

introductory work which would serve anyone concerned with this subspecialty.

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NUCLEAR MEDICINE THERAPY.

*J.C. Harbert, New York, Thieme Medical Publishers, 1987,
356 pp, \$79.95*

Books devoted to radionuclide therapy are scarce. *Nuclear Medicine Therapy* by John C. Harbert is a new contribution to this field. This book is intended, as stated in the preface, to be "a comprehensive source of practical information" about therapy with radiopharmaceuticals. Specific clinical indications for radionuclide therapy are presented in 16 chapters by Dr. Harbert. Radiobiologic principles are summarized in a chapter by Kathryn D. Held and radiopharmaceutical dosimetry is summarized in a chapter by James S. Robertson. Nine appendices provide useful information in tabular form. The index is adequate. References, at the end of each chapter, are abundant. The quality of the paper, print, and illustrations is excellent.

Organization of the material is logical and conventional. Divisions within each chapter are clearly identified. Five of the 18 chapters contain brief summaries or conclusions. Subjects discussed include radioiodine therapy of hyperthyroidism and thyroid carcinoma; radiocolloid therapy of peritoneal metastases, malignant ascites, pleural and pericardial effusions; intra-arterial, intra-articular, and intrathecal uses of radiocolloids; and radionuclide therapy of myeloproliferative disorders, bone pain, ocular melanoma, and craniopharyngioma. The current status of iodine-131 (^{131}I) metaiodobenzylguanidine for the treatment of pheochromocytoma and other neuroendocrine tumors, and the potential therapeutic uses of radiolabeled antibodies are described.

The discussion of thyroid physiology contains some confusing statements. For example, "the effect [of iodine administration] appears to be one of inhibition of organification" but in the same paragraph "iodine administration does not inhibit hormone synthesis."

Methods for the administration of ^{131}I therapy for hyperthyroidism are thoroughly described but criteria for the selection of patients for therapy are ambiguous. In some instances the stated rationale for ^{131}I therapy is obscure: "Primary ablation is also recommended for patients in whom for any reason it is appropriate to reduce the number of tests" (page 14). The author's bias in favor of ^{131}I therapy is inadequately balanced by consideration of views that favor antithyroid drug therapy. The chapter on ^{131}I therapy for differentiated thyroid carcinoma gives appropriate recognition to the controversial aspects of this subject. Various criteria and methods for the administration of ^{131}I therapy are described in detail.

Some of the therapeutic uses of radionuclides that are discussed are mainly of historical interest; others are timely. There is little to indicate which procedures are well accepted or widely used and which procedures are experimental or obsolete. Information about the availability of certain radio-

pharmaceuticals and the status of their approval by the Nuclear Regulatory Commission and the Food and Drug Administration would be helpful but is not provided. The frequent use of mixed traditional and Systeme Internationale (SI) units is a minor annoyance (for example, mCi and cGy instead of mCi and rad or MBq and cGy).

In general the author has succeeded in his stated purpose. The book is recommended for general medical libraries and nuclear medicine departmental libraries, and for physicians interested in the practical aspects of radionuclide therapy.

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RADIATION RISKS TO THE DEVELOPING NERVOUS SYSTEM.

*H. Kriegel, W. Schmahl, G.B. Gerber, F.E. Stieve, Eds.
Stuttgart, Gustav Fischer, 1986, 435 pp, \$58.00*

This volume is the Proceedings of an International Symposium of the same name organized by the Radiation Protection Programme of the Commission of the European Communities and the Gesellschaft für Strahlen- und Umweltforschung mbH. in Neuherberg, Germany in June 1985. The participants were mostly from Europe and Japan, with a sprinkling from England, Scandinavia, and the United States.

The book opens with an excellent historical overview and current perspective of our knowledge of radiation effects on the developing nervous system presented by R.H. Mole, of Oxford, England. This review revealed that "sensitivity is maximal in the first two months of the fetal stage, not in the earlier embryonic stage of general organogenesis, and is well correlated with rapid proliferation of neuroblasts in the telencephalon." Recent analysis of the Hiroshima and Nagasaki data indicates clearly that "severe mental retardation was much the most important kind of damage to appear in bomb survivors exposed in utero," and the "frequency of severe mental retardation in the combined populations from Hiroshima and Nagasaki exposed in utero is linearly related to fetal tissue dose with extraordinary statistical precision."

The remaining papers were divided into five topical areas: morphological and biochemical differentiation of the central nervous system; experimental studies on the effects of radiation on the developing nervous system (morphology); experimental studies on the effects of radiation on the developing nervous system (biochemistry); combinations effects on the developing nervous system (i.e., interaction of radiation and drugs); and, human studies. Questions and answers from the audience after oral presentations are presented. A roundtable discussion at the conclusion of the Symposium was recorded and is included at the close of the book.

Without prejudice to the excellent quality of the other papers, the following observations from human studies are of special interest. There appears to be a practical threshold of ~20 cGy (rad) below which CNS effects are not seen, except that the preimplanted embryo seems to begin exhibiting sensitivity at about 10–15 cGy. "Peak sensitivity to major malformations occurs between the 18th and 30th days, falling rapidly over the next ten days." (Brent et al., p. 372). Severe

mental retardation, if it occurs, will most likely occur due to exposures from the eighth to the fifteenth weeks of gestation. Exposure of pregnant women to doses in the range 0.5–5 cGy (rad) appears to present estimated risks that are at least several orders of magnitude below the usual risks of pregnancy in the absence of radiation. Finally, the 10- or 14-day rule (avoidance of radiation exposure to a fertile woman during the first 10 to 14 days of her menstrual cycle) should be abandoned for planned, medically necessary diagnostic radiographic examinations since they rarely exceed the 5 cGy level and since the risks are so low. The paper by Brent et al. reinforces current NCRP guidance that fetal doses below 5 cGy present minimal additional risk compared to the normal risks of pregnancy.

This book will be of interest to radiobiologists and to researchers investigating the effects of radiation on the central nervous system. It will be useful as a reference to health physicists and medical physicists who are consulted about the possible effects of a radiographic or nuclear medicine examination that is either proposed for a pregnant or potentially pregnant woman or that was performed on a woman who did not know that she was pregnant at the time of the examination. The quality of the illustrations is good. All of the manuscripts

were retyped and are in an identical typeface, and the translations from the various foreign languages of the authors into English is excellent.

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Books Received

Diagnostic Radiology 1987. A.R. Margulis, C.A. Gooding, Eds. St. Louis, CV Mosby Company, 1987, 564 pp, \$85.00

Principles of NMR in One and Two Dimensions. R.R. Ernst, G. Bodenhausen, A. Wokaun. New York, Oxford University Press, 1987, 610 pp, \$98.00

Physics and Engineering of Medical Imaging. R. Guzzardi, Ed. Dordrecht, Kluwer Academic Publishing Group, 1987, 966 pp, \$210.00