

is given in the stem. An example is question 171 of the chapter on instrumentation:

"The conversion of analog signals to digital signals is the function of the

- A. scintillation camera
- B. analog-digital converter
- C. digital transmitter
- D. analog exchanger"

The correct answer (B) and the stem contain the words "analog" and "digital" and one of the nouns "conversion" or "converter."

3. Many questions offer "none of the above" as an alternative. Use of this term as a foil, in several instances, is frowned upon by test construction experts.
4. In the chapter on radiopharmacy, questions 61, 62, and 63 have stems that are not properly constructed and answers that are incorrectly labeled, i.e., "The decay constant value for  $^{99m}\text{Tc}$  is
  - A.  $1.15 \times 10^{-1}$  dps
  - B.  $4.2 \times 10^1$  dps
  - C.  $3.2 \times 10^{-5}$  dps
  - D.  $1.5 \times 10^4$  dps"

The definition of lambda, the decay constant, is  $\lambda = .693/T_{1/2}$ . If the  $T_{1/2}$  is expressed in sec (6 hr  $\times$  60 min  $\times$  60 sec), the solution is  $.693/21600 = 3.2 \times 10^{-5} \text{ s}^{-1}$ . The term "dps" is erroneous because the disintegrations would vary depending on the quality of radionuclide present (10 mCi would have more dps than 1 mCi). The stem should read, "The decay constant value for  $^{99m}\text{Tc}$  expressed in seconds is."

The authors state, "there is a current trend towards formalization of certification procedures." This is true. Since its inception, the Nuclear Medicine Technology Certification Board has publicized the fact that its examination is task oriented and based on a comprehensive task analysis. More recently (ARRT Newsletter, April 1981) the American Registry of Radiologic Technologists announced completion of its task inventory and stated that it was being rated by a random sample of nuclear medicine technologists. This effort is directed towards improving the job (task)-relatedness of the examination. Because of these trends, many questions are inappropriate. I see no reason to include a chapter, albeit short, on placental localization. The use of such radiopharmaceuticals as Au-198 colloid, Hg-203 chlormerodrin and Bi-206 citrate is a thing of the past. The same can be said for rectilinear scanners, which have or should have disappeared from the nuclear medicine scene. With the proliferation of new technologies, the aforementioned subjects are of interest only from an historic point of view, have no practicality in current nuclear medicine practice, and definitely do not belong in a book of this kind. Their inclusion suggests to the reader, the neophyte nuclear medicine technologist, that this material may be included in the certification examination.

In my experience I have found that nuclear medicine technology students become increasingly apprehensive as examination time approaches. They will search for anything that will help to relieve their anxieties. I cannot recommend this publication.

DONALD R. BERNIER

The Mallinckrodt Institute of Radiology  
Washington University School of Medicine  
St. Louis, Missouri

### **PRINCIPLES OF NONINVASIVE CARDIAC IMAGING: ECHOCARDIOGRAPHY AND NUCLEAR CARDIOLOGY**

Dean T. Mason, Anthony N. Demaria, and Daniel S. Berman, Le Jacq Publishing Inc., 1980, 279 pp.

This book is an attempt to examine two imaging modalities side by side. Comparative analyses of value, indications, and limitations, and emphasis on salient principles are stressed.

The first part of the book (about two-thirds of it) deals with echocardiography in five major sections: physical properties and examining techniques; assessment of cardiac performance; disorders of cardiac valves and great vessels; abnormalities of cardiac chambers and related disorders; and special topics.

The second part of the book deals with scintigraphic cardiology and is also in five sections: cold spot myocardial perfusion imaging; hot spot myocardial perfusion imaging; gated equilibrium cardiac blood pool imaging; first transit cardiocirculatory blood pool imaging; and special topics.

In two separate places in the preface emphatic statements are made that the two modalities are not in competition, but are complementary. The authors' emphasis on noncompetitiveness actually seems to underline the competitive aspects of echocardiography versus nuclear cardiology versus cardiac catheterization. This produces such convoluted statements as: "Certain echocardiographic and cardioscintigraphic imaging procedures are capable of producing more accurate information than invasive methodology, whereas others of these non-invasive approaches serve as useful screening tests for . . . the more precise assessment by cardiac catheterization."

There is a little something for everyone here. Non-invasive methods are more accurate, and catheterization is more precise!

The reproductions of most of the echocardiograms lack contrast, the printing, apparently, not being what it should have been. The reproductions throughout the rest of the book are of good quality.

There are nice bibliographies for each of the two major sections of the book, and in general the subject matter is handled with excellent organization; concepts are succinctly stated.

ALAN A. JANSEN

Veterans Administration Medical Center  
Portland, Oregon