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Better treatment for stroke patients on horizon

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Two molecules may provide, for the first time, an indication of which stroke patients will suffer a further, long-term neurological deficit, allowing doctors to tailor treatment more effectively.

Subarachnoid haemorrhage (SAH), a form of stroke, affects around half a million people worldwide each year. Nearly 50 per cent of patients who survive the initial haemorrhage die within 30 days, with survivors likely to suffer permanent disability.

A study by Dr Sanjaya Kuruppu and Professor Ian Smith of Monash University and clinicians at Harvard Medical School, Dr Mingming Ning and Dr Sherry Chou, has shown that there may be a way to predict the sub-group of SAH patients that will suffer severe long-term disability.

By assessing the cerebrospinal fluid of SAH patients, the researchers discovered that in the three days immediately following the stroke, an enzyme, endothelin converting enzyme-1 (ECE-1) and its substrate big endothelin-1 (BigET-1) were elevated in patients that suffered a disability that severely impacted on their capacity to self-care.

Dr Sanjaya Kuruppu, of the Monash Department of Biochemistry and Molecular Biology said the discovery was a breakthrough in treating a deadly and unpredictable condition.

"This is the first time doctors have had an early and accurate indication that disability will occur, giving them time to focus appropriate and

aggressive therapies on this group of patients," Dr Kuruppu said.

"More importantly, it provides families with information required to make crucial decisions about subsequent long-term care."

As cerebrospinal fluid is routinely monitored following SAH, testing for elevated levels of ECE-1 and BigET-1 would have no negative impact on patients.

Professor Ian Smith, Pro Vice-Chancellor (Research and Research Infrastructure) was the lead researcher on the project at Monash.

"The next step in bringing this breakthrough to a clinical setting is to develop the technology to enable rapid diagnosis in a hospital setting and we're currently making progress on this," Professor Smith said.

The Monash researchers, again in collaboration with Harvard, are planning a larger clinical study in the near future. They aim to determine the exact threshold level of the molecules required to classify a patient as being at high risk of developing long-term disability.

Provided by Monash University

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