementia.

### **Mixed dementia (vascular dementia and Alzheimer’s disease)**

At least 10 per cent of people with dementia are diagnosed with mixed dementia. This generally means that both Alzheimer’s disease

and vascular disease are thought to have caused the dementia. The symptoms of mixed dementia may be similar to those of either Alzheimer's disease or vascular dementia, or they may be a combination of the two.

## Symptoms

How vascular dementia affects people varies depending on the different underlying causes and more generally from person to person. Symptoms may develop suddenly, for example after a stroke, or more gradually, such as with small vessel disease.

Some symptoms may be similar to those of other types of dementia. Memory loss is common in the early stages of Alzheimer's, but is not usually the main early symptom of vascular dementia.

The most common cognitive symptoms in the early stages of vascular dementia are:

- problems with planning or organising, making decisions or solving problems
- difficulties following a series of steps (eg cooking a meal)
- slower speed of thought
- problems concentrating, including short periods of sudden confusion.

A person in the early stages of vascular dementia may also have difficulties with:

- memory – problems recalling recent events (often mild)
- language – eg speech may become less fluent
- visuospatial skills – problems perceiving objects in three dimensions.

As well as these cognitive symptoms, it is common for someone with early vascular dementia to experience mood changes, such as apathy,

depression or anxiety. Depression is common, partly because people with vascular dementia may be aware of the difficulties the condition is causing. A person with vascular dementia may also become generally more emotional. They may be prone to rapid mood swings and being unusually tearful or happy.

Other symptoms that someone with vascular dementia may experience vary between the different types. Post-stroke dementia will often be accompanied by the obvious physical symptoms of the stroke. Depending on which part of the brain is affected, someone might have paralysis or weakness of a limb. Or if a different part of the brain is damaged they may have problems with vision or speech. With rehabilitation, symptoms may get a little better or stabilise for a time, especially in the first six months after the stroke.

Symptoms of subcortical vascular dementia vary less. Early loss of bladder control is common. The person may also have mild weakness on one side of their body, or become less steady walking and more prone to falls. Other symptoms of subcortical vascular dementia may include clumsiness, lack of facial expression and problems pronouncing words.

## **Progression and later stages**

Vascular dementia will generally get worse, although the speed and pattern of this decline vary. Stroke-related dementia often progresses in a 'stepped' way, with long periods when symptoms are stable and periods when symptoms rapidly get worse. This is because each additional stroke causes further damage to the brain. Subcortical vascular dementia may occasionally follow this stepped progression, but more often symptoms get worse gradually, as the area of affected white matter slowly expands.

Over time a person with vascular dementia is likely to develop more severe confusion or disorientation, and further problems with reasoning and communication. Memory loss, for example for recent events or names, will also become worse. The person is likely to need more support with day-to-day activities such as cooking or cleaning.

As vascular dementia progresses, many people also develop behaviours that seem unusual or out of character. The most common include irritability, agitation, aggressive behaviour and a disturbed sleep pattern. Someone may also act in socially inappropriate ways.

Occasionally a person with vascular dementia will strongly believe things that are not true (delusions) or – less often – see things that are not really there (hallucinations). These behaviours can be distressing and a challenge for all involved.

In the later stages of vascular dementia someone may become much less aware of what is happening around them. They may have difficulties walking or eating without help, and become increasingly frail. Eventually, the person will need help with all their daily activities.

How long someone will live with vascular dementia varies greatly from person to person. On average it will be about five years after the symptoms started. The person is most likely to die from a stroke or heart attack.

## Who gets vascular dementia?

There are a number of things that can put someone at risk of developing vascular dementia. These are called risk factors. Most of these are things that contribute to underlying cardiovascular diseases. Some of these risk factors (eg lifestyle) can be controlled, but others (eg age and genes) cannot. For more information see factsheet 450, *Am I at risk of developing dementia?*

Age is the strongest risk factor for vascular dementia. A person's risk of developing the condition doubles approximately every five years over the age of 65. Vascular dementia under the age of 65 is uncommon and affects fewer than 8,000 people in the UK. Men are at slightly higher risk of developing vascular dementia than women.

A person who has had a stroke, or who has diabetes or heart disease, is approximately twice as likely to develop vascular dementia. Sleep apnoea, a condition where breathing stops for a few seconds or

minutes during sleep, is also a possible risk factor. Someone can reduce their risk of dementia by keeping these conditions under control, through taking prescribed medicines (even if they feel well) and following professional advice about their lifestyle.

There is some evidence that a history of depression also increases the risk of vascular dementia. Anyone who thinks they may be depressed should seek their doctor's advice early.

Cardiovascular disease – and therefore vascular dementia – is linked to high blood pressure, high cholesterol and being overweight in mid-life. Someone can reduce their risk of developing these by having regular check-ups (over the age of 40), by not smoking, and by keeping physically active. It will also help to eat a healthy balanced diet and drink alcohol only in moderation.

