patient information

Magnetic Resonance Imaging (MRI): Information Sheet

This information is for patients of Melbourne Radiology Clinic who intend to undergo a test known as an MRI (Magnetic Resonance Imaging) scan.

An MRI scanner uses a powerful magnet and radiowaves to produce superbly detailed views of the human body, particularly soft tissues, such as the brain, spinal cord and muscles. Unlike many other imaging tests, MRI does not use radiation. Though some discomfort may occur from having to lay still, MRI is otherwise a painless procedure and typically takes approximately 20 minutes to perform.

A high field magnet, as used in MRI may have serious consequences in certain patients, and as such, we need you to answer some questions. Please read the information and questions carefully and answer them to the best of your knowledge. If you do not understand a question, please do not hesitate to ask our technician or speak to our doctor.

We appreciate you taking the time to read the information on these pages.

Preparation

- No preparation is necessary for an MRI scan. You can eat and drink normally.
- As a strong magnet is used, all metallic devices MUST be removed before entering the MRI room. Please consult the MRI Safety Questionnaire for further information (below).
- On arrival at Melbourne Radiology Clinic, you will be asked to complete the MRI questionnaire before the scan to thoroughly understand your overall health.
- Patients with cardiac pacemakers and cochlear implants cannot undergo MRI scans. Other metallic implants may prohibit patients from having an MRI scan. This includes people with certain types cerebral aneurysm clips, vascular stents, infusion pumps and neurostimulators.
- The scan occurs in an enclosed space, so if you are claustrophobic or feel anxious, please inform us in advance.
- Please note: Melbourne Radiology Clinic's MRI scanner is the latest Siemens Espree unit which has a wide bore that is 16% wider than conventional MRI units so patients may experience less anxiety when entering the enclosed space of the MRI scanner.
- You will be asked to wear the examination gown provided. You will then lie on a scanning table that moves into the bore of the MRI. The body part to be scanned will be positioned in the centre of the tunnel. A device, known as a coil, which improves the quality of the images, may be placed over the region of interest.

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Information for Female Patients

- Female patients are requested not to wear eye make-up for brain scans as this can affect image quality. If you are or might be pregnant, please call the Clinic in advance of your appointment so that the radiologist can discuss your situation with yourself and/or referring doctor. As a general rule, MRI scans are usually not conducted in the first trimester of pregnancy unless it is deemed by the referring doctor or radiologist that is an absolute medical necessity to do so and that the benefits of the test outweigh the risks. This of course assumes that there is no other test available that can provide similar information.

Procedure

You will know when the scan is under way as you will hear a vibrating sound. It is very important that you keep your body extremely still. Movement will ruin the image produced, similar to the blurring effect that occurs when taking a photograph of a moving object. Usually four or five different types of MRI scans are taken with each one lasting about 2–8 minutes. Overall, you will be in the scanner for about 20 minutes. If you wish, you can listen to music via the ear plugs provided.

You will be in constant communication with the technician who conducts the MRI. Their role is to ensure that you are comfortable and kept you up-to-date with the progress of your scans. As an additional safety mechanism, you will be provided with a buzzer. Press this at anytime should you feel exceedingly uncomfortable or anxious. The scan at this point will be terminated and you will be immediately attended to by our staff.

MRI Contrast Dye (Gadolinium)

Some patients undergoing an MRI scan may require an injection of an intravenous (IV) dye (contrast) known as Gadolinium, which is a paramagnetic substance that is visible on MRI scans. The contrast is delivered into your body through a small plastic tube known as an intravenous cannula, which is placed into a vein in your arm by a nurse or radiographer who are both experienced in performing this procedure. This will result in a minor discomfort, usually no more than taking blood from your arm. The IV contrast is NOT radioactive.

The benefit of administering intravenous contrast for an MRI examination is enormous. The use of contrast greatly improves the accuracy of the examination and assists in excluding many life threatening conditions, such as cancer.

