

Thrombectomy Q&A Meeting

17th November 2020

Meeting note

Chair Jane-Claire Judson, CEO of Chest Heart & Stroke Scotland introduced the panel members:

- Dr Angus Cameron, Chair of the Thrombectomy Advisory Group
- Professor Martin Dennis, Chair of the National Advisory Committee on Stroke and Specialist Advisor on Stroke to the Scottish Government's Chief Medical Officer
- Katrina Brennan, Stroke Improvement Coordinator for the Scottish Government
- Dr Paul Armstrong, Lead Neuroradiologist, Institute of Neurosciences at University of Glasgow

Professor Martin Dennis gave a brief introduction to thrombectomy, outlining how the procedure is carried out, the circumstances when they can be done, and the impact that they have on people's chances of recovery after stroke.

- Thrombectomies can be performed where a patient has an acute ischaemic stroke, where the clot is in a large artery in the brain and stops blood flow. If that is unblocked, the brain has opportunity to recover. There are 2 ways of doing this – the first is thrombolysis (a clot-busting drug), or a thrombectomy.
- Thrombectomies involve a thin catheter being inserted into an artery in the groin and pushed up into the brain to remove the clot. If successful it can improve the patient's outcome dramatically.
- They are usually carried out by interventional neuroradiologists (INRs) working within a specialist operating theatre called an angio-suite, with a team including anaesthetists, specialist nurses, and radiographers. Only specialist hospitals have these facilities, and so people will often need to be transferred by ambulance from their local hospital.
- Ideally thrombectomies need to be carried out within 6 hours of a stroke.
- Who benefits from thrombectomy? Patients with an ischaemic stroke in a large artery. CT brain scans are carried out to look at the arteries and determine whether a thrombectomy is possible.
- Thrombectomy can be done in addition to thrombolysis, or to patients who can't receive a thrombolysis (such as patients on anticoagulants).
- Thrombectomy improves the patient's chances of recovery after a stroke, but it's not a guarantee. If 100 people are treated with thrombectomy, about 60 will not improve, but 40 will, 20 of whom will avoid being dependent on others for their care. Combined with using thrombolysis, about half of patients benefit.

- There are 22 hospitals in Scotland who can give thrombolysis, carry out a CT scan, and identify if a patient is suitable for thrombectomy. They will then be able to refer patients to one of the 3 thrombectomy hubs which are planned, in Dundee, Edinburgh and Glasgow.

Dr Angus Cameron summarised the progress that has been made in planning for a national thrombectomy service.

- About 9,500 strokes occur every year in Scotland, of whom around 900 would be suitable for thrombectomy. They are selected on basis of the CT angiogram, and it's estimated about 3,000 angiograms will be needed across the 22 hospitals.
- The budget needed for a national thrombectomy service is over £20m each year.
- Development of the service has met with problems, in particular a national shortage of trained specialists (INRs), lack of specialised equipment; and the need for the right staffing and urgent pathways to be in place.
- But we do have a commitment to financing the service from the Cabinet Secretary for Health as result of lobbying from Chest Heart & Stroke Scotland and campaign supporters.
- Earlier this year there were just 3 INRs in Scotland, but a need for 6 INRs to provide existing (non thrombectomy) services to tackle aneurysms/haemorrhagic stroke. Now Edinburgh have successfully recruited one new INR, and Glasgow have recruited 3 INRs who will be in post in February 2021 which is a significant step forward.
- In Tayside, interventional radiologists have been trained to deliver thrombectomies. They are being supported by an INR recruited to Dundee. Their thrombectomy pilot service is now live, and available between 9-5pm.
- Equipment is another issue with, both Edinburgh and Glasgow needing new angio-suites and there have been delays to this, but on track for late 2021/early 2022.
- Edinburgh is planning to start their pilot thrombectomy service in April/May 2021, initially a limited daytime service for ERI patients which will then be expanded in phases to cover the east of Scotland with a 24/7 service.
- Glasgow is also aiming to start with a pilot, but will probably need a new angiogram suite to be established first.
- Urgent pathways are needed to ensure people get a thrombectomy rapidly. Hospitals which receive stroke patients have been assessed to check they can provide the necessary CT angiogram, and training in interpretation of the angiograms has been provided.
- A lot of work has been carried out by the Scottish Ambulance Service to make sure the necessary pathways are in place which will ensure stroke patients are transferred to a thrombectomy centre. as soon as possible. They will receive significant funding to ensure emergency transfer of thrombectomy patients to the specialist centre is a deliverable priority,

Katrina Brennan gave reassurance that the groundwork is being done now across Scotland to get the necessary pathways in place, with training carried out to ensure staff are prepared

across the system. Getting this preparatory work done in Tayside meant they could begin their pilot without delay.

Robert Baldock outlined his experience of a severe stroke and receiving a thrombectomy in 2017. As thrombolysis wasn't effective, a thrombectomy was the only alternative. He was one of the last people in Scotland to have a thrombectomy until now. Despite his recovery being slow and having communication difficulties he has tried not to let that hold him back. Whilst it's great that Tayside now has a pilot service, for the rest of the country in meantime there are 100s of people each year not getting best chance of life after stroke.

