

# VASCULAR DEMENTIA: HOW CAN WE TACKLE IT?



Dementia affects one in 14 people over the age of 65 in the UK and vascular dementia, caused by reduced blood flow to the brain, is the second most common form. Find out what the British Heart Foundation (BHF) is doing to tackle the condition – and how you can help. By **Caroline Roberts**

## What is vascular dementia?

Vascular dementia is caused by problems with the blood supply to the brain. Everything we think and do is a result of nerve activity in the brain, and multiple blood vessels supply each brain cell with nutrients and oxygen. When a brain cell is activated, it releases signals to help increase blood flow to the area and nearby arteries dilate to allow the blood to get where it's needed. The vessels also drain away toxins and excess water from the brain.

If these blood vessels aren't working properly, the brain cells are starved of needed energy, become damaged and eventually die. The result is vascular dementia. The damage can occur anywhere in the brain; the symptoms depend on which part is affected, but often include language difficulties, confusion, low mood and problems with concentration, planning and decision making.

Narrowing of the blood vessels can occur gradually, but can also be sped up by disruption of the blood supply to the brain caused by a stroke, or a series of mini strokes known as transient ischaemic attacks. One of the main risk factors for vascular dementia is high blood pressure, but other things that can harm the blood vessels also play a role including smoking, poor diet, excess weight, lack of exercise and raised cholesterol. Vascular dementia is the second most common type of dementia after Alzheimer's disease: it kills more than 15,000 people in the UK every year. There is currently no cure and symptoms gradually get worse. The BHF is supporting researchers who are working hard to understand more about the condition in the hope of developing effective treatments. Gifts in Wills are a vital source of funding for this research.

£2.7 million

In 2018-19, the British Heart Foundation invested £2.7m in new research related to vascular dementia

## 'Ron knows there won't be any cure for him, but the research might help other people'

While there is no cure for Ron Spiers, he is taking part in research funded by the BHF that might be able to help people in his and other families

Ron Spiers was diagnosed in his fifties with CADASIL, an inherited condition which affects the small vessels of the brain, causing strokes and vascular dementia.

Ron is part of a research project looking into stroke and dementia that the British Heart Foundation is funding. Here his wife Loraine explains how it has affected their lives.

"Alarm bells started ringing when it started to become noticeable that Ron was not his usual self," she says.

"He started to get really severe migraines and depression and, when we were having a problem with a neighbour, I noticed he couldn't control his temper, which wasn't normal. As the months went by it got worse."

### THE DIAGNOSIS

"In 2007, Ron went to have a brain scan because of the migraines. At the hospital, the consultant told him he had the brain of a

95-year-old," Loraine continues.

"I explained that members of Ron's family had died of dementia and strokes, so he had some blood tests and was diagnosed with CADASIL. I'd never heard of it.

"Ron's GP referred him to Professor Hugh Markus at the University of Cambridge, whose research into stroke genetics is funded by the BHF. After more genetic tests and two biopsies, Prof Markus explained how the disease was inherited and we received genetic counselling."

### IT ALL MADE SENSE

"Once we began looking into it, everything fell into place – like what had happened to Ron's dad," says Loraine. "He was 73 when he died of a stroke. Previous to that, he had had several strokes and passed out into a CADASIL coma. They told us CADASIL can lead to dementia. Ron did start to struggle to remember, although he can remember everything from the past.

"He had a stroke in 2014 and took early retirement from his job as an engineer two years later because of his health – the company felt his behaviour had become unmanageable.

"Ron's become obsessed about losing his job. He can spend hours going over the same thing

'Once we began looking into it everything fell into place'

and he's very hurt and upset about it. It's making relationships really difficult. Ron says all sorts of things that you wouldn't normally say. He adores his granddaughter, but he can be nasty to her. It's made him less active too.

"Ron used to be a professional footballer, playing for Stoke City in the 1970s, and was accepted into the territorial SAS – not many people achieve that. But now he's overweight and hardly ever goes out."

