Enabling prediction for patients with acute ischaemic stroke (AIS): (i) likelihood of responding to a thrombolytic agent before any treatment and (ii) risk of developing symptomatic intracerebral haemorrhage (sICH) after thrombolytic treatment.

**THE CHALLENGE**

Acute ischaemic stroke is a devastating clinical problem that occurs due to the presence of a blood clot in the brain blood vessels. The golden standard practice to remove these clots pharmacologically is by the use of the only FDA-approved thrombolytic drug called tissue-type plasminogen activator (t-PA).

However, there are significant clinical issues associated with t-PA treatment, with its administration being effective in less than 30% of AIS patients. It has no effect at all in more than 50% of cases, but can cause harm.

From a clinical perspective, of greatest concern is that in 3-5% of AIS patients treated with t-PA, a major intracerebral bleeding event can occur sICH. This is potentially devastating, with mortality occurring in ~50% of patients with sICH.

There is an urgent need to be able to identify and classify, before the administration of thrombolytic treatment, whether patients with AIS will respond to thrombolysis and, most importantly, whether they could develop sICH.

**THE TECHNOLOGY**

The Monash team led by Prof Robert Medcalf have invented a method and an assay for measuring the response of fibrinolytic markers to a thrombolytic agent added to a patient sample with AIS. This has the advantage of assisting a treating clinician to determine the likelihood of a particular therapeutic outcome in a patient in need of the thrombolytic agent. In turn, this assists the clinician with devising a thrombolytic agent treatment protocol, strategy or dosage.

In particular, the team defined the baseline characteristics of fibrinolytic markers in plasma from AIS patients prior to thrombolysis and baseline levels of those markers altered by tPA treatment.

They determined the levels of thrombolytic agent induced fibrinolytic markers correlated with recanalisation and absence of recanalization.

All together, they were able to develop a method of determining the likelihood of thrombolysis outcome.

First indication showed that this invention also has the potential to be used for determining level of risks of adverse events, such as developing symptomatic haemorrhagic transformation and the characterization of an acceptable dosage of a thrombolytic agent and plasminogen activator for a patient in need.

Intellectual property: An Australian provisional application, directed to methods and assay for thrombolysis outcome prognosis, has been filed (May, 2018).

**THE OPPORTUNITY**

Monash University seeks a commercial partner to develop the assay into a point of care device.

**CONTACT US**

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