

**ATLAS OF TOTAL BODY RADIONUCLIDE IMAGING, Vol. I & II.** E. W. Fordham, A. Ali, D. A. Turner, J. Charters. Philadelphia, J.B. Lippincott Company, 1982, 1000 pp, \$175.00

This two-volume work on total body imaging may well be regarded by future historians of nuclear medicine as representing the high points in the art of total body imaging in clinical nuclear medicine. It is presented at a time when changing indications for skeletal scintigraphy require high-resolution images and when many laboratories move away from routine total body scans to perform localized views in different projections. It is also the only atlas with emphasis on images obtained with the Anger tomographic scanner (Pho-Con), an instrument no longer commercially available, but highly regarded by some. With regard to information content and volume, it is also the largest collection of well-interpreted, beautifully reproduced, total body images available to date.

The two volumes have a modern, pleasing design. Image reproduction is excellent and the material is presented in clearly identifiable sections. Though the books are entitled "atlas," the information contained in these two volumes would almost justify the classification of textbook as well. The selection of cases is from the authors' laboratories and reflects the principal author's (EWF) fondness for the unusual and stunning scintigram.

The primary goal of this atlas is to demonstrate patterns of abnormality in both typical and less typical variations. This goal is accomplished with many well-described examples of technical artifacts, of normal variants, of common and of rare diseases, and of pitfalls in interpretations. Volume I is entirely dedicated to skeletal imaging with Tc-99m labeled phosphates or phosphonates. The volume is divided into 22 chapters, which include chapters on methodology and instrumentation, chapters on the important bone diseases and other topics such as a treatise on false-negative and false-positive scans, and soft tissue and urinary tract abnormalities recognizable on bone scintigrams. The cases are well documented with localized gamma camera views, radiographs, and CT images, all of excellent quality. The clinical data are generally informative, complete but not excessive, and the bibliography of each volume is restricted to a selection of important and original articles. Finding specific images is facilitated by a case identification in the upper, outer edge of the page. The cases are well referenced and the index is helpful for using this book as a quick reference.

The second volume contains gallium-67 imaging, bone marrow imaging, thyroid, cardiovascular, hepatobiliary and renal imaging with emphasis on total body pictures. Undoubtedly the chapter on bone marrow imaging with Fe-52 is the most original and contains information on methodology and results not available in the literature. The authors accomplish diagnostically useful images with this positron-emitting isotope by modifying collimation and shielding of the standard Pho-Con instrument and by modifying the standard injection technique. Illustrations of normal bone marrow distribution in different age groups are given. Another outstanding contribution of the authors is the use of several whole-body images to demonstrate distribution and redistribution of radiopharmaceuticals in the body with time, by adjusting scanning speed or intensity settings so that the resulting serial images are corrected for isotopic decay.

For the physician interested in clinical nuclear medicine the strength, and at the same time the weakness, of this atlas is the emphasis on total body images, which is a reflection of the authors' contributions to total body imaging over the last years. As a strength this atlas contains valuable information on body distribution of radiopharmaceuticals generally not appreciated when only restricted views of the area of interest are obtained with the gamma camera. Thus, the book gives helpful hints in interpreting the puzzling scintigram when an artifact or unsuspected finding is present. A weakness of the total-body approach to imaging is inherent in the relatively low resolution of these images when

compared with those from a modern gamma camera. The authors justify their emphasis on total body imaging with their sometimes spectacular results in discovering an unsuspected clue to the diagnosis, and the fact that sites for additional special camera views can be selected from total body images.

Everybody involved and interested in clinical nuclear medicine should read at least portions of this atlas. Besides being a reference for interpretation of the unusual and unexpected scintigram, this work also demonstrates in a unique way what happens to radiopharmaceuticals when they are injected into a patient. Owners of Pho-Con instruments will probably be encouraged not to retire their instruments yet.

