

TCS/18/19 – Whole- brain Human Ischaemic Stroke Perfusion and Extended Re-canalisation (WHISPER)

Ischemic stroke is caused by a blood clot blocking an artery in the brain. “Clot-busting” treatment is effective if started within 4.5 hours after stroke onset, and clot removal (“thrombectomy”) up to 6 hours after symptoms appear. Scans of brain blood flow can distinguish irreversibly damaged brain tissue from tissue that is still rescuable. Recent studies show that clot removal may be useful for longer periods, maybe up to 24 hours, in some patients with favourable blood flow scans. However, it is not known what proportion of people have significant amounts of rescuable brain tissue, what factors predict its loss, or the speed with which tissue becomes permanently damaged. We wish to investigate people within the first 24 hours after onset of stroke symptoms with blood flow scans to investigate how many people are affected, and to extend our previous investigations into what factors determine the development of irreversible damage. In particular, we will explore the role of raised blood sugar in preventing the opening of blood vessels that maintain some flow to the tissue that is at risk.