Evidence-Based Imaging: Optimizing Imaging in Patient Care

L.S. Medina and C.C. Blackmore, eds.

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The reader may be surprised to learn that, by some estimates, only 30% of the current imaging literature is based on scientific facts (from Bruce J. Hillman's foreword in *Evidence-Based Imaging: Optimizing Imaging in Patient Care*). There is obviously a need to improve what we do and why we do it. This monumental task has been tackled by the authors and editors of this work.

The evidence-based imaging paradigm believes that "a single practitioner cannot through experience alone arrive at an unbiased assessment of the best course of action" (from Chapter 1); thus, well-designed studies are required. The book applies stringent criteria to the imaging literature and its validity in numerous common clinical conditions. The strength of the evidence is categorized as level I (strong evidence) to level IV (insufficient evidence).

The first 2 chapters are an excellent introduction to the principles of evidence-based medicine and to critically understanding error and bias in medical literature.

The next 28 chapters cover numerous common clinical conditions, with emphasis on societal costs: from the solitary pulmonary nodule to the impact of imaging in sinusitis. Each of these chapters follows a format that highlights important issues, giving key points that summarize available information. Specific clinical questions ("What is the appropriate imaging in subjects at risk for brain cancer?") are answered first in summary form and subsequently in much detail. These chapters are sprinkled with take-home figures and tables that allow for a quick review. Finally, there are some illustrated case studies that emphasize certain points in each chapter, although the number of illustrations is not large. References dating up to 2004 are included. An accompanying CD-ROM contains essential information for use at the office or reading station.

Relevant discussions compare imaging modalities such as brain PET and MR spectroscopy in the differential diagnosis of recurrence versus radiation necrosis; the usefulness of bone scanning in prostate cancer and its relationship to prostate-specific antigen; and traumatic brain injury and SPECT. Newer modalities such as CT colonography and coronary CT angiography are also discussed, with emphasis on their current status and the possible clinical scenarios for their use. Some interesting facts appear throughout the book: for example, the lack of strong evidence supporting the purported sensitivity of CT in acute hemorrhagic intracranial injury and, in the case of intravenous pyelography, the lack of solid data documenting its use for renal stones before the advent of unenhanced CT!

My only minor criticism is that the work condenses vast amounts of literature in a (relatively) short volume, making for intense reading. The authors and editors have made a commendable effort.

The book succeeds in clearly presenting the status of evidence-based imaging and the numerous areas in which evidence is insufficient. I highly recommend this book to inquiring minds, in both the clinical and the imaging arenas, because of the suggestions for future research. For busy practitioners, it will alert them to the most cost-effective imaging strategy (if any) in a particular situation. Finally, all medical libraries and medical schools will need a copy of the book if the evidence-based paradigm is to become the new medical standard for this century.

Richard R. Abello
Scripps Clinic
La Jolla, California