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**VASCULAR MALFORMATIONS AND FISTULAS OF THE BRAIN (SEMINARS IN NEUROLOGICAL SURGERY).** R. R. Smith, A. F. Haerer, W. F. Russell, Eds. New York, Raven Press, 1982, 268 pp. \$32.00

With the recent refinements in neuroangiographic, microsurgical, and balloon catheter techniques have come a rekindled interest in the treatment of cerebral vascular malformations and carotid-cavernous fistulae. This most recent monograph in the Seminars in Neurological Surgery series addresses both of these topics.

The first section of the book deals with cerebral arteriovenous malformations and begins with sections covering the natural history, neuroradiologic evaluation, and the surgical treatment of those difficult clinical problems. In addition, a chapter on pellet embolization as a treatment modality is included. Most of these well-written chapters are preceded by a summary of representative clinical cases and followed by excellent literature reviews. Although most new concepts dealing with arteriovenous malformations are included in the discussions, the more traditional approach is stressed. Of special interest to neurosurgeons is a chapter by Dr. Dwight Parkinson on the direct surgical approach to these lesions.

The remainder of the text deals with carotid-cavernous fistulae and is introduced by an excellent chapter concerning the neuro-ophthalmological aspects of this syndrome. Dr. Gerald Debrun's chapter is a superb summary of his detachable balloon technique in the treatment of carotid-cavernous and vertebro-vertebral fistulae. These readers have never seen a better summary of this new and exciting technology. The book closes by reporting on the results of two other groups utilizing Dr. Debrun's technique.

Neurosurgeons, neurologists, and ophthalmologists will find this new book readable and quite useful.

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**RADIOIMMUNOASSAY OF GUT REGULATORY PEPTIDES.** R. Bloom, R. G. Long, Eds. New York, Praeger, 1982, 194 pp, \$24.95

This multiauthored book describes the methodology used to quantitate several gut regulatory peptides. Because of the low concentrations involved, radioimmunoassay is still the method of choice, although several other techniques have been developed in recent years. The text assumes some basic radioimmunoassay knowledge, as there is little general theory presented. The first several chapters discuss, in varying detail, general factors of RIA

including reagent preparation, tissue extraction, and the problems associated with measurements in extracts and plasma. The authors present good, step-by-step methods for antibody production and peptide iodination. The least helpful chapter is the one on quality control and assay mathematics. While it points out the need for good assay control, it also emphasizes how the author's practice of adding more label to the assay as specific activity lessens with time is at odds with the goal of attaining maximum assay sensitivity. The section on data processing is very superficial and contains no discussion of the advantages and disadvantages of various data reduction methods.

Chapters 8 to 20 each give the general chemistry, localization, physiology, pharmacology, biological concentration, and pathological considerations for each of the most commonly recognized gut regulatory peptides, such as gastrin, cholecystokinin, secretin, vasoactive intestinal polypeptide, gastric inhibitory polypeptide, glucagon, and others, and the neuropeptides such as bombesin and substance P. The enkephalins, PHI, and PYY are not discussed. The chapters also include reagent preparation and assay parameters, which are helpful if one has access to the antibodies (or those with similar characteristics) used by the authors. Each chapter is written by authors who are actively involved in the radioimmunoassay of a particular peptide. There is a helpful chapter containing a good checklist for assay trouble shooting followed by a chapter that gives clinical considerations of several of the peptides, including the author's method of gut hormone screening. The book closes with an appendix containing the more prominent suppliers of peptides and a useful glossary of terms.

Overall, this book is recommended as a good reference and review source although it has more appeal to the laboratory-oriented investigator with at least some background in RIA techniques.

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**RADIONUCLIDE IMAGING IN DRUG RESEARCH.** C. G. Wilson, J. G. Hardy, M. Frier, & S. S. Davis, Eds. London, Croom Helm, 1982, 330 pp, £ 19.95

This book is based on the proceedings of a symposium "Applications of Radionuclides in Drug Formulation Studies" held at the University of Nottingham in April, 1981. Other than one from France and two from the U.S.A., the contributing groups are English. Four general divisions of the book are discernible. The first part deals with basic aspects of radiopharmaceuticals and diagnostic imaging and is followed by chapters on the applications of external scintigraphy in studies of drug behavior in animal models and in man. Section Three consists of topics concerned with the formulation and targeting of labeled materials, and the final portion is made up of abstracts from the symposium's poster sessions, which covered a variety of topics.

