Stroke Clot Retrieval
Treatment for ischaemic stroke

You have had an ischaemic stroke.

The stroke team consists of nurses and doctors from the Medical, Neurology and Emergency Departments (ED). Together, we will work quickly and safely to ensure that you get the right care. Not every person or type of stroke is suitable for all treatments, and we will discuss this with you.

What is stroke?

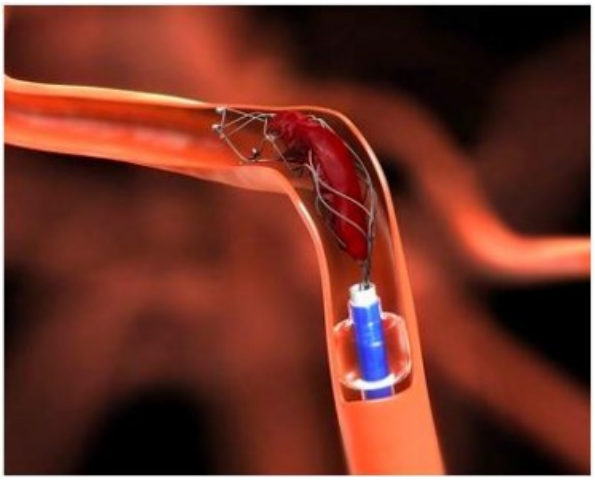
There are two types of strokes. It can either be an ischaemic stroke where there is a blockage (clot) that stops blood flow in the brain or haemorrhage (bleeding into the brain from a damaged blood vessel). The only definite way to know is a Computed Tomography (CT) scan that is very good at identifying blood in the brain. There are different treatments for the different types of strokes.

What is a stroke clot retrieval and why is it needed?

Your type of stroke (ischaemic) is caused by a blockage in one of the arteries that supply blood to the brain and if untreated can cause irreversible damage. Sometimes this clot can be dissolved by clot busting drugs (thrombolysis) which may have been given already. Often however, a clot busting drug alone is not enough and clot retrieval is needed to remove the blood clot and return the blood flow to the brain.

Clot retrieval is an emergency procedure that is performed by a consultant doctor called an Interventional Neuro-Radiologist. The doctor uses special equipment such as a small wire mesh tube (stent retriever) or small suction devices to remove the clot and return blood flow to the brain. These are inserted through an artery in the groin or wrist. The procedure usually takes 30-60 minutes, but in some cases can take longer. It is not unusual to be away from the ward for 2-3 hours. It usually requires a general anaesthetic which means going to sleep for the procedure.

Transfer to Auckland, Wellington, or Christchurch



(Picture from google images medpagetoday.com)

Stroke clot retrieval (SCR) is available in three hospitals in Aotearoa New Zealand. Travel is by helicopter, fixed wing air ambulance, or road ambulance. Paramedics, a nurse, and/or sometimes a doctor will monitor you during your journey. It usually is not possible for a family/ whānau member to be transported with you and therefore they will have to make their own way. When you arrive at the SCR Hospital, in most cases you will go straight to the procedure room where a Neurologist will re-assess you. On occasion you may stay in ED or the stroke ward until the procedure room is ready. Sometimes the procedure is no longer required or beneficial to you by the time you arrive at the SCR hospital and in these cases, you may be immediately returned to your referring hospital on the same helicopter / ambulance that you arrived in.

Benefits of stroke clot retrieval

Ischaemic strokes caused by larger blood clots have much better outcomes with clot retrieval than only having the clot busting drug. Removing the blood clot can lead to greater independence and mobility. For most patients about 1 in every 3 people (between 25-58%) treated with this procedure will regain independence as a result of having the procedure. There are some exceptions to this and if this applies the team will discuss these with you.

Risks of stroke clot retrieval

There are risks related to clot retrieval. The contrast dye that we use for the procedure carries a small risk of an allergic reaction and can rarely affect kidney function. There are risks related to the injection site in the groin or wrist. These include bleeding, bruising, or infection. There is a small risk of damaging the arteries. Very rarely, the procedure can cause another stroke or bleeding in the brain related to the procedure which can lead to disability or death.

Risks and benefits are displayed in picture format in Appendix 1 and if you would like a more detailed description of potential risks please see Appendix 2.

This is an emergency and potentially life-saving procedure and the person having a stroke is often not able to consent. In this situation, the doctors may agree that it is in your best interest to proceed without written consent. When achievable and within the required time frames verbal consent from yourself or your family will be obtained.

After clot retrieval

After the procedure you will go to the post-operative recovery ward and from there to either the stroke unit or the Intensive Care Unit. The nurses will frequently check things like your blood pressure to monitor your progress. You will remain on bedrest for about a day to prevent complications.

The day after your procedure you will have a routine follow up scan of your head. The neurologist will check to see how you are recovering and once deemed appropriate, they will organise transfer back to your local hospital. Usually this happens within 1-2 days of the procedure but occasionally a bit longer.

