Lay Summary

BRAIN UK Ref: 17/015

Inflammatory and vascular changes after brain haemorrhage: a neuropathological assessment of human tissue

Dr Anan Shtaya, St George's, University of London

Bleeding into the brain (a brain haemorrhage) happens in 10 to 15% of all strokes. It is also called ICH (intracerebral haemorrhage). When this happens the chances of dying or being disabled are much higher than a stroke caused by a blood clot (an ischaemic stroke). ICH is a medical emergency because of the high risk of brain injury and dying of brain cells. In certain situations surgery may be a treatment option. If surgery can be done quickly, the blood mass in the brain (haematoma) can be reduced, which reduces the inflammation and swelling in the brain. This potentially can reduce nerve cell death but the overall benefit from surgery to date is limited.

While clinical trials have explored the role of surgical removal of the blood mass and/or dissolving it, the reaction of the brain while trying to resolve the blood mass and repair the damage is still unclear. Animal studies have shown activation of not only an inflammation process but also an anti-inflammation (repair) process following ICH. If the anti-inflammation process is activated in human that ICH can be better treated. In our study, we would like to investigate the inflammatory and anti-inflammatory responses after ICH in post-mortem human brains to help understand how the human brain repairs itself and absorbs the haematoma. Our results may guide future studies and/or treatment approaches to treat ICHs.

Publications:

Date	Publication title
2019	Rapid neuroinflammatory changes in human acute intracerebral haemorrhage.
2021	Innate immune anti-inflammatory response in spontaneous intracerebral haemorrhage