This book relates in its initial chapters some basic information concerning the needs, problems, and potential of a nuclear medicine/pharmaceutical science marriage. Treatment of such topics as choice of radionuclides for scintigraphy and quality controls for radiopharmaceuticals is elementary for nuclear medicine scientists; however, other subjects, e.g., dosage design and formulation, provide interesting information for those with less background in radiopharmaceutical development. The chapter on radiopharmaceutical targeting specifically and numerous examples in other chapters demonstrate the need for and indicate the mutual benefit that can be derived from an association of this kind.

Considerable emphasis is placed on use of imaging procedures to study biological "processing" of various formulations administered by different routes. For example, tablet disintegration,

aerosol deposition, liposome distribution, emulsion formulations, gastrointestinal transit preparations, and rectal modalities are all considered.

A primary deficiency of a book with this title is its lack of an example of an in-depth treatment of pharmacokinetics and modeling. As enumerated in Chapter 3 on data handling and computation, inherent limitations are associated with imaging data acquisition and computer processing; nonetheless, the correlation of theoretical time-activity curves based on physiological parameters with curves obtained from imaging and tissue assay data can demonstrate the usefulness of the combined techniques. Perhaps the editors should have retained the symposium title for the book.

The figures and pictures are well reproduced, but word processor reproduction of the text is a reminder of the origin of the material.

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**SELF-ASSESSMENT OF CURRENT KNOWLEDGE IN NUCLEAR MEDICINE (SECOND EDITION).** J. B. Selby, G. D. Frey, J. F. Cooper, C. J. Klobukoski. Garden City, N.Y. Medical Examination Publishing Co. Inc., 1981, 250 pp. \$18.00

In this updated second edition, the order of contents of the textbook has been reorganized. It has been divided into two main parts: Basic Science and Clinical Nuclear Medicine. Basic Science, Part I, encompasses basic physics, radiation protection, interaction of radiation with matter and radiation detection, imaging, nuclear pharmacy, and radiation biology. Part II, Clinical Nuclear Medicine, covers the central nervous system, bone, gastroenterology (liver/spleen), cardiovascular system, pulmonary system, genitourinary system, thyroid and endocrine systems, gallium studies, radioassay, hematology, and therapy. The total number of pages of the current edition is increased to 250 from the 213 of the first edition but there are fewer questions because those in the basic science area have been carefully selected to 60 of the original 98 questions.

Compared with the previous edition, there are two advantages in the current one: (1) the addition of explanatory answers; and (2) the inclusion of up-to-date scintiphotos replacing rectilinear scan illustrations. The "answers and comments" portion of explanatory answers comprise 48 pages. The explanation of each question is brief and clearly hits the key points of the question and its related area. These answers are supported by current bibliographies, a major improvement from the previous edition. There are only two figures in the section of basic science. The 44 figures in Part II have been distributed as following: three in central nervous system, 15 in bone, 13 in liver/spleen, two in cardiovascular system, three in pulmonary system, two in genitourinary system, three in thyroid and endocrine, one each in gallium studies, radioassay, hematology, and therapy. The most valuable figures, such as Figure 9-1, the usual liver imaging pattern in various types of diaphragmatic hernia, remain in this edition. In the chapter of cardiovascular system, most of the material is new and covers questions regarding thallium myocardial perfusion scanning, gated-blood pool imaging, and pyrophosphate myocardial scanning. In the section on the genitourinary system questions relating to scrotal imaging are included. Studies of the choice of Tc-99m labeled IDA as hepatobiliary agents are added in the chapter of liver/spleen. Questions involving selection of computerized tomography (CT), ultrasound (US), and nuclear medicine as diagnostic strategies also are covered, since it is important to understand the strengths and limitations of the applications of nuclear