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Geniculate artery embolisation procedure (GAE)

This leaflet explains what geniculate artery embolisation (GAE) is, what happens during the procedure and what the possible risks are. It is not meant to replace informed discussion between you and your doctor, but can act as a starting point for such a discussion.

Why do I need this procedure?

GAE treatment aims to reduce the pain, inflammation and symptoms of osteoarthritis of the knee.

What is GAE?

GAE is done as a day case so you get treated and go home the same day; it is usually carried out using local anaesthetic and sedation. A small plastic tube, called a catheter, is positioned into the arteries supplying the tissue within the knee joint. Small particles of a blocking material are then injected via the catheter, which block the tiny abnormal arteries supplying the inflamed tissue, cutting off the blood supply.

To get the catheter to the knee arteries, it is inserted via a small cut in the artery in your groin after the area has been numbed by local anaesthetic. X-rays are used to see the catheter and a contrast dye is injected so the arteries show up on an X-ray picture to ensure the catheter is in the right place.

What are the risks of GAE?

- There is a small risk (1 in 1000) of a severe reaction to the contrast dye which would need treatment.
- There is a risk of damage to the femoral nerve from the entrance site in the groin. This can cause pain in the groin which may also affect the leg or the back. This is extremely rare and usually resolves itself in time – usually within a couple of weeks but may be longer.
- There is a risk of the particles used to block the arteries going into nearby arteries (called ‘non-target embolisation’). This could result in reduced blood supply to the legs, feet or nerves and is a potentially serious complication.
- There is a risk of reducing the blood supply to the skin overlying the knee. This usually resolves within days without any specific treatment.
- There may be a bruise at the site where the needle has been inserted in the groin. There is also a small risk of infection at this site.
- Finally, there is the risk associated with radiation exposure, as we use x-rays to guide where we place the catheters during GAE. Radiation is strictly controlled to minimise the risk to patients.

Preparing for the procedure

- As this treatment is a part of a research trial, you have met the eligibility criteria. You will sign a consent form, following a discussion with your doctor. You can withdraw at any time if you change your mind about participating in the trial.
- You will need to have a set of pre-op blood tests done around 1 week beforehand. If you take any blood thinning medication, you will need to stop this prior to the procedure date, so check with the doctor or pre-op nurse to confirm when to stop and restart your medication.

What happens on day of the procedure?

In the morning you will come into the Main X-ray/Radiology Department in the Royal Berkshire Hospital, Centre Block, Level 1. You will have routine checks, like blood pressure and heart rate. A doctor or nurse will check that the blood tests have been done and are within normal limits. Initially, you will go to the 'Recovery Bay' from where you will be taken to the 'Angio' room, which is like an operating theatre with additional X-ray equipment. In this room there will be doctors, nurses, radiographers and health care assistants. You will be awake during the procedure but may be given medication (sedation) to help you relax.

During the procedure, you will lie on the X-ray table, usually flat on your back – some patients may find lying flat for the duration of the procedure uncomfortable but we will try to make you as comfortable as possible with supporting pillows. You may have a needle put into a vein in your arm, so that the radiologist can give you a sedative or painkillers. You may have a monitoring device attached to your chest and finger, and may be given oxygen through small tubes in your nose.

The radiologist will keep everything as sterile as possible and will wear a theatre gown and operating gloves. The skin near the point of insertion in your groin will be cleaned with antiseptic, and some local anaesthetic will be applied to numb the skin. The rest of your body (except your head) will be covered with a large sterile theatre sheet. The procedure will take approximately 1 hour.

The procedure should not be painful but you may feel some discomfort when the needle and catheter are inserted. You may also feel a warm sensation and some pain in your knee when the contrast is injected.

You will be awake during the procedure but may feel drowsy if you have had sedation. You will still be able to talk and ask questions throughout and most patients report finding the procedure easily tolerable and an interesting experience.

At the end of the procedure, the puncture wound will be closed either using a small dissolvable stitch, or by pressing on the artery for 10 minutes.

What happens immediately after the procedure?

You will then go back to the 'Recovery' area. You will need to lie flat for 2 hours and then be monitored for a further 2 hours before you can leave hospital. You will need someone to drive you home and a responsible adult to stay with you overnight or for at least 8 hours.

You should be able to walk and gently move around as soon as you are discharged. Avoid strenuous activities for 48 hours.

Aftercare advice

You will need to watch out for signs of bleeding and/or infection at the entry site in the groin. You will have a dressing in place which should be kept clean and dry for a couple of days so avoid bathing or direct showering. The dressing can then be removed if the wound appears to have healed/closed. If not, please apply a clean plaster until it has healed/closed. If you work, you will need 5 days off before you return. You also should not drive for 5 days.

Things to look out for

- Pain that is not controlled with painkillers.
- Pain or lumps at the groin entry site developing and not resolving within a couple of days, particularly if you have skin changes/coldness in one leg/foot.
- Signs of discolouration of the skin around the knee not resolving in a few days (do not apply ice to this).

Contact information

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