

UNIVERSIDAD NACIONAL E ENTRE RIOS FACULTAD DE INSENIERIA SENTRO DE MEDIOS BIBLIOTECA

Contents

	N2 562	
	About the Editor	xi
	Contributors	xiii
	Introduction Fuad S. Ashkar	xv
	Preface William H. Beierwaltes	xvii
1	Instruments for Imaging Procedures PETER J. KENNY	1
	The scintillation camera and the rectilinear scanner are the two imaging instruments used in nuclear medicine. Dr. Kenny discusses these systems in terms of the three major components common to each: the collimator, detector and associated electronics, and display.	
2	Radiopharmaceuticals for Clinical Use Homer B. Hupf	6
	Dr. Hupf describes the four classifications of radiophar- maceuticals—compounds, complexes, colloids, and gen- erators—and explains preparation methods. He specifies clinical applications, including uptake mechanisms for the brain thyroid liver lungs and kidneys.	
3	Data and the Computer R. Roger Sankey	12
	A small digital computer system, plus the hardware and software requirements for interfacing a computer to an Anger camera, are explained by Dr. Sankey. He discusses the most common imaging procedures.	
4	The Central Nervous System William M. Smoak III and Albert J. Gilson	29
	This survey emphasizes the spectrum of nervous system diseases detectable by both dynamic and static scintigraphy. Drs. Smoak and Gilson extensively discuss the normal and abnormal procedures and findings covering vascular traumatic infectious and neoplastic	

diseases.

5 The Thyroid, Parathyroids and Adrenals Fuad S. Ashkar

38

Dr. Ashkar explains all aspects of thyroid imaging and function tests—in vivo and in vitro techniques . . . the dynamic thyroid study . . . thyroid differential scanning methods . . . normal and pathological thyroid regulation . . . goiter evaluation . . . and the work-up of functioning and nonfunctioning nodules. Parathyroid and adrenal scanning methods are also presented.

6 The Respiratory System MOHAMMED YUNUS

53

Radionuclides for lung disease study are starting to resolve the clinical dilemma in diagnosis. Dr. Yunus deals with perfusion and ventilation lung scanning, covering the principles . . . safety . . . radiopharmaceuticals . . . patient preparation . . . procedures . . . and interpretation, for diagnosis of numerous respiratory ailments.

7 The Gastrointestinal System Fuad S. Ashkar and August Miale, Jr.

63

Drs. Ashkar and Miale examine liver, spleen, and pancreas imaging, covering the principle . . . tracers used . . . instrumentation . . . results . . . and interpretation in normal and abnormal situations. They also point out sources of error

8 The Cardiovascular System STUART GOTTLIEB

80

Dr. Gottlieb presents dynamic radiotracer techniques and their interpretations in evaluating cardiovascular problems. Radionuclide angiocardiographic findings in normal pericardial effusion . . . ventricular aneurysm mass lesions . . . and valvular disease are discussed, and dynamic measurements are analyzed.

9 The Skeletal System

108

Aldo N. Serafini

Bone scanning techniques with better agents have revolutionized our understanding of skeletal disease. Dr. Serafini discusses the indications and uses of bone scanning, including neoplastic diseases . . . trauma . . . aseptic necrosis . . . inflammatory disease . . . differentiation of bone islands . . . and evaluation of metabolic disorder.

DE MEDIOS

UNIVERSIDAD NACIONAL DE ENTRE RIOS

ix

10 The Reproductive System

ALEX A. BEZHAN

118

Dr. Bezjian's chapter deals with placental localization and the role of RIA in obstetrics and gynecology. The clinical use of HPL . . . HGG . . . estrogens . . . progesterones . . . and gonadotropins are discussed, as well as normal pregnancy . . . threatened abortion . . . toxemia . . . intrauterine growth retardation . . . signs of fetal demise . . . ovarian dysfunction . . . menstrual irregularities . . . amenorrhea . . . and infertility.

11 The Renal System

Aldo N. Serafini

130

The triple renal scintigraphic techniques and the more common radionuclides—radiochlormerodrin, radiohippuran, and radiopertechnetate—are discussed here. Indications for renal imaging are also presented, with reference to renal size and localization . . . evaluation of intra- or extrarenal space-occupying lesions . . . hypertension . . . renal outlet obstruction . . . detection of vesicoureteral reflux . . . and renal transplants.

12 The Hematopoietic System

MORTON B. WEINSTEIN

141

Dr. Weinstein's chapter deals with the in vitro hematological procedures . . . imaging of the bone marrow . . . spleen and lymph nodes . . . and immunohematology. Also discussed are the Schilling Test . . . blood volume . . . red cell survival . . . ferrokinetics . . . imaging of organs with reticuloendothelial cells . . . and the applications of radionuclides to red cell metabolism.

13 Tumor Localization

150

160

Detecting neoplastic diseases with radiotracers has markedly improved the physician's capability to detect cancer. Drs. Weinstein and Rosenberg tell how the standard radiotracer is useful in localizing tumors . . . the methodology of study . . . clinical applications . . . and findings.

MORTON B. WEINSTEIN AND EUGENE B. ROSENBERG

14 Detection of Human Tumor-Associated Antigens

Eugene B. Rosenberg, Patricia M. Smith,

AND MORTON B. WEINSTEIN

Tumor detection by radioimmunoassay is presented here, including methods of detection . . . RIA for car-

cinoembryonic antigen (CEA) alpha fetoprotein
assays of cellular immunity which detect tumor anti-
gens lymphocyte transformation studies and
⁵¹ chromium lymphocyte cytotoxicity assays.

15 Radioimmunoassay

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168

FUAD S. ASHKAR AND ALBERT V. HEAL

Drs. Ashkar and Heal present the principle and applications of radioimmunoassay . . . the antigens . . . radiolabeling . . . antibody formation . . . assay separation of bound from free antigen . . . data derivation . . . and specific application.

16 Radioisotope Therapy

176

FUAD S. ASHKAR

Radioisotope therapy has had a major impact on thyroid disease therapy. Dr. Ashkar discusses the diagnosis of various types of hyperthyroidism, emphasizing isotope dose calculations and post-therapy hypothyroidism. The detection of thyroid carcinoma . . . the roles of surgery . . . and of radioiodine therapy are presented.

Glossary and Appendix Tables

182

SHARAD AMTEY

Definitions of terms commonly used in nuclear medicine are given. Tables of physical constants . . . units . . . and radiation doses associated with imaging procedures are included.

Self-Evaluation Section

199

Test your understanding in this comprehensive 200question short-answer test.

Index

213