### WISHING TO TURN BACK TIME

Loraine adds: "You just wish there was a magic pill to make him better again, but there isn't and it's very hard – you just have to cope with it. His temper can switch from really nice to really bad. But I love Ron, and you pledge to care for someone through good and ill.

"We don't know how many other family members have the condition because they don't want to know. His brother has been diagnosed with it, and there's a possibility Ron's daughter might have it.

"Ron is taking part in the BHF-funded research because he wants to help. He knows there won't be any cure for him. But if the research doesn't achieve anything for him, it might achieve something for other people.

### LINKED CONDITIONS

Vascular dementia has been linked to a number of other medical conditions



People with a history of heart disease are at least twice as likely to develop vascular dementia



Vascular dementia accounts for three-quarters of dementia cases in stroke survivors



People with diabetes are two to three times more likely to develop vascular dementia

### EARLY SIGNS AND SYMPTOMS OF VASCULAR DEMENTIA

Have you – or any of your loved ones – experienced any of these early signs? Bear in mind that there may be other reasons for these symptoms. But if you are in any doubt, it's worth booking in to see your GP to talk through what you have noticed



Difficulty with language



Increasing difficulty with reading and with driving



Feeling confused



Mood and personality changes



Concentration problems



Difficulty with decision-making and planning



Difficulty with everyday activities such as paying with money

150000

Vascular dementia is estimated to affect around 150,000 people in the UK

## WILL POWER

A GIFT IN YOUR WILL CAN FUND LIFE-SAVING RESEARCH

When people remember the BHF in their wills, they are helping future generations of their and other families

The British Heart Foundation (BHF) was established in 1961 to support research into heart and circulatory diseases. It now funds around half the independent research into these conditions that goes on in the UK and wants to invest more than £1 billion over the next decade. During the past year, the charity has invested £2.7 million into new vascular dementia research. It's a cruel disease that can rob those affected of their dignity and independence and take loved ones from their families while they are still alive. At the moment, little can be done to stop the progress of the condition but the BHF is determined to change that by investing more money into research projects that can provide answers.



Rachel Milledge, 58, was born with a hole in her heart. She is grateful that doctors were able to treat her, but those living with conditions such as vascular dementia – for which there is no cure – are not so fortunate. Rachel has left a gift in

her will to help fund the British Heart Foundation's life-saving research. Gifts in Wills form a vital source of income for the BHF, providing around half of the charity's overall spend on research each year. "Leaving a gift [to the BHF] in my will was something I wanted to do to help move things forward," says Rachel. "If you want the BHF to always be there, you have to support it." Vascular dementia is not only a devastating condition for those affected and their families; given our rapidly ageing population, it also comes at a huge cost for society as a whole. With the help of Gifts in Wills from generous donors, the BHF can help end the heartbreak of vascular dementia for ever.

### RISK FACTORS YOU CAN CONTROL

Vascular dementia is seen in around one in four cases; it is the second most common form of dementia (after Alzheimer's)



High blood pressure



Poorly controlled diabetes



Smoking



Being overweight or obese



Not doing enough physical activity



Drinking too much alcohol

### RISK FACTORS YOU CANNOT CONTROL

These are things about you that can raise your risk of developing vascular dementia



Age: you're more at risk as you get older



Family history: if one of your family has coronary heart disease or has had a stroke



Ethnicity: you may be at higher risk if you have a South Asian, African or Caribbean heritage



Gender: men are more at risk than women

### HOW IS VASCULAR DEMENTIA LINKED TO THE HEART?

Fatty deposits cause a narrowing and restrict the flow of blood through blood vessels

Your heart supplies blood to the entire body – including your brain – via a network of blood vessels known as your circulatory system.

Over time, blood vessels can become narrowed – through the accumulation of

fatty deposits – or blocked by a clot. If this happens in one of the blood vessels supplying your heart muscle, it can lead to a heart attack.

However, if this happens in one of the blood vessels in your brain, it can lead to

vascular dementia, a stroke or both. When the blood supply to part of your brain is cut off or reduced, oxygen is not able to get to your brain's cells, causing them to die.

