POLICY FORUM

Revealing the Mysteries of Medicine

Introduction

My introduction to medical imaging came during my first year of medical school when a radiologist translated the anatomy we had learned from textbooks and dissection into real-world pictures. As he explained radiographs relevant to our area of study, it seemed the mysteries of medicine were revealed in black and white. Now medical imaging includes not only radiographs but also ultrasound, computed tomography, and magnetic resonance imaging, all of which have advanced to the point where I can hardly interpret the diverse and wondrous images they offer. This issue of the NCMJ shows how far we have come—with today's technologies capable of revealing anatomy and physiology in a level of detail that Röntgoen and Curie could never have imaged.

Revealing medical mysteries in greater detail facilitates quicker diagnoses and interventions, but with every blessing is a curse. Radiology can all too easily replace clinical discernment, as test after test is ordered, interpreted, and repeated—sometimes escalating from traditional modalities to ever newer and better technology. As Röntgoen and Curie discovered the hard way, imaging can also harm the very tissues it illuminates. In earlier eras, careless use of not-yet-understood technology decimated sensitive thyroids and reproductive organs, burned protective layers of skin and connective tissue, and damaged bone marrow.

Since then, we have learned about the importance of minimizing radiation doses, and radiologists now follow the principle that exposure should be "as low as reasonably achievable" (ALARA). Although we no longer use radiation for the amusement of patients and the public, fascination with this technology can still lead to unnecessary imaging. Keepsake ultrasounds are popular among some pregnant women, despite the fact that such imaging may expose the fetus to unnecessary risks. Even more concerning, best practices may now be poised against patient satisfaction, as quantitative evaluation of a clinician's performance is pitted against the patient's qualitative experience. Clinicians are increasingly pressured to order more imaging than necessary by a curious and insistent public, and best-practice guidelines can wither under the pleas of a demanding patient who has scoured the Internet for information. Unfortunately, patients often do not appreciate the downside of their demands, which can include not only complications but also worry and additional testing, if screening test results are obtained that reveal a spurious or curious abnormality.

Imaging reveals wonders but also uncovers worries. Let us continue to be fascinated by the possibilities and marvel at the advances of this sophisticated technology, but let us also be cautious about the costs—economic, societal, and personal—and avoid careless use of this technology. NCMJ

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