HOT TOPIC

SHOULD THE ANAESTHETIST OBTAIN CONSENT WHEN A CHILD UNDERGOES AN MRI SCAN?

SUMMARY OF KEY POINTS:

- Young people aged 16 and 17 are deemed to have capacity. A person with parental responsibility provides consent for younger children.
- MRI scans have benefits but also associated risks which can be serious.
- The referring clinician is best placed to assess which diagnostic modality is best suited to the patient and ensure the risks associated with MRI scans are discussed.

REVIEW OF EVIDENCE

In 1977 the first MRI scan of a human body was performed. Over the last 40 years the use of MRI scanning has increased exponentially. A large number of children require their MRI scan under general anaesthesia. The majority of cases are managed as day case procedures. Children may be managed at their local hospital, however a large number of children are referred to another hospital for the scan.

The issue of consent remains a subject of discussion for these children. Who is best placed to obtain consent for the procedure, and where should this happen?

The GMC provides clear guidance about consent (1). If a patient has capacity to make a decision the decision will be made with the medical professionals involved in the patient care.

Capacity – according to the Mental Health Act 2005 – means that the patient can

- understand the information relevant to the decision
- retain that information
- use or weigh that information as part of the process of making the decision, or
- communicate the decision (whether by talking, using sign language or any other means).

It is assumed that all adult patients have capacity. Young people aged 16 and 17 are deemed to have capacity unless there is evidence to the contrary. Children under the age of 16 can consent to treatment if it is felt they have the understanding and competence to appreciate the treatment alternatives. The person with parental responsibility would provide consent for younger children. Parental responsibility may be held by

- the child's mother or father
- the child's legally appointed guardian
- a person with a residence order concerning the child
- a local authority designated to care for the child
- a local authority or person with an emergency protection order for the child

The person with parental responsibility must have capacity. If the person with parental responsibility has capacity the doctor uses their knowledge skills and judgement, and the parents' views and understanding, to decide what investigations or treatments are likely to make a difference for the patient. If possible the wishes of the child, the views of others close to the child and cultural and/or religious beliefs are also taken into account (3).

In terms of investigations the doctor would present the options for benefits, risks and side effects, including the option of no investigation. The doctor may recommend an investigation but it is the parents decision whether to choose any of the options or not.

MRI scans can be very beneficial but there are other diagnostic modalities that need to be discussed with a parent prior to deciding on an MRI scan. An MRI scanner can be used to image any part of the body and provides better soft tissue discrimination than other scan modalities. However MRI scans are not without their risks. The MRI scan involves a strong magnetic field. This field changes with time and radiofrequency energy. The magnetic field attracts metal objects and there is the risk of a magnetic object being attracted to the magnet, moving through the air and causing injury to a patient. The change in magnetic field creates a loud noise and can harm hearing if adequate hearing protection is not used. The radiofrequency energy in the scanner can lead to heating and burns. This is the most commonly reported adverse events for MRI scanners. Contrast agents are also commonly used during the MRI scan. These commonly contain gadolinium. These agents have been found to cause nephrogenic systemic fibrosis in patients with impaired renal function (4). The agents are classed as high, medium and low risk agents. In neonates the use of a high-risk agent such as Magnevist (gadopentetic acid), is contraindicated. For medium-risk (Primovist (gadoxetic acid)), or low-risk agents such as Dotarem (gadoteric acid), a single lowest possible dose should be used and not repeated for at least 7 days. In infants a single, lowest dose of agent possible should be used and not repeated for at least 7 days. There is a risk of anaphylaxis in the use of gadolinium containing agents.

The MR environment presents safety hazards for children with implants, external devices and accessory medical devices. Examples of implanted devices include cochlear implants, and pacemakers. The strong, static magnetic field of the MRI scanner will pull on magnetic materials and may cause unwanted movement of the medical device. The radiofrequency energy and magnetic fields that change with time may cause heating of the implanted medical device and the surrounding tissue, which could lead to burns. The magnetic fields and radiofrequency energy produced by an MRI scanner may also cause electrically active medical devices to malfunction, which can result in a failure of the device to deliver the intended therapy. The presence of the medical device will degrade the quality of the MR image, which may make the MRI scan uninformative or may lead to an inaccurate clinical diagnosis, potentially resulting in inappropriate medical treatment.

There are also the risks associated with anaesthesia and sedation for children undergoing an MRI scan. The AAGBI working party on consent for anaesthesia (5) published in 2017 reaffirm that a separate consent form, signed by the patient, is not required for anaesthetic procedures that are done to facilitate another treatment. They felt that the anaesthetist should record details of the elements of the discussion in the patient record noting the risks, benefits, and alternatives (including no treatment) that

were explained. The guidance states that the treating doctor is responsible for ensuring that the patient has consented to the treatment. For patients referred for investigations requiring anaesthesia, for example MRI, consent for the procedure should be sought by the referring doctor or local radiologists whilst consent for anaesthesia should be sought by the anaesthetist.

Anaesthetic consent is not taken as a separate process in the UK. Therefore a decision needs to be made as to whether consent needs to be taken for an MRI scan under general anaesthesia and if so by whom. In the case of minor or routine investigations or treatments, if you are satisfied that the parent understands what you propose to do and why, it is usually enough to have oral or implied consent (1). In cases that involve higher risk, it is important that you get the patient's (parent's) written consent. This is so that everyone involved understands what was explained and agreed (1).

Should an MRI scan be classed as a routine or minor investigation where written consent is not required? The AAGBI currently propose that the referring clinician or radiologist is responsible for obtaining formal consent for the scan. The reason for this is that the referring clinician will have discussed other options including not performing the scan and the potential for diagnosis and prognosis. The anaesthetist explains the anaesthesia for the scan and the risks associated with this, but this as stated by the AAGBI guidelines (4) does not require a separate consent. Departments are advised to ensure they have a written policy in place to ensure a suitable consent is obtained from the referring hospital if the scan is performed in another hospital. This ensures that problems are avoided on the day of the scan. In exceptional circumstances, the anaesthetist may seek consent for the scan itself if they understand the reasons for performing the imaging. Each unit should develop their own local written consent procedures to ensure that the scan proceeds as smoothly as possible.

REFERENCES:

1. https://www.gmc-uk.org/-/media/documents/consent---english-0617_pdf-48903482.pdf (accessed 23rd July 2018)

2. http://www.legislation.gov.uk/ukpga/2005/9/section/3 (accessed 23rd July 2018)

3. https://www.gmc-uk.org/-/media/documents/0_18_years_english_0418pdf_48903188.pdf (accessed 23rd July 2018)

4. https://www.gov.uk/drug-safety-update/gadolinium-containing-contrast-agents-new-advice-to-minimise-the-risk-of-nephrogenic-systemic-fibrosis (accessed 23rd July 2018)

5. https://www.aagbi.org/sites/default/files/AAGBI_Consent_for_anaesthesia_2017_0.pdf (accessed 23rd July 2018)

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