Other things to know

- A list of accommodation options can be provided to your whānau and in some cases they may be eligible for an accommodation supplement. Please ask the nursing staff about this.
- Many stroke wards have low stimulus environments and may restrict the number of people at the bedspace at a given time in the immediate phase following the procedure. Also visiting hours differ between hospitals. Please consider ringing ahead of your visit.
- For additional information on your stroke journey please visit this online resource prepared by the National Programme Consumer Panel: QR code

QR code to be inserted once available

Contact details:

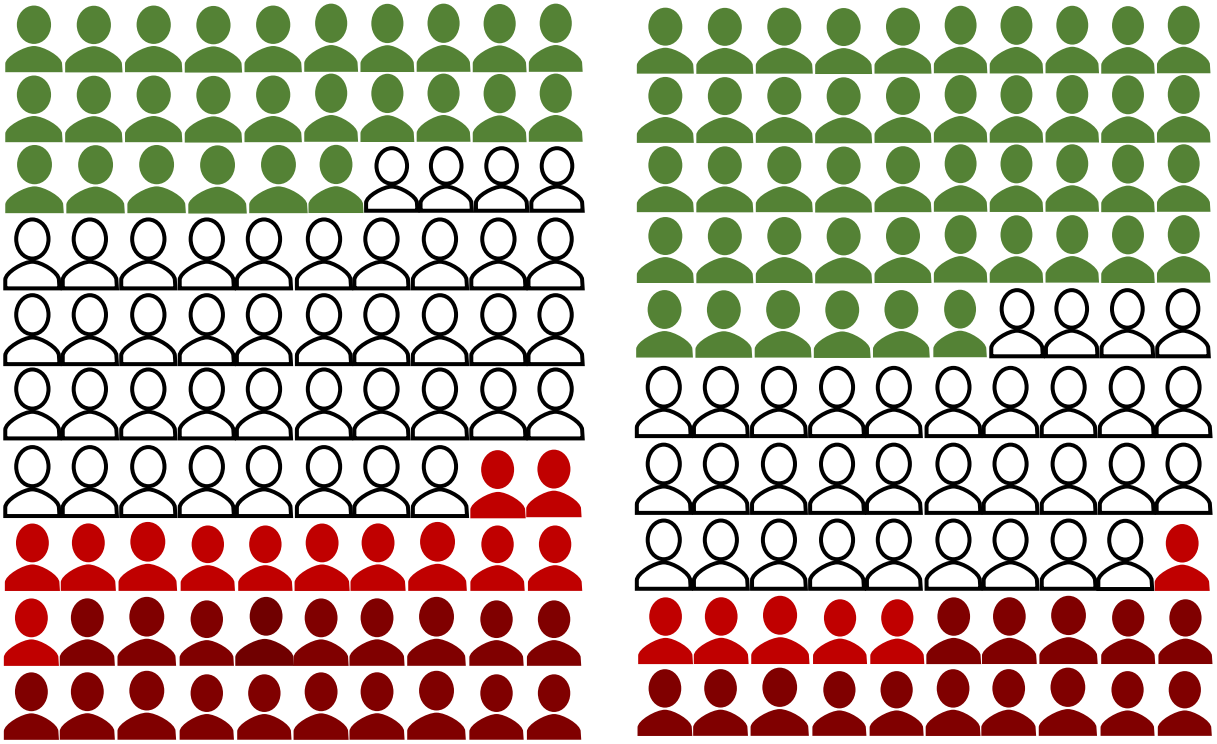
Auckland Hospital 24/7: (09) 307-4949 ask for ward 51. **Wellington Hospital**: Weekdays 8-4pm: Stroke Nurses Lai-Kin (027-242-5122) or Alicia (027-381-3449). After-hours: (04) 385-5999, ask for Wards 7 South. **Christchurch Hospital**: Weekdays 8am-4pm: Stroke Nurse Rose (021-198-4481). After-hours: (03) 364-0640, ask for Ward A8.

Appendix 1

The below graphic depicts outcomes for people with a similar stroke to yours at three months depending on whether they received only clot busting medication or clot busting medication plus clot retrieval procedure.

Stroke Outcomes at 3 months ONLY clot busting medication

Stroke Outcomes at 3 months clot busting medication AND clot retrieval procedure



Data based on the Hermes Meta-analysis https://doi.org/10.1016/S0140-6736(16)00163-X

Green = fully independent; clear = dependent on others for at least some activities of daily life; light red = fully dependent/bed bound; dark red = deceased

Appendix 2

Detailed description of all potential risks associated with Stroke Clot Retrieval:

- **Radiation.** Before the clot is removed a radiographic image is obtained to guide the SCR procedure. This is called an angiogram and involves additional radiation exposure. As part of everyday living, we are all exposed to naturally occurring background radiation and receive a dose of about 2 millisieverts (mSv) each year. The radiation dose from angiograms is about 3.5 mSv. At this dose, no harmful effects of radiation have been demonstrated, as any effect is too small to measure.
- **Allergic reaction.** Mild allergic reactions to contrast dye may occur in up to 2 to 4 in 100 people (2 to 4%) having an angiogram. Severe reactions to contrast dye occur in 1 person in 1000. People are monitored for all possible allergic responses during the procedure. There is also a risk of kidney problems or kidney failure after receiving contrast dye during the angiogram. Kidney function and individual risk factors will be evaluated before the angiogram. Fluids into the vein are given during these procedures to help avoid this problem.
- **Wound complications.** The angiogram requires a needle puncture in the groin or rarely the wrist for the catheter to enter the blood vessels. This puncture may be associated with bleeding, bruising, or infection.
- **Damage to an artery.** This can entail making a hole or tear, blockage of an artery due to blood clot formation or breakage of the wires and small tubes used to perform the study. The occurrence of these events could make the condition worse or even cause a stroke. Generally, complications like these occur in 3 to 5 in 100 (3-5%) of all people having an angiogram for the purposes of clot retrieval.
- **Bleeding into the brain.** About 5% may experience bleeding into the brain in relation to the procedure. People will be observed very carefully for any signs that indicate bleeding, and a brain scan will be done to check for this, usually on the next day.
- **Sedation and anaesthesia.** A sedative and/or anaesthesia (which will make a person sleep with placement of a breathing tube in the throat), will be used if it is considered necessary for safety and comfort. Common risks of anaesthetics and sedative drugs include drowsiness, sore throat and nausea and vomiting. They can also interfere with blood pressure and breathing. This means a specialist anaesthetist will be present to manage these issues.