SCANXIETY

How Clinicians Can Support Patients During Medical Imaging

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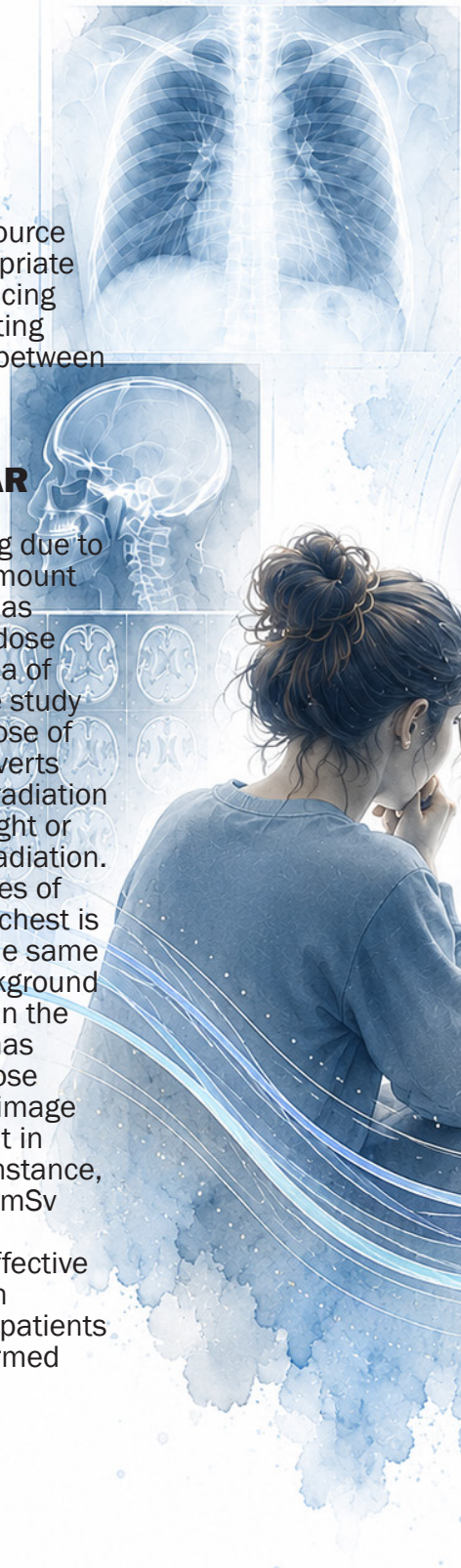
A recurring theme observed during clinical rotations is patient hesitancy to undergo indicated imaging. Whether in family medicine clinics where patients may decline screening mammograms or in emergency departments where patients may express reluctance to undergo a head computed tomography (CT), it is evident that many patients across specialties experience uncertainty surrounding imaging even when it is clinically appropriate.[1]

As imaging utilization continues to increase, clinicians must remain well informed about the risks and benefits of medical imaging and engage patients in open, informative discussions that help address anxiety and support shared decision-making.[2,3] This phenomenon may stem from fear of radiation exposure, apprehension regarding the results, or claustrophobia from the enclosed nature of imaging equipment. Patient education plays a central role in mitigating scanxiety as well as supporting informed decision making and patient autonomy.[4]

Even before discussing imaging recommendations with a patient, it can be helpful to be aware of what options exist and which type of imaging is most appropriate. The American College of Radiology offers a free portal containing appropriateness use criteria to guide providers in their decision for further diagnostic workup.[5] This free resource allows clinicians to identify appropriate imaging by clinical scenario, reducing unnecessary studies and supporting optimal shared decision making between physician and patient.

UNDERSTANDING THE FEAR

Patients may also decline imaging due to fear of radiation exposure. The amount of radiation to the body is known as the effective dose. The effective dose of radiation depends on what area of the body is being imaged and the study being performed. The effective dose of a single chest x-ray is 0.1 millisieverts (mSv) which is equivalent to the radiation endured during a transatlantic flight or ten days of natural background radiation. CT scans offer slightly higher doses of radiation than x-rays. A CT of the chest is equivalent is 6.1 mSv, which is the same dose as two years of natural background radiation.[6] Since its introduction in the 1970s, improved CT technology has resulted in significant effective dose reduction without compromising image quality.[7] Not all CTs are equivalent in their effective dose though. For instance, a CT of the head and neck is 1.2 mSv (5 months of natural background radiation).[6] Contextualizing the effective radiation dose associated with an imaging study can help reassure patients and empower them to make informed decisions.



SETTING CLEAR EXPECTATIONS

Patients also often fear the potential results of their diagnostic imaging. Early detection through imaging can improve the likelihood of effective treatment; emphasizing this reality may help reframe patients' concerns. Setting clear expectations about when imaging results will be available is another important strategy for reducing scanxiety. Patients may be unaware of the high volume of cases received in reading rooms and may expect results to populate in their chart shortly after imaging is completed. Clarifying the anticipated timeline for results can help patients feel more informed and maintain a greater sense of control during the waiting period.

BEYOND THE MACHINE

The enclosed nature of imaging equipment itself is another significant source of scanxiety. Around two million MRIs cannot be performed every year due to claustrophobia which highlights the widespread impact that this fear has on limiting diagnostic care.[8] There are several non-pharmacological and pharmacological interventions available to help combat claustrophobia in this scenario. Animal-assisted therapy is an emerging approach in pediatric radiology where patients interact with trained therapy dogs before an MRI.

This approach has been shown to have statistically significant benefits on patients' emotional status during MRI scans without negatively affecting quality or duration of the MRI.[9] Besides animal assisted therapy, there are several non-pharmacological interventions that have shown efficacy including audio-guided self-hypnosis, solution-focused brief therapy, mindfulness-based respiratory decompression therapy and aroma therapy combined with music therapy.[10-13] Benzodiazepines, with low-dose midazolam being the most effective, are a common first line pharmacologic intervention for patients with scanxiety.

Moreover, intranasal midazolam resulted in successful completion of 98% of MRI scans in patients with claustrophobia.[14,15] The wide range of nonpharmacologic and pharmacologic interventions available demonstrates that claustrophobia is a modifiable contributor to scanxiety when recognized and addressed appropriately.

THE CLINICIAN'S ROLE

As diagnostic imaging plays an increasingly vital role in clinical practice, mitigating scanxiety is essential to removing barriers to high-quality care. Combatting this distress requires a multi-pronged approach: guiding clinician decisions with evidence-based appropriateness criteria, proactively educating patients, and directly managing imaging-related claustrophobia. Ultimately, addressing the psychological burden of imaging is just as crucial as the diagnostic clarity it provides.

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