Capturing culprit behind Alzheimer’s

For first time here, researchers capture ‘live’ images of the protein linked to dementia

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Doctors have long known that people with Alzheimer's disease develop changes in a protein called amyloid in their brains — the problem was identifying this condition early.

Now, in a first for Singapore, researchers at the Clinical Imaging Research Centre (CIRC) have managed to capture “live” images of these protein deposits in people’s brains.

This paves the way for better diagnosis and treatment of Alzheimer’s disease, which is the main cause of dementia in up to 50 per cent of cases at older ages.

Associate Professor Christopher Chan, who spearheaded research that led to this breakthrough, said amyloid is deposited in the brain long before people start showing symptoms. These microscopic proteins are thought to stop brain cells from sending signals to each other or to even divide and grow.

“They were too keen on the concept that Alzheimers’ disease on just cognitive symptom, we are missing opportunity to treat or even study it,” said Prof Chen, who is from the department of pharmacology and medicine at the National University Health System.

“The ability to see these changes in the brain are very important.”

Previously, scans allowed doctors to pick up changes in brain structure or activity, but not conclusively say if someone has Alzheimer’s, being able to do so could change how the disease is treated, said Prof Chen. For instance, a validly seen image could get a better idea of who to pick for early-stage treatments.

“This kind of imaging is also useful to monitor how treatment is effective, for us to see if the amyloid load is actually reducing,” Prof Chen said.

It could also help doctors understand why some people with mild cognitive impairment become Alzheimer’s patients and others do not.

Dementia affects an estimated one in 20 people aged over 60 in Singapore, where the proportion of seniors is expected to double to 906,000 by 2050.

Prof Chen’s team at the centre, which was jointly established by the Agency for Science, Technology and Research (A*STAR) and the National University of Singapore, is recruiting 100 people with cognitive impairments for a study to detect the presence of amyloid in their brains.

Ten of these would have already been diagnosed with Alzheimer’s disease, while the other 100 would have mild cognitive impairment.

The team will be injecting tests a radiopharmaceutical, which travels to amyloid deposits in the brain.

“By SIGN up to 60 per cent of the area of the brain, we will be able to see amyloid inside the brain,” Prof Chen said.

If their hypothesis is confirmed, this would be a significant breakthrough.

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