

Radiopharmaceuticals in Nuclear Pharmacy and Nuclear Medicine, 2nd edition

Kowalsky RJ, Falen SW. American Pharmaceutical Association, Bethesda, Maryland, 2004. ISBN 1-58212-031-5. US\$109.95 (members), US\$129.95 (nonmembers).

This textbook is a greatly improved and expanded update of the first edition and is intended for all those who work with radiopharmaceuticals in a clinical setting. It is suitable as a handbook, not only to accompany a teacher's lectures but also as a reference overview for the nuclear medicine and radiopharmacy specialist.

Richard J Kowalsky, the sole author of the first edition, is an associate professor of pharmacology and radiology at the University of North Carolina, Chapel Hill, North Carolina, and has been joined in preparing the second edition by Steven W Falen, director of nuclear medicine and positron emission tomography (PET) services at the Riverside Regional Medical Center, Newport News, Virginia.

Several sections of the text have been vastly expanded. The most marked updates to the first edition are 2 chapters that discuss radiation safety and the biologic effects of ionizing radiation, respectively, and another chapter on PET applications.

The textbook is divided into 23 chapters. The first 9 chapters give a thorough overview of the basic sciences underlying radiopharmacy as well as a review of regulatory affairs for nuclear pharmacy in the United States. These chapters are well balanced and suitable for readers without any previous training in the field. High-quality, comprehensive figures and tables contribute significantly to the highly detailed text. In particular, the chapter on technetium, indium, and iodine chemistry is excellent.

Chapter 10 is dedicated to the ever-expanding field of PET applications. A concise description of decay and detection and a brief overview of PET radiopharmaceuticals are presented. However, in light of the vast number of publications on PET molecules now being published, this chapter should have been more detailed. To parallel the section on the Tc-generator system, a brief overview of cyclotron physics might have been useful. Also, the specific

needs of a radiopharmacy that produces PET radiopharmaceuticals are not discussed in detail.

Chapters 11 and 12 focus on basic needs for everyday nuclear pharmacy practice. Special attention is paid to quality control and quality assurance of radiopharmaceuticals. These 2 sections would be a welcome introduction for the novice or a student with no prior experience in radiopharmacy or clinical radiopharmacy, but, in our opinion, are not very useful for more senior pharmacists.

Several chapters (13 to 20) deal with the most important target tissues, such as brain, thyroid, heart, lung, liver, kidney, and bone. Several whole-body techniques are also presented. In each chapter, anatomy and physiology are briefly summarized, to allow better understanding of the mechanisms of uptake of the various radiopharmaceutical agents. For each tissue, the most widely used tracers and nuclear medicine techniques are discussed, with a focus on the radiopharmaceutical aspects. Not much attention is paid to reconstruction techniques or numerical analysis. It is a pity that most of the pictures seem to have been conserved from the previous (1987) edition, despite the availability of more recent, higher-quality pictures.

Other radiopharmaceuticals, which do not target one tissue specifically, are described in chapters 21 to 23. For example, chapter 21 presents a very short overview of radiolabelled antibodies. In view of the recent development and release of radiolabelled antibodies for both detection and radioimmunotherapy, this section could have been more detailed.

Although this textbook is focused on US practice, it is an excellent resource for anyone who uses radiopharmacy and nuclear medicine imaging. The text offers something for everyone, from beginner to specialist. Even though we have noted some minor areas for improvement, we especially recommend the basic science chapters 1 through 12.

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