

RADIATION PROTECTION OF THE PATIENT IN NUCLEAR MEDICINE. W.A. Langmead. Oxford, England, Oxford University Press, 1984, 98 pp, \$13.95

This manual provides a well-designed discussion of the basis of good nuclear medicine practice emphasizing the necessity of coordination of efforts by all nuclear medicine personnel. These tenets are stated in a step-by-step manner in Section I, "Persons with Responsibilities for Radiation Protection of Patients." Section II, "Radiation Protection of Patients—Technical Aspects," describes the physical principles of imaging procedures and lists the radiation quantities and units. The author's intention is to fill in the deficiencies of most standard textbooks, which do not clearly delineate how the patient should be protected from unnecessary radiation. One must, however, have a good basic knowledge of disease, diagnostic procedures, instrumentation, and radiopharmaceuticals to obtain optimum information from the selected procedure. There is a clear message throughout the text that good practice leads, undoubtedly, to the protection of the patient.

Appendix A, "Notes on Certain Types of Investigation," provides a guideline of what to expect in terms of absorbed radiation dose to the critical organ and the value of the effective dose equivalent in most nuclear medicine procedures. It is unusual, however, to see that Tl-201 is omitted and Se-75 is included. Caution must be exercised in interpreting some statements such as that regarding the suspension of breast-feeding for 24 hr in order to avoid unnecessary irradiation to the infant. For example, in dealing with the Tc-99m radiopharmaceuticals, the "48-hr rule" would be preferable in most situations. This rule, however, does not take into account external irradiation of the infant from the mother as a source that may be more significant if the infant remains in close contact with the mother in the first several hours. Incidentally, the "two weeks rule" should be applied in the feeding mother who has undergone Ga-67 studies. Protection of the embryo is discussed in Appendix B, which recommends the "10 day rule." The radiologic examination and those procedures using radiopharmaceuticals with long effective half-lives have different radiation exposure impact. Thus, the "10 day rule" must be applied in some nuclear medicine procedures, as discussed in Appendix B. An interesting argument can also be made for what is the acceptable gonad dose limit to the fetus (50 mrad as compared with 500 mrad), and it is necessary to do some homework on this subject with respect to the "10 day rule." Appendix C is a brief guide for administering nuclear medicine departments.

I enjoyed reading the manual and view it as a reminder of how daily practice should be carried out. The principal approaches to nuclear medicine procedures are effectively described, and the author accomplished his intended goal well.

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ULTRASOUND ANNUAL 1983. R.C. Sanders, M.C. Hill, Eds. New York, NY, Raven Press, 1983, 332 pp, \$39.00

The most outstanding feature of this *Yearbook* is the thoughtful selection of a broad range of topics. The book consists of ten chapters, each of which covers in depth selected areas, primarily in clinical ultrasonography. The book should be of interest to physicians who are performing ultrasound examinations and others who are interested in the current state-of-the-art developments in this field.

Several chapters deal with practical "bread and butter" diagnostic problems and anatomical studies of the right upper quadrant. For example, the chapter on the common bile duct is an excellent review and guide to the commonly encountered problem of biliary obstruction. Numerous tables that summarize reported measurements of the bile duct are provided. The status of the

common bile duct in postcholecystectomy patients is discussed. Another chapter dealing with the liver and right upper quadrant describes the anatomical features of the upper abdominal vasculature and provides excellent illustrations and correlation with angiographic and computerized tomographic material. Coverage of the tropical diseases involving primarily liver lesions is interesting and well illustrated. As the authors point out, increasing worldwide travel has resulted in the dissemination of some of the diseases previously thought to be endemic to certain areas. It is therefore important for physicians in the imaging field to consider these tropical diseases in the differential diagnosis when multicystic hepatic lesions are demonstrated.

Since real-time ultrasound technology has continued to improve and has become more and more widely used, a chapter dealing with the technical aspects of real-time ultrasound is timely and familiarizes the reader with a variety of real-time transducers, their advantages and limitations.

In addition, with the improved resolution of real-time equipment, the study of the fetus as the patient has been facilitated. One chapter concerns itself with prenatal diagnosis of craniospinal anomalies and represents an excellent guide to the sonographer performing obstetrical scanning.

The use of sonography to monitor ovarian follicular development is also related to improved ultrasound real-time resolution and represents a relatively new application of ultrasound to this aspect of the fertility problem.

The chapters all have ample illustrations of excellent quality, and the bibliography is extensive. Familiarity with the capabilities and limitations of sonographic evaluation remains extremely important to nuclear medicine physicians engaged in active clinical practices that are so often involved with many aspects of correlative imaging. For this reason, the *Ultrasound Annual* would represent a useful addition to his or her library.

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EXPOSURE FROM THE URANIUM SERIES WITH EMPHASIS ON RADON AND ITS DAUGHTERS, Report No. 77. National Council on Radiation Protection and Measurements. Bethesda, NCRP, 1984, 131 pp, \$12.00

This report was written in response to concerns over elevated levels of "background" radiation observed around uranium mines, in buildings with poor ventilation, and in certain regions with naturally high levels of radiation in the soil. It recommends that background and man-made terrestrial radiation be considered together when assessing risk, since normal background levels vary considerably (up to 2800 mrad/yr in parts of India), and can be altered by man, for example when random-emitting earth is brought to the surface in strip mining. Risk estimates and responsive action are outlined in this brief but informative 130 page report.

Cosmic radiation is not included in the analysis presented, but radon inhalation, dietary intake, water intake, and external radiation are treated in enough detail to provide much interesting and useful data on such matters as phosphate mining, coal power plants, uranium tailings, tobacco smoking, water supplies, and building materials. No mention is made of nuclear power generation or medical exposures, because these do not generally expose the public to uranium or its daughters in any significant amounts.

After a well-documented section on the rationale used for risk assessment, the report makes a series of recommendations, consisting of "remedial action levels" to be used as guidelines for modifying the radiation levels involved or removing the population