Question: Why is a service running in Tayside before Edinburgh or Glasgow, where thrombectomies have been previously carried out?

Answer from the Panel: INRs in Edinburgh were covering the service for the whole of Scotland, and thus very stretched, and thrombectomies were previously only available as a matter of chance, on an ad hoc basis, if the specialists and theatre were available. Small numbers also meant less on-going experience for the team, and so the Medical Director in Lothian decided to stop thrombectomies until adequate staffing and facilities were in place. The investment in Edinburgh now includes extra nurses, an additional stroke physician, anaesthetist, radiographers, radiologists - the team is now in place to get a pilot thrombectomy service in place in April/May 2021.

Q: What safeguards are there to ensure people having a stroke can get access to the right health professionals and treatment in the necessary window of time?

A: The stroke pathways for all of Scotland's stroke hospitals have been reviewed to make sure they are fit for purpose and that stroke patients can get a rapid and professional assessment, including CTA. The ambulance service will pre-alert the hospital that a stroke patient is coming into A&E, and emergency preparations are then made to put them immediately on the stroke pathway on arrival.

It's important to also stress the FAST campaign message so that the symptoms of stroke are recognised quickly and 999 called.

Q: Will technology extend the window for offering thrombectomy?

A: Ideally thrombectomies are carried out within 6 hours of a stroke, but it's not always clear when a stroke has happened, especially if it may have been during the night whilst the patient was asleep. If a patient wakes up with the symptoms of stroke or can't communicate it's difficult to know when the stroke took place. Advanced brain imaging like CT angiogram or CT perfusion is critical to identify if the damaged parts of the brain are salvageable.

CT perfusion scans use dye to show the blood supply to the brain and enable identification of potential to restore the blood flow. The interpretation of the scans is complex and difficult, and new technology such as artificial intelligence (AI) is in the early stages of development which sees computer algorithms assess a brain scan by mapping out the different parts of the brain and blood flow, measuring the relative salvageability.

CT angiograms are pivotal to diagnosis, and they are a specialist test which not all radiologists feel confident in rapid interpretation. Specialists are in short supply, and AI offers the opportunity to support radiologists and stroke physicians. It's an exciting development but more work needed to look at how to incorporate it.

Q: Are thrombectomies effective if someone has had a carotid artery dissection?

A: Yes, there have been some good results for treating dissections with thrombectomy, as long as the stroke results from a blocked artery in the brain.. Dissections are a relatively rare cause of stroke.

Q: Have the odds of success from a thrombectomy improved in recent years?

A: Yes, particularly with improved brain scanning, new tools such as suction catheters which quickly suck out the clot, and increased experience of health professionals gaining expertise in delivering thrombectomies. Thrombectomy is generally a very safe procedure, more so than thrombolysis which can increase the risk of bleeding. A larger proportion of patients are being treated more effectively, and increasingly beyond the 6-hour window if brain scan shows salvageable brain.

Q: Why was the thrombectomy service stopped in Edinburgh?

A: Staffing was the main issue – there weren't enough interventional neuro-radiologists (INRs) available to provide a safe and consistent service, and there was no capacity for thrombectomy on top of existing workload treating patients with sub-arachnoid haemorrhagic stroke/aneurysms. So the service was reluctantly stopped.

Q: If thrombolysis isn't possible for someone on anticoagulants, and a thrombectomy isn't available, is it worth even seeking treatment?

A: Yes, stroke symptoms must always be considered an emergency – call 999 for an ambulance. Only a brain scan can fully diagnose what has happened. Anticoagulants can increase the risk of a bleed on the brain, and an urgent assessment would be needed. Thrombectomies will be increasingly available across the country as time progresses.

Q: Is it possible to treat historic stroke?

A: No, that's not possible. Once the brain cells have died the body is unable to replace them. This is the reason that thrombectomy is so time-critical.

Q: Have previous projects to target men in order to check their blood pressure been successful in reducing stroke prevalence?

A: Stroke prevention is a hugely important issue, and it's vital we identify people with high blood pressure or atrial fibrillation so that they can be treated, and this has been tried in different ways by targeting key groups. NHS Dumfries & Galloway employed 2 nurses to target lorry drivers on the ferry route to Ireland for example. Issues such as managing diet, stopping

smoking, reducing alcohol intake are important too. National work is underway to find better way of identifying people with atrial fibrillation so they can be treated with anticoagulants. People with AF tend to have worse strokes, and more likely to benefit from thrombectomy.

Q: Is there any chance a Glasgow thrombectomy service will be running before 2023?

A: The panel is hopeful the service will begin next year.

Q: In Edinburgh why will the thrombectomy service operate out of the Royal Infirmary instead of the Western General?

A: This is due to long-term plans to relocate the department of clinical neurosciences to Little France. This was delayed until July this year. The Western doesn't take patients with hyperacute stroke, but RIE admits 1,000 patients with stroke each year. So patients would have had to be transferred to RIE for thrombectomy.