

Gadolinium Contrast Medium (MRI Contrast agents)

Consumer Information

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What is gadolinium contrast medium?

When injected into the body, gadolinium contrast medium makes certain tissues, abnormalities or disease processes more clearly visible on a Magnetic Resonance Imaging (MRI) scans. Gadolinium based contrast medium is sometimes called an MRI contrast medium or agent.

Gadolinium contrast medium contains complex molecules, that is, an arrangement of atoms (the smallest portion into which an element can be divided and retain its properties) held together by chemical bonds. The chemical bonds are made of a gadolinium ion (the MRI active part) and a carrier molecule. A carrier molecule is called a chelating agent, which modifies the distribution of gadolinium within the body, to overcome its toxicity while maintaining its contrast properties. It is injected intravenously (injected into a vein) as part of an MRI scan.

Why do I need to have gadolinium contrast medium?

Gadolinium contrast medium is used in up to 30% of MRI scans to improve the clarity of the scanned images or pictures of your body's internal structures. This improves the diagnostic accuracy of the MRI scan. For example, it increases the visibility of inflammation, a tumour or growth, blood vessels, cardiac (heart) muscle scarring and assesses the blood flow to organs such as the brain and heart.

Usually, you will be advised before you have the MRI scan that part of the way through the scan, gadolinium contrast medium will be injected. The technologist who performs the MRI scan, a nurse or a radiologist (a specialist doctor) will give you the injection.

Sometimes, based on the notes provided by your doctor on your referral, it will not be expected that you require gadolinium but after some of the scanning is done, the radiologist may decide that gadolinium would help to make the images clearer. If you are told part of the way through your scan that gadolinium will be needed, you should not worry that this is an indication that something serious is wrong. Most often this is just being done to make the images clearer and therefore easier to interpret so that the diagnosis is more definite.

How is gadolinium contrast medium given to me?

Gadolinium contrast medium is given by intravenous injection, that is, through a small needle into a vein in your arm, either by hand injection or by an automated injector.

Will I feel anything when I have a gadolinium contrast medium injection?

Most patients will not notice any sensations, although a small number will report a cold feeling in the arm during the injection and an even smaller number will notice mild nausea. Headache and vomiting occurs rarely.

How long does a gadolinium contrast medium injection take?

The injection takes between 10 and 30 seconds.

What are the risks of gadolinium contrast medium injections?

Gadolinium contrast medium is generally very safe. Side effects or reactions are uncommon but may occur. The most common adverse reactions are brief headache, nausea (feeling sick) and dizziness for a brief time following the injection. This occurs in 1% to 5% of contrast injections. Infrequently, a feeling of coldness may occur at the injection site.

Allergic (anaphylactic) reactions to gadolinium contrast medium have occurred but are extremely rare. These severe reactions, which may involve difficulty breathing and swelling of the lips and mouth, occur in about 1 in every 10,000 people who have gadolinium. These severe reactions generally respond very well to emergency drug treatment. This treatment is given while in the MRI department of the hospital or private radiology practice.

In patients with normal kidney function most of the gadolinium contrast medium injected is almost entirely passed out in the urine within 24 hours.

Gadolinium contrast medium should be avoided in patients with [reduced kidney function](#) or kidney failure (either chronic or acute), and hepatorenal syndrome (a condition involving reduced function of liver and kidneys).

Nephrogenic systemic fibrosis (NSF), a debilitating disease resulting in skin contractures (or localised skin thickening and tightening) and internal organ damage has occurred with some gadolinium based contrast agents in a minority of patients who had pre-existing severe kidney function abnormalities.

If you are pregnant or think you may be pregnant please inform your doctor prior to having the procedure so that your doctor can consider and talk to you about any risks and benefits of having gadolinium for you and your unborn baby.

If you are breast feeding it is safe to continue normal breast feeding after the gadolinium contrast medium has been given. There is no requirement to express and dispose of breast milk or to withhold breast feeding. The amount of gadolinium used is so small and rapidly passes out of the body that it does not represent any danger to your child.

If you have any concerns about the use of gadolinium, please discuss these with your referring doctor and the staff where you are having this procedure.

What are the benefits of gadolinium contrast medium injections?

MRI contrast agents (usually gadolinium based contrast medium) improve diagnostic accuracy in some conditions such as inflammation and infectious diseases of the brain, spine, soft tissues and bones by making it easier for the radiologist to see what and where the problem is. The nature and extent of some cancers and benign tumours is best seen and assessed using gadolinium contrast medium.

Angiography scans (showing the function of blood vessels as it is happening on a video screen) can be performed using gadolinium contrast medium and evaluation of many myocardial (heart) abnormalities can only be fully assessed using gadolinium contrast medium.

Who will give me the gadolinium contrast medium injection?

A radiologist will decide whether a gadolinium injection will be required. If so the injection will most likely be given by a medical imaging technologist (MIT) or nurse either by hand injection or by a mechanical injector.

Where is a gadolinium contrast medium injection done?

Normally, after some initial MRI scans have been performed the gadolinium injection will be given while you are in the scanner, then more scans will be taken.

If a gadolinium angiogram is performed, some preliminary scans may be required immediately prior to the gadolinium injection and it is important to lie

still between the preliminary scan and the gadolinium injection.

If I have side effects from the gadolinium contrast medium injection, when will they occur? What can be done to treat or prevent these side effects?

The most common side effects of headache, nausea and dizziness occur in a small minority of patients only but if they do occur they will be noticed within a few minutes of the injection. Allergic reactions will tend to occur immediately, within several minutes of the injection, when a patient is most likely in the scanner or still in the radiology practice or hospital.

Nephrogenic systemic fibrosis (NSF) is a rare condition associated with gadolinium contrast agents administered to patients with severe renal (kidney) disease. Its onset occurs days or weeks after administration of the agent with almost all cases occurring within six months of the last dose. The use of these agents is generally avoided in patients at risk of NSF.

Please note:

This information is of a general nature only and is not intended as a substitute for medical advice. It is designed to support, not replace, the relationship that exists between a patient and his/her doctor. It is recommended that any specific questions regarding your procedure be discussed with your family doctor or medical specialist

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