

# Head Topics

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## 'Clogged drains' symptom may be an early sign of Alzheimer's



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People with mild cognitive impairment were more likely to display the 'clogged drains' symptom

A condition causing 'clogged drains' in the brain may be an early red flag of dementia, new research shows. Scientists now believe they can identify these blockages through standard MRI scans, which could aid existing methods for detecting Alzheimer's disease earlier.

The study, conducted by Nanyang Technological University in Singapore, involved nearly 1,000 people from diverse ethnic backgrounds. Participants underwent thorough assessments and were classified as having 'normal' cognitive function, 'subjective' cognitive decline, or mild cognitive impairment. Their MRI scans, blood samples and other data were subsequently analysed.

Overall, scientists found that people with mild cognitive impairment tend to have more 'enlarged perivascular spaces' than other participants. This condition describes fluid-filled cavities surrounding small blood vessels that become enlarged and are visible on an MRI.

Now, the team believe EPVS - or 'clogged drains' - is a likely early indicator of Alzheimer's disease, the most common form of dementia. Associate Professor Nagaendran Kandiah, from NTU's Lee Kong Chian School of Medicine, said: "Since these brain anomalies can be visually identified on routine magnetic resonance imaging scans performed to evaluate cognitive decline, identifying them could complement

existing methods to detect Alzheimer's earlier, without having to do and pay for additional tests."

Blood vessels in the brain are encased by spaces known as perivascular spaces, which facilitate the drainage and clearance of toxic waste, including beta amyloid and tau proteins. These waste products are found in higher quantities in Alzheimer's patients.

If these drains become blocked because the brain's waste-clearing system does not work properly, they develop enlarged perivascular spaces visible on MRI scans. However, it was previously unclear whether this condition is also associated with dementia, particularly Alzheimer's disease.

Based on their new findings, scientists are now optimistic that clinicians can enhance patient treatment and potentially slow the progression early on before permanent brain damage occurs. If further research confirms the connection between clogged drains and Alzheimer's in different populations, identifying EPVS could also eventually become part of the toolkit used to predict Alzheimer's development at an earlier stage.

Associate Professor Kandiah continued: "The findings carry substantial clinical implications. Although white matter damage is more widely used in clinical practice to evaluate for dementia, as it is easily recognised on MRI scans, our results suggest that enlarged perivascular spaces may hold unique value in detecting early signs of Alzheimer's disease."

#### What is Alzheimer's disease?

NHS figures indicate that over 944,000 people in the UK have dementia, including one in every 11 people over 65 years old. According to the World Health Organisation, Alzheimer's disease is the most prevalent type of dementia, representing roughly 60 to 70% of cases.

While the exact cause of Alzheimer's is still not yet completely understood, there are numerous factors associated with an increased risk. These include:

Alzheimer's is a progressive condition, meaning its symptoms develop gradually over many years. Typically, the initial symptoms present as minor memory issues, such as misremembering names or forgetting conversations.

Guidance from the NHS adds: "There's currently no cure for Alzheimer's disease, but medicines are available that can help relieve some of the symptoms. Various other types of support are also available to help people with Alzheimer's live as independently

as possible, such as making changes to your home environment so it's easier to move around and remember daily tasks.

"Psychological treatments such as cognitive stimulation therapy may also be offered to help support your memory, problem-solving skills and language ability."

Anyone who believes they are experiencing symptoms of Alzheimer's disease is advised to consult their GP. More information can be found on the NHS website.

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