Many of the factors that increase your risk of other

circulatory diseases also increase your risk of developing vascular dementia. If you have a heart condition called atrial fibrillation, which is not being treated, your risk is also higher.

1 in 4

Vascular dementia is the second most common form of dementia, seen in around one in four cases (Alzheimer's is the most common form)

## What progress is being made in vascular dementia research?

Thanks to research partly funded by the British Heart Foundation, we are beginning to understand more about this disease and how to treat it. Studies are under way that could help doctors spot vascular dementia earlier and improve patient outcomes

If you ask middle-aged or older people which medical condition they most fear, the answer is always dementia," says Dr Adam Greenstein, geriatrician and BHF-funded researcher.

"Dementia strips away at your dignity in small but inexorable steps until you are dependent on someone else for almost everything that you do. Doctors are helpless bystanders, merely watching as our once independent, engaging, funny and wonderful patients slowly transform into shells of their former selves."

At present, there is no treatment for vascular dementia and that's a situation we can't allow to continue. The BHF is working hard to address this by funding a range of research projects. Gifts in Wills provide a vital income stream to fund this research and mean we can make faster progress, providing hope to everyone affected by vascular dementia.

BHF-funded research into vascular dementia has several main aims, including improvement of our understanding of what causes the condition and how these risk factors can be mitigated, and finding out more about what exactly is going on in the brain when the blood vessels and nerves are damaged to try to develop effective treatments.

These are just a few of the innovative projects that BHF-funded researchers are currently working on.

### INVESTIGATING THE BRAIN'S PLUMBING SYSTEM

A team at the University of Southampton is looking into the role of the brain's waste elimination system in vascular dementia. As well as supplying blood, vessels in the brain help remove toxic substances and excess fluid from brain cells.

Researchers led by Dr Roxana Carare are trying to

find out whether a breakdown in this waste removal system could cause vascular dementia. The project, jointly funded by the BHF, the Stroke Association and the Alzheimer's Society, is studying waste-elimination pathways in the brains of mice in the hope it will lead to new ways of stopping or slowing vascular dementia in humans.

### EXPLORING SMALL BLOOD VESSEL DISEASE

Disease of the small vessels in the brain causes a quarter of all strokes and increases the risk of vascular dementia. Professor Hugh Markus and his team at the University of Cambridge are working with international scientists to study the brains of 5,000 people with small vessel disease. They hope that finding out more about how the condition affects the brain and working to identify the genes that may cause it will lead to new treatments.

### PREDICTING VASCULAR DEMENTIA RISK

Professor Joanna Wardlaw's team at the University of Edinburgh is trying to determine who is at risk of developing vascular dementia following a stroke.

The team are collecting information from hospital records, and performing thinking and memory tests on 2,000 people who have had a stroke. They are also collecting blood samples and carrying out brain scans to look for measurements that could act as markers for vascular dementia. In the future, this work could help doctors to spot vascular dementia earlier and make sure patients get the right care. Dr Greenstein, pictured left, says: "Fifty years ago, there was no effective treatment for people who had heart attacks. But research directly funded by the BHF changed all that, so that many patients can now live almost normal lives. We must now do the same for vascular dementia."



## How is vascular dementia diagnosed and treated?

If someone has symptoms that might suggest vascular dementia, it's important they see a GP as soon as possible to get the right advice and support. Diagnosis usually involves:

- routine physical tests, such as blood pressure and cholesterol
- cognitive ability tests
- discussions with a close relative or friend to get their perspective (with the patient's permission)
- referral to a specialist for a brain scan, which can often show up the extent of the damage and provide an accurate diagnosis.

There's currently no cure for vascular dementia but some treatments and lifestyle changes can slow progress of the condition and help those affected lead an active life for as long as possible. These include:



- medication to control high pressure or lower cholesterol levels
- a healthy diet
- physical activity and regular exercise
- quitting smoking and cutting down on alcohol
- social activities that help maintain communication skills
- other activities that exercise the brain

TO FIND OUT MORE  
Go to [bhf.org.uk/wills](http://bhf.org.uk/wills) to find out how you can leave a life-saving gift in your will to the British Heart Foundation

