National Hospital for Neurology Neurosurgery

Magnetic Resonance Imaging (MRI) under general anaesthesia

Department of Neuroanaesthesia
If you would like this document in another language or format, or require the services of an interpreter, contact the Pre-operative Assessment Centre. We will do our best to meet your needs.

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This booklet has been written by the Department of Neuroanaesthesia at the National Hospital for Neurology and Neurosurgery to provide information about Magnetic Resonance Imaging (MRI) under general anaesthesia (GA).

It is intended for use by patients (or their family and carers) who have been referred to our service. It is not intended to replace discussion with your consultant.

Please do not hesitate to contact a member of the team caring for you if you would like any further information. They will be happy to answer any questions you may have.

**What is an MRI?**

An MRI is similar to a CT scan It produces highly detailed pictures of the inside of the body. Unlike conventional x-rays used in CT, MRI does not use radiation. MRI uses a strong magnetic field and radio waves, together with an advanced computer system to build up a series of images. Each of these images shows a thin slice of the area being examined.

The MRI scanner is a very large machine and measures about one and a half metres long. The patient lies on the
padded table and is moved into the scanner so that the part of the body which is being examined is in the centre of the scanner.

The length of time that it takes for the scan will depend on the number of pictures that are needed and the number of body parts to be scanned.

The scanner is very noisy and we will give you ear plugs or headphones to prevent any damage to your eardrums.

Sometimes a dye is used to show up different parts of the body more clearly on the scan. If a dye is used it will be injected through a vein in your arm.

What are the risks of MRI?

As far as we know at this time, MRI is an extremely safe procedure. It does not involve the use of x-rays.

During the scan you will be in a very powerful magnetic field and you should inform the radiographer beforehand if you have any small pieces of metal inside your body. You must tell us if you have, or have ever had:

- Any metal fragments in your eye
- A cardiac pacemaker, defibrillator or metal heart valves
- A programmable shunt
- An aneurysm clip
- A neuro stimulator
- Any other metal implant
- Any body piercing
- Permanent tattooed eyeliner

In some cases you may not be able to have the examination. In other instances you may need to have an x-ray to check if there are any metal fragments.

For your safety we will not be able to do the MRI until a safety form is completed. A radiographer from the MRI Department will go through the details with you prior to your anaesthetic.

For female patients, if you are or might be pregnant, please contact the Radiology Department as soon as possible. MRI scans may not be advisable in early pregnancy, unless there are special circumstances.
**Having a general anaesthetic for MRI**

A general anaesthetic means that you will be unconscious and unaware throughout the procedure. General anaesthesia is administered by an anaesthetist. An anaesthetist is a doctor who has undergone specialist in anaesthesia.

General anaesthesia is most commonly used for surgery, however in some cases it may be offered to patients undergoing other tests or procedures. In the case of MRI the reasons will vary, but may include a pre-existing injury or illness which makes it difficult to lie flat or keep still long enough for the scan to be completed. Your consultant will explain this to you and you will be seen by an anaesthetist beforehand. They will ensure that this is an appropriate and safe option for you. In most cases you will be asked to attend the Pre-admission Clinic to check that you are fit for your anaesthetic

**What are the benefits, risks and side effects of general anaesthesia?**

General anaesthesia removes pain, sensation and awareness. These benefits are weighed against the risks
of the anaesthetic procedure and the drugs used. Risks vary from person to person and the risk to you as an individual will depend on:

→ Whether you have any other illness
→ Personal factors such as smoking or being overweight

Risks of general anaesthesia are thought of as side effects and complications.

With modern developments anaesthesia is extremely safe. However, there is always some risk which depends on many factors, including any medical conditions that you may have.

It is up to you to decide whether you have a general anaesthetic for your MRI scan. Everyone varies in the risks they are willing to take. You anaesthetist will be able to talk to you about your individual risk.

**Side effects or complications - Very common**

*(one person in 10) and common (one person in 100)*

- Feeling sick and vomiting after the anaesthetic. Your anaesthetist will do all they can to minimise these side effects.
- Sore throat from the breathing tube
- Dizziness and feeling faint
- Blurred vision
- Headache
- Itching
- Pain during injection of drugs
- Bruising and soreness
- Shivering

**Uncommon (one person in 1,000)**
- Breathing difficulties (depressed respiration)
- Damage to teeth, lips or tongue
- An existing medical condition getting worse

**Complications - Rare (one person in 10,000) or very rare (one person in 100,000 or less)**
- Damage to the eyes
- Serious allergy to drugs
- Death
• Equipment failure

Why am I asked about my teeth?