Aside from these cardiovascular risk factors, there is good evidence that keeping mentally active throughout life reduces dementia risk. There is some evidence for the benefits of being socially active too.

Researchers think there are some genetic factors behind the common types of vascular dementia, and that these are linked to the underlying cardiovascular diseases. Someone with a family history of stroke, heart disease or diabetes has an increased risk of developing these conditions. Overall, however, the role of genes in the common types of vascular dementia is small.

People from certain ethnic groups are more likely to develop cardiovascular disease and vascular dementia than others. Those from an Indian, Bangladeshi, Pakistani or Sri Lankan background living in the UK have significantly higher rates of stroke, diabetes and heart disease than white Europeans. Among people of African-Caribbean descent, the risk of diabetes and stroke – but not heart disease – is also higher. These differences are thought to be partly inherited but mainly due to lifestyle factors such as diet, smoking and exercise.



## Diagnosis

Anyone who is concerned that they may have vascular dementia (or any other type of dementia) should seek help from their GP. If someone does have dementia, an early diagnosis has many benefits: it provides an explanation for the person's symptoms; it gives access to treatment, advice and support; and it allows them to prepare for the future and plan ahead. For vascular dementia, treatments and lifestyle changes may also slow down the progression of the underlying disease.

There is no single test for vascular dementia. The GP will first need to rule out conditions that can have similar symptoms, particularly depression. Symptoms could also be caused by infections, vitamin and thyroid deficiencies (diagnosed from a blood test) and side effects of medication.

The doctor will also talk to the person about their medical history (eg high blood pressure or diabetes). This will include questions about dementia or cardiovascular disease in close family members. The doctor will probably do a physical examination and will ask about how the person's symptoms are currently affecting their life. The GP or a practice nurse may ask the person to do some tests of mental abilities. It is often helpful if a close friend or family member accompanies the person to medical appointments. They may be able to describe subtle changes that the person themselves has not noticed, such as starting to struggle with daily activities.

The GP may feel able to make a diagnosis of vascular dementia at this stage. If not, they will generally refer the person to a specialist. This might be an old-age psychiatrist (who specialises in the mental health of older people) based in a memory service, or a geriatrician (who specialises in the physical health of older people) in a hospital. For more information see factsheet 426, Assessment and diagnosis.

The specialist will assess the person's symptoms in more detail. The way that symptoms developed – in steps or more gradually – may suggest different underlying diseases. The person's thinking and



other mental abilities will also be assessed further with a wider range of tests. In someone with vascular dementia, the test might show slowness of thought and difficulties thinking things through, which are often more common than memory loss.

A person suspected of having vascular dementia will generally have a brain scan to look for any changes that have taken place in the brain. A scan such as CT (computerised tomography) or MRI (magnetic resonance imaging) may rule out a tumour or build-up of fluid inside the brain. These can have symptoms similar to those of vascular dementia. A CT scan may also show a stroke or an MRI scan may show changes such as infarcts or damage to the white matter. If this is the case, the brain scan will be very helpful in diagnosing the dementia type, rather than simply ruling out other causes.

If the person has dementia, and the circumstances mean it is best explained by vascular disease in the brain, a diagnosis of vascular dementia will be made. For example, the dementia may have developed within a few months of a stroke, or a brain scan may show a pattern of disease that explains the dementia symptoms.

The diagnosis should be communicated clearly to the person and usually also those closest to them, along with a discussion about the next steps. For more information see factsheet 426, Assessment and diagnosis.

## **Treatment and support**

There is currently no cure for vascular dementia: the brain damage that causes it cannot be reversed. However, there is a lot that can be done to enable someone to live well with the condition. This will involve drug and non-drug treatment, support and activities.

The person should have a chance to talk to a health or social care professional about their dementia diagnosis. This could be a psychiatrist or mental health nurse, a clinical psychologist, occupational therapist or GP. Information on what support is available and where to go for further advice is vital in helping someone to stay physically and mentally well.

## **Control of cardiovascular disease**

If the underlying cardiovascular diseases that have caused vascular dementia can be controlled, it may be possible to slow down the progression of the dementia. For example, after someone has had a stroke or TIA, treatment of high blood pressure can reduce the risk of further stroke and dementia. For stroke-related dementia in particular, with treatment there may be long periods when the symptoms don't get significantly worse.

In most cases, a person with vascular dementia will already be on medications to treat the underlying diseases. These include tablets to reduce blood pressure, prevent blood clots and lower cholesterol. If the person has a diagnosed heart condition or diabetes they will also be taking medicines for these. It is important that the person continues to take any medications and attends regular check-ups as recommended by a doctor.

