

Thesis abstract

Multimodal computed tomography: future applications in acute ischemic stroke

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Abstract of a thesis for a Doctorate of Philosophy (Medicine) submitted to the University of Newcastle, Australia

We live in exciting times for stroke medicine. Acute reperfusion stroke therapies have changed dramatically. What we could do 10 years ago has no comparison with what we can offer patients today. It is difficult to imagine that such rapid progress in the stroke field would ever happen.

Some of the old mantra such as ‘time is brain’ have been found to be only partially true. Time is still important — after vessel occlusion, neurons are dying! However, the pace at which neurons die is very different between patients. Therefore, using time from symptom onset to identify patients as candidates for treatment has become obsolete (one size does not fit all).

The stroke neurologist needs to be familiar with the new imaging modalities, computed tomography perfusion (CTP) being the most relevant. However, CTP is still ‘the new kid on the block’; we know a lot about it, but there remain many grey areas about its use and its limitations.

I attempt in this PhD to expand the limits of what has been currently described about CTP in ischaemic stroke patients, taking two directions: current use and expandability from comprehensive stroke centres to rural hospitals, and new possible uses, focusing on the role of CTP in small subcortical lacunar strokes and a possible correlation between CTP and left ventricular cardiac function.

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