It is often necessary to place an airway or breathing tube into your mouth during the anaesthetic to help you to breathe. Loose teeth could be dislodged and artificial crowns are more fragile than your own teeth. Although every care is taken to avoid damaging your teeth, your anaesthetist needs to know if you have any special dental work or loose teeth. If you have dentures or removable bridgework, it is also important to know about this as they need to be removed before your MRI as they can affect the images produced by the MRI.

If you feel uncomfortable without them, it is usually possible to keep them in until you reach the anaesthetic room and they will be returned to you in the recovery room.

How should I prepare for my MRI under GA?

We need to know all the medicines that you take. This includes prescription, over the counter, herbal or homeopathic, creams, inhalers and eye drops.
It is also essential to tell us about any allergies you have, including allergies to food, medicines and sticking plasters.

You may find it helpful to bring a list of questions you would like to ask.

Before the anaesthetic you will need to fast for at least six hours. This is to ensure that your stomach is empty. General anaesthesia removes temporarily the natural reflex that prevents food or fluid from entering your lungs if you were to vomit. Inhaled fluid and food particles can damage the lungs. You can drink small amounts of water up to two hours before your anaesthetic. We advise you fast from 6am on the morning of the scan and drink only water up to 10am. You will be told at the Preadmission Clinic which tablets to take in the morning. In most cases you should take your usual morning tablets with a sip of water at 6.00am.

**Asking for your consent**

We want to involve you in all the decisions about your care and treatment and before referring you for an MRI scan your specialist will have explained the risks and benefits of the scan itself and the needs for general anaesthesia. If
you decide to go ahead by law we must ask for your informed consent and will ask you to sign a consent form. This confirms that you agree to have the procedure and understand what it involves. Staff will explain all the benefits, risks and alternatives before they ask you to sign a consent form. If you are unsure about any aspect of your proposed investigation, please do not hesitate to speak with a senior member of staff again.

**What should I expect when I have a MRI under general anaesthetic?**

You will be seen by your anaesthetist in the morning before your MRI scan. Each patient is different and your anaesthetist will choose the anaesthetic to suit you.

You will be closely monitored throughout the MRI by your anaesthetist.

Monitoring equipment is used to monitor your heart rate, blood pressure and oxygen levels in your blood.

The anaesthetist will give you an injection in your hand or arm to start the anaesthetic. The injection is administered via a soft plastic tube (cannula) inserted into a vein. You may be asked to breathe some oxygen through a face mask.
You will be unaware and unconscious (asleep) within minutes. Once asleep you are transferred to the MRI scanner. A member of the team will put an ear plug in each ear to protect your hearing and you will be kept warm with blankets.

Once the scan is completed, the anaesthetic drugs are stopped. You will be transferred to the recovery ward until you are fully awake and it is safe for you to return to your ward. Occasionally anaesthetics can make people feel sick and we can give medicines to counteract this if necessary.

**What should I expect afterwards?**

If you are not staying overnight in hospital, you will be allowed to go home when the hospital staff are confident that you have fully recovered from the anaesthetic and it is safe for you to leave. You must be picked up by a responsible adult who can take you home safely by car or taxi and who can stay with you during the night. It will, on occasion, be necessary for people to stay in hospital overnight.
You must not drive, operate machinery, cook or be responsible for other dependents. Also, you should not drink alcohol until the following day.

For more information
Royal College of Radiologists:
http://www.goingfora.com/radiology/mri.html
UCL Hospitals cannot accept responsibility for information provided by other organisations.

How to contact us
Pre-operative Assessment Centre
National Hospital for Neurology and Neurosurgery
Queen Square, London WC1N 3BG
Switchboard: 0845 155 5000 / 020 3456 7890
Direct line: 020 3448 3348
Fax: 020 3448 8937
Website:http://www.uclh.nhs.uk/OurServices/ServiceAZ/Neuro/QSPAC/Pages/Home.aspx
MRI DEPT: 020 3448 3440 or 020 3448 3581
Where to find us

Map showing the location of Royal London Hospital for Integrated Medicine and National Hospital for Neurology and Neurosurgery.

Bus Stops:
- A & G: 19, 38, 55, 243
- B & Y: 59, 68, 91, 168, 188
- E: 7, 188
Space for notes and questions