Someone with vascular dementia will also be advised to adopt a healthy lifestyle, particularly to take regular physical exercise and, if they are a smoker, to quit. They should try to eat a diet with plenty of fruit, vegetables and oily fish but not too much fat or salt. Maintaining a healthy weight and keeping to recommended levels of alcohol will also help. The GP should be able to offer advice in all these areas.

## **Other treatment and support**

Supporting a person with vascular dementia to live well includes treatment for symptoms, support to cope with lost abilities, and help to keep up enjoyable activities. For someone who has had a stroke or has physical difficulties, treatment will also include rehabilitation.

The drugs that are routinely prescribed for Alzheimer's disease do not have benefits for vascular dementia, and are not recommended for it. These drugs may, however, be prescribed to treat mixed dementia (Alzheimer's disease and vascular dementia).

If someone is depressed or anxious, talking therapies (such as cognitive behavioural therapy) or drug treatments may also be tried. Counselling may also help the person adjust to the diagnosis.

There are many ways to help someone remain independent and cope with the cognitive symptoms of vascular dementia. For example, breaking complex tasks down into smaller steps will make them easier. An environment which is not too busy or noisy will make it easier to concentrate. For someone with memory loss, a regular routine and appropriate technology, such as pill boxes or electronic devices, can help. For more information see factsheet 526, Coping with memory loss.

It is important that a person with any type of dementia stays active and continues to do things they enjoy. Keeping mentally active (cognitive stimulation) is known to help with memory and communication. Life story work, in which someone shares their life experiences and makes a personal record, may help with memory, mood and wellbeing. As the dementia worsens, many people enjoy more general reminiscence activities.

If the person has physical difficulties, for example after a stroke, they will usually benefit from rehabilitation. This could mean working with a physiotherapist (especially for help with weakness, coordination, movement and balance), occupational therapist (for everyday activities) or speech and language therapist (for all aspects of communication).

The details of the support that is available, and how people are generally referred, can vary around the country. The GP can give information about what is available in the local area.

Over time, changes in the person's behaviour – such as agitation or aggression – become more likely. These are often a sign that the person is in distress. There are many potential causes. For example, the person might be in pain, they may have misunderstood something or someone, or they may be frustrated or under-stimulated. Individualised approaches should try to address the cause. General

non-drug approaches (eg social interaction) often help. They should generally be tried before additional drugs are considered, particularly in the case of antipsychotics.

Anyone caring for the person is likely to find these behaviours distressing. Support for carers is particularly important at such times. For more information see factsheet 523, Carers: looking after yourself.

## Other useful organisations

### **British Heart Foundation**

Greater London House  
180 Hampstead Road  
London NW1 7AW

T 0300 330 3311 (Heart Helpline, 9am–5pm, Monday to Friday)  
E [supporterservices@bhf.org.uk](mailto:supporterservices@bhf.org.uk)  
W [www.bhf.org.uk](http://www.bhf.org.uk)

The UK's leading heart charity and the biggest funder of heart research in the UK.

### **Diabetes UK**

Macleod House  
10 Parkway  
London NW1 7AA

T 0345 123 2399 (Careline, 9am–7pm Monday–Friday)  
E [careline@diabetes.org.uk](mailto:careline@diabetes.org.uk)  
W [www.diabetes.org.uk](http://www.diabetes.org.uk)

The UK's leading diabetes charity. They care for, connect with and campaign on behalf of all people affected by and at risk of diabetes in local communities across the UK.

## **NHS Health Check**

W [www.nhs.uk/conditions/nhs-health-check](http://www.nhs.uk/conditions/nhs-health-check)

The Health Check is a mid-life check-up for those aged 40–74. At the check, a person's blood pressure, cholesterol, and body mass index will be measured and results given, along with advice and support. This could reduce the risk of diabetes, heart or kidney disease, stroke and dementia.

## **Stroke Association**

Stroke Association House  
240 City Road  
London EC1V 2PR

T 0303 3033 100 (Stroke Helpline, 9am–5pm Monday–Friday)  
E [info@stroke.org.uk](mailto:info@stroke.org.uk)  
W [www.stroke.org.uk](http://www.stroke.org.uk)

The leading charity in the UK changing the world for people affected by stroke. For more about the Act FAST campaign to recognise the symptoms of a stroke visit [www.stroke.org.uk/fast](http://www.stroke.org.uk/fast)

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This factsheet has also been reviewed by people affected by dementia. A list of sources is available on request.



## Alzheimer's Society National Dementia Helpline

England, Wales and Northern Ireland:  
**0300 222 11 22**

9am–8pm Monday–Wednesday  
9am–5pm Thursday–Friday  
10am–4pm Saturday–Sunday

**[alzheimers.org.uk](http://alzheimers.org.uk)**

Alzheimer's Society is the UK's leading support and research charity for people with dementia, their families and carers.



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