As for all medical procedures, there are risks associated with the administration of any substance, including IV contrast, however the benefit, such as an accurate diagnosis, outweighs the small risk of suffering from the side effects (discussed below). The decision to administer IV contrast is not taken lightly and is carefully made by your referring doctor and is based on your signs, symptoms, past medical history as well as the suspected diagnosis. If after reading the information below you are not willing to undergo a study with IV contrast, the test may still be performed without it, however you must be aware that the information from the examination may not accurately answer your doctor's question. It is possible that another test may be appropriate, such as CT scan or Ultrasound, and this can be discussed with your referring doctor or our radiologist.

Most injections of IV contrast occur uneventfully. So that you are fully informed of the risks prior to the examination, Melbourne Radiology Clinic would like to inform you that:

- The most common side effect is a *minor contrast reaction*, which occurs in less than 0.05% of cases. Symptoms include headache, sneezing, nausea, vomiting, hives and swelling and usually settle rapidly. Occasionally medications may be required to help alleviate the symptoms if they persists for some time and typically involve using an anti-emetic and promethazine (phenergan) for hives and swelling. Phenergan unfortunately results in drowsiness, so is usually administered only if the swelling or hives is particularly severe. In this instance, you would need a responsible person to drive you home.

- Less commonly, a *severe (anaphylactoid) contrast reaction* occurs in approximately 0.03–0.1% of cases. This includes a rapid or slow heart rate, low blood pressure, an asthma attack (bronchospasm) and complete circulatory collapse/shock. Such reactions require urgent medical treatment and immediate transfer to an appropriate facility, such as an emergency department or intensive care unit. Despite best medical attempts and rapid treatment, a person may die from a severe reaction, however this is fortunately rare, occurring in 0.0000001% (1 in 10 million) of cases. Melbourne Radiology Clinic possesses the equipment and trained medical staff to assist in providing immediate life saving treatment should this be required.

- Patients with kidney (renal) impairment or failure should not undergo an injection of gadolinium unless this has been cleared by a specialist in this field (renal physician) in order to avoid a potentially life threatening condition known as NSF (Nephrogenic Systemic Fibrosis).

- Patients who have had a contrast reaction to the dye used in CT, IVP and angiographic examinations are at a 3.7 times increased risk of an adverse reaction.

Otherwise, there is no way of predicting who will be allergic to contrast until the dye is given. A patient who becomes allergic will usually develop their symptoms within 10 minutes, typically within the first one or two minutes and therefore will be still on our premises where assistance and medical treatment may be provided.

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Follow up

A radiologist, a medical doctor specialised in interpreting medical images for the purposes of providing a diagnosis, will then review the images and provide a formal written report. If medically urgent, or you have an appointment immediately after the scan to be seen by your doctor or health care provider, Melbourne Radiology Clinic will instantly have your results ready. Otherwise, the report will be received by your doctor or health care provider within the next 24 hours.

- Please ensure that you make a follow up appointment with your referring doctor or health care provider to discuss your results.

REMEMBER ...

- Please bring to the clinic any prior scans (eg. X-rays, ultrasounds, MRI, CT) and reports as these will assist the radiologist in assessing your condition.

- If you have any further queries please call Melbourne Radiology Clinic on **(03) 9667 1667** – we are only too happy to help.

- Please note that any referral for a scan is valid at Melbourne Radiology Clinic, even if it has been written on a referral form from another radiology provider.

Whilst every effort is made to keep your appointment time, the special needs of complex cases, elderly and frail patients can cause unexpected delays. Your consideration and patience in these circumstances is appreciated.

REFERENCES:

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Murphy KP, Szopinskikt, Cohan RH, Mermillod B, Ellis JH. Occurence of adverse reactions to gadolinium based contrast material and management of patients at increased risk: a survey of the American Society of Neuroradiology Fellowship Directors. *Acad Radiol* 6(11): 656–64, 1999.

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