

Scans without sedation: How to determine if patient is a candidate

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While ordering an MRI for a typically developing 9-year-old female, you come across a form that asks: “Does your patient require sedation or anesthesia for this study?”

Sedation or general anesthesia for MRI can improve the patient experience and help the patient remain still, which will enhance the quality of the images.

However, sedation and general anesthesia carry risks and may cause nausea, vomiting, irritability and fatigue. Patients also are required to fast and, at least for the foreseeable future, need a pre-sedation COVID-19 test. In addition, administration of sedation/anesthesia increases the time the patient spends in the pediatric imaging facility and the cost of the procedure.

A variety of techniques can be utilized to reduce a child’s need for sedation and optimize the imaging environment. Often, child life specialists prepare children for what to expect based on their developmental age and help them cope with the challenges and stress associated with imaging.

Many pediatric imaging facilities have scaled replicas of MRI machines that children can try out so they understand the procedure better. These mock scanners range from basic to highly sophisticated. Some have speakers that can play recorded sounds of real MRI sequences to mimic a live scan. Mock scanners are particularly helpful in the preparation of young children ages 3-8 years.



Perhaps most compelling is the power of technology to distract children. Facilities routinely doing pediatric MRIs often are equipped with MRI-compatible audiovisual systems, allowing children to have an immersive distractive experience. Kids don virtual reality goggles and headphones, which provide a movie experience, distract the child from the confined space and suppress the MRI noise.

Determining whether a child is likely to be successful nonsedated can be challenging. Generally, typically developing children ages 7 and older may be considered candidates for scans without sedation, with success increasing with age.

Discussions should be held with parents of children who can focus for extended periods at home (e.g., watching a movie) to determine whether they can go without sedation or general anesthesia. Things to consider include the child's communication ability, anxiety, coping skills, negative health care experiences, temperament and special needs.

Additional consideration should be given to whether a child can cooperate during studies ordered with contrast that require an IV placement.

Circumstances that may require sedation and/or general anesthesia for imaging include a failed nonsedated scan or an underlying condition that is not conducive to lying flat or being in an enclosed space (e.g., anxiety, claustrophobia or pain).

While not all centers performing pediatric MRI scans are equipped with resources to help children undergo imaging without sedation, it is worthwhile for pediatricians to find out what techniques are available at their local centers.

Drs. Thottathil and Adler are members of the AAP Section on Anesthesiology and Pain Medicine.

Resources

- [Adler AC, et al. "Preparing Your Pediatric Patients and Their Families for the Operating Room: Reducing Fear of the Unknown." *Pediatr Rev.* 2018;39:13-26](#)
- [Dong SZ, et al. "Techniques for minimizing sedation in pediatric MRI." *J Magn Reson Imaging.* 2019;50:1047-1054](#)
- [McGuirt D. "Alternatives to Sedation and General Anesthesia in Pediatric Magnetic Resonance Imaging: A Literature Review." *Radiol Technol.* 2016;88:18-26](#)

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