



What risk factors increase our chance of developing dementia after a stroke and what can we do about this?

Quick-read Summary:

- The aim was to find out if cardiovascular risk factors could predict if somebody was more likely to develop dementia after a stroke.
- We looked for cardiovascular risk factors and added these up for each person.
- The risk factors that increased the risk of developing dementia or dying were: Smoking, age, gender, depression, high blood pressure, diabetes, a previous minor stroke, a previous disabling stroke, heart disease, high levels of cholesterol, irregular heart beat (AF), the APOE ϵ 4 allele and people who scored less well on brain tests especially in the sections on memory and problem solving.
- Overall, those with three or more of these risk factors were at the greatest risk of developing dementia or dying.
- If you are worried about your blood pressure or cholesterol and are over the age of 40, your GP can check these for you as part of the NHS health check.
- If we live a healthy lifestyle we can lower our risk of developing dementia.

The aim for this study

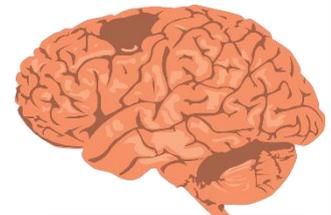
To find out if risk factors that are present soon after somebody has had a stroke, could predict their chance of developing dementia.

Why are we doing this study?

A person is more likely to develop dementia after they have had a stroke. We would like to find out why.

What we did

- Overall, we studied stroke survivors over the age of 75 for up to 8 years to see who developed dementia or died.
- We included people who did not have dementia immediately after their stroke.
- We did a blood test to look for a specific gene called the APOE gene. This can be passed down from your parents. Previous work has found that a form of this gene, (the APOE ϵ 4 allele) increases the risk of dementia. This can be passed on from a parent to child. This is a known cardiovascular risk factor. These are factors which cause gradual damage of blood vessels.



An image of the brain



An image of DNA. DNA is made up of many genes

What we did continued...

- Then we looked at each person's medical history which tells us if they have cardiovascular risk factors. In this study we looked at the following risk factors to see if they caused somebody to be more likely to develop dementia. In this study we looked at the following cardiovascular risk factors:
 - Smoking
 - Age
 - Gender
 - Depression
 - High blood pressure
 - Diabetes
 - A previous stroke
 - A previous disabling stroke
 - Heart disease
 - High levels of cholesterol
 - Atrial Fibrillation (AF). It causes an irregular heart beat
 - APOE ε4
- If we found any of these cardiovascular risk factors in the medical history, we added these up.
- Next, we conducted a brain test on each person. The brain test is called a 'Cambridge Cognitive Examination' (CAMCOG). We did the brain test by asking each stroke survivor a series of questions. This test tells us how well the brain is functioning. It tests lots of different brain functions such as short term memory, long term memory and problem solving. These scores are compared to a normal score for somebody of that age without a stroke.
- After this, we did a test which tells us if somebody has low mood or depression. This test is called the 'geriatric depression scale'. In this questionnaire where people are asked about their mood in the past week.



What did we find?

- That 15 months after having a stroke, one tenth of people developed dementia.
- As people aged, more people in the study developed dementia.
- All of these cardiovascular risk factors did increase the risk of developing dementia.
- People who had **three of more cardiovascular risk factors** had the greatest risk of developing dementia or dying.
- The cardiovascular risk factors that increased the risk of dementia or dying the most were: an **overall low brain test score, low brain test scores in problem solving and memory** (low scores suggests lower brain function), **having a previous disabling stroke, having depression and older age** (as people become older the risk of developing dementia increases).

Key message: We cannot control three of these cardiovascular risk factors which are our age, gender and having the APOE ϵ 4 allele. However, we can control the other cardiovascular risk factors.

To **lower** your cardiovascular risks, (and therefore reduce your risk of developing dementia after a stroke) you should do the following:

- Do not smoke
- Eat healthily, eat plenty of fruit and vegetables
- Keep physically active
- If you have high blood pressure or diabetes do your best to follow medical advice.
- Ask your GP to check your blood pressure, pulse (to check for irregular heart beat) and cholesterol levels. If you are over 40 your GP should offer you an NHS check to have this done.

At the moment the NHS does not test for this APOE ϵ 4 allele as we do not have treatments for it. In the future, if treatments do become available then we can test for this allele and try to help lower people's risk of developing dementia.

If you or a member of your family have had a stroke, this alone puts you at a greater risk of developing dementia so it is really important that you try to live a healthy lifestyle to lower your risk



An image of DNA

