

Stroke

What is stroke?

Stroke (also known as a cerebrovascular accident) occurs when the brain's blood supply is suddenly compromised or blocked.

Normally, oxygen-rich blood travels to the brain through the arteries. Blood flow to the brain can be suddenly impeded by a blood clot or (cholesterol-containing) fatty material called plaques – or if the artery breaks or bursts.

If the brain doesn't receive the oxygen it needs, nerve cells start to die and this can lead to permanent damage.

Depending on the size and location of the stroke, its damaging effects can range from being hardly noticeable to varying degrees of paralysis, coma or even death.

A stroke sometimes affects a person's ability to speak or control the muscles on one side of their body.

These symptoms occur because impeded blood flow has resulted in damage to one or more parts of the brain.

What is a TIA?

A Transient Ischaemic Attack (TIA) – which is also referred to as a "minor" or "mini" stroke – is so named when the signs of stroke are present but go away within 24 hours.

The causes and symptoms of a TIA are similar to those of a stroke.

TIA episodes usually last for only a few minutes, but they are also known to linger for several hours.

Unfortunately, because the symptoms of TIA usually disappear quickly, the warning signs are often ignored.

About one-in-five people who have a TIA will have a major stroke within the next three months.

Research at QBI

To some extent, the brain appears to be equipped to repair itself as some areas produce thousands of new, potentially viable, nerve cells every day — through the process of neurogenesis.

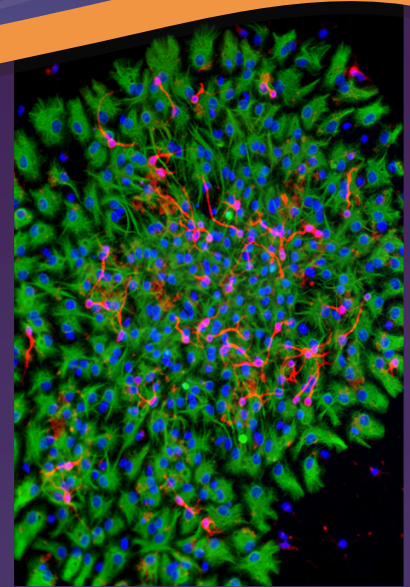
Frustratingly, only about 50 per cent of these new cells appear to integrate with the brain.

However, it is this apparent ability to self-repair that continues to be the focus of extensive scientific investigation.

Cell death following stroke involves both acute (necrotic) and delayed (apoptotic) mechanisms. During research undertaken to elucidate the process by which neurons die during development, QBI scientist Dr Elizabeth Coulson uncovered a novel cell death-signalling pathway, mediated by the p75 neurotrophin receptor protein, p75NTR, which is also active in dying neurons in the adult during neurodegeneration. It is the delayed apoptotic phase of cell death in which p75NTR is implicated, and research is now underway to find ways in which to prevent this death from occurring. This may well prove a more medically relevant strategy than targeting acute cell death, given that it is often common for a delay of 2-12 hours to ensue before a stroke patient presents to a medical facility.

QBI is among a select group of research centres dedicated to finding a way to regulate neurogenesis — an achievement which will lead to the development of therapeutic treatments for the many neurological conditions caused by brain damage or disease.

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Fast facts

- Stroke is the second single greatest killer and one of the leading causes of disability amongst adults in Australia.
- 53,000 strokes occur in Australia every year with a stroke occurring every 10 minutes. With the ageing population this number could rise to 74,000 by 2017.
- Of the 53,000 people who experience a stroke each year, one-third will die in the first 12 months.
- About 350,000 Australians who have suffered a stroke are living in the community.
- While stroke is more common amongst the elderly, it is not isolated to this age bracket. More than 50% of strokes occur to people under the age of 75 and about 5% of strokes occur in people under the age of 45.

Source: National Stroke Foundation

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