Guidance for scanning patients in MRI that are incapacitated, unconscious, or for whom a full clinical history cannot be ascertained from the patient

Introduction

When unable to obtain a full clinical history from a patient, implants may be undeclared/undetected and thus there is an increased risk of injury from the MRI scanner. The patient may also be unable to report any relevant medical conditions (e.g. those that compromise their safety for contrast-enhanced examinations). Therefore, the clinical benefit must outweigh the risk for an MRI scan to proceed, as justified by a Radiologist. What follows is some general guidance for managing these situations.

Guidance

Due to the variable nature of this scenario, the following list is not a step-by-step guide. Please consider the full list as a variety of approaches that can be used when appropriate to each specific scenario.

1. There are a number of people who may be able to complete or assist with the completion of the MR screening form on behalf of the patient. This might be the patient's Power of Attorney, next of kin, parent or guardian, carer, social services or a healthcare provider familiar with the patient's medical history.
2. The Clinical Referrer may be required to review the patient's clinical records for evidence of prior surgery and then must complete and sign the MRI checklist, meaning that the referrer takes full responsibility for the accuracy of the information detailed on the checklist. This must be completed before a scanning slot can be booked.
3. The Radiologist may be required to review previous imaging for implants through PACS.
4. To ensure absence of contraindicated devices or other metallic material, screening radiographs may be obtained of the head/chest/abdomen/orbits.
5. A risk/benefit analysis may be required to be performed by a Radiologist, with input from the Clinical Referrer and MRI Physics if required, documenting the approval, risk and medical necessity for MRI examination. If it is determined that the benefit to

the patient outweighs the risk, this decision is to be recorded by having the Radiologist sign off the MR safety checklist.

6. The use of GBCAs should be carefully considered, particularly where it is not known if the patient is pregnant or has poor renal function. Standard procedures for determining suitability should be followed prior to the administration of GBCA, such as a recent GFR or eGFR. If the safety of administering a GBCA cannot be determined, seek clinical advice.
7. If uncertainty remains over whether a patient has anything in or on their person that is contraindicated for MRI, a physical exam should be performed to detect external signs of implants, previous surgery (e.g. scarring) or other metallic materials in or on the patient's body that may have been missed by previous imaging and screening. This includes searching for any unexplained surgical scarring or abnormalities that warrant plain-film radiography prior to the MRI scan.
8. To limit the forces on unknown implants, devices or foreign objects, Radiographers are instructed to bring patients into the scanner room slowly, and, where patients are able, they should be asked to report any pulling or unusual sensations.
9. Radiographers are instructed to take particular care when positioning patients in scanner (e.g. non-conductive padding supplied by the scanner vendor must be used and, where required, MR Conditional cables should, as far as is possible, not be in contact with patient skin and should be oriented parallel to the bore), removing any conductive materials from patient skin and making sure no potential circuit loops are present as could be created by the patient and/or equipment.
10. The default set-up for these patients should be to start with no blankets and in-bore fan on. However, if this becomes a problem then it would be appropriate to turn the in-bore fan off/down or add a blanket to ensure the patient is comfortable.
11. Where patients are able, they must be informed that while it is highly unlikely, there is a small risk of heating and therefore they should be told to press the staff call button should they feel any heating or unusual sensations.
12. For patients that require monitoring equipment in the MR Environment, only MR Conditional monitoring equipment is to be used. If these patients are inpatients, then discuss with attending ward staff to ensure no other MR unsafe monitoring is present. Where necessary (e.g. the patient is unconscious or may be a poor historian), a physical examination should also be done to ensure no such MR Unsafe devices are present.
13. Scans should be performed in Normal Mode (or lower if a known MR Conditional implant requires this), unless there is justification otherwise.
14. If there are specific concerns in regard to the static magnetic field and there is little clinical benefit to scanning at 3T then scan at 1.5T
15. Cold compresses/ ice packs must be readily available in MRI departments for use in a local patient heating event.
16. Depending on the clinical query and the area of concern, the use of a local Transmit / Receive coil will limit the exposure of the scanner RF and therefore may reduce the risk of heating.