

## BOOK REVIEWS

**GAMUTS IN NUCLEAR MEDICINE.** F.L. Datz. Norwalk, CT, Appleton-Century Crofts, 1983, 289 pp, \$22.50

The gamut approach to imaging studies has become increasingly popular over the past decade. In his introduction, the author indicates that this book is patterned after Reeder & Felson's "Gamuts in Radiology." What follows are multiple organ system chapters containing a useful collection of common scintigraphic patterns and their differential diagnosis. Each organ system is divided into the types of nuclear medicine imaging procedures diagnostically useful for that system, and each imaging procedure is then subdivided into scintigraphic patterns. Each scintigraphic pattern is followed by a gamut—a list of its differential diagnostic possibilities divided into common, uncommon, and rare causes, which is, in turn, followed by a series of references.

Although many of the currently useful diagnostic nuclear medicine imaging procedures are included, some, such as gastrointestinal bleeding studies, are not. Nonimaging nuclear medicine procedures are also not described. For those procedures that are included, most of the common scintigraphic patterns are listed, and their gamuts are comprehensive, useful, and interesting. However, some common scintigraphic patterns are not mentioned, such as unilateral decreases in renal function, retained hippurate activity, or functional abnormalities occurring with renal transplantation. Each gamut is divided into common, uncommon, and rare causes, and listings in each of these sections occur in alphabetical order. It would be more useful to list the disorders on the basis of frequency of occurrence. Finally, there are references in alphabetical order at the end of each gamut "to provide documentation and to facilitate further reading." It would have been more helpful if the author had referenced specific entities in the gamut, especially for the more lengthy gamuts, which include up to 98 causes and 122 references.

Despite the above-mentioned shortcomings, Dr. Datz should be commended for undertaking this difficult task. Although gamuts have appeared in *Seminars in Nuclear Medicine* over the past several years, this book represents the first attempt at compiling this information in one volume. It will be most useful for radiology and nuclear medicine residents who are learning to interpret nuclear medicine images. It will also be valuable to practicing radiologists and nuclear medicine physicians as a reference when searching for more unusual causes of common scintigraphic patterns.

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**FUNCTIONAL RADIONUCLIDE IMAGING OF THE BRAIN (Sero-  
no Symposia Publications from Raven Press—Volume 5).** P.L. Magistretti, Ed. New York, Raven Press, 1983, 384 pp, \$59.00

This book should mark a watershed in our perspective of brain disease. Concepts of brain disease as an abnormality of structure or an abnormality of a single pathophysiologic index, disruption

of the blood-brain barrier, useful in their time but obviously surpassed by better anatomic and structural methodologies, are rapidly disappearing, and rightly so. This book is a compilation of brief papers from a symposium by recognized experts in their fields using radionuclides in the investigation of brain abnormalities. It emphasizes that diseases of the brain can best be detected, characterized, and monitored by measuring regional alterations in the blood flow, metabolic rates, and neurotransmitter binding sites. The refined ability to measure pathophysiologic changes in disease states must of necessity precede attempts at therapeutic intervention, for it not only provides a means for early diagnosis but for defining underlying disturbances in normal function and for evaluating therapeutic efficacy.

In order to shift our ways of thinking (and those of our clinical colleagues as well) concerning brain disease, this book stresses, with some redundancies and with emphasis on mathematical derivation of the validity of flow measurements, several areas of current interest including tracer measurements of cerebral blood flow made with inhaled or i.v. injected xenon, N-isopropyl I-123 p-iodoamphetamine, HIPDM positron emitters such as F-18 fluorodeoxyglucose, and  $^{15}\text{O}$  labeled tracers. Sophisticated and often unique instrumentation is described—PET; SPECT; specially constructed, multidetector, tomographic reconstruction devices; and probe systems. A number of the papers deal with the limitations of each method and the errors inherent in attempting to quantify the anatomic distribution of a labeled tracer by each of these means. These should be carefully perused by anyone contemplating purchase of one of the commercially available systems.

The utility of each method in a clinical setting is at least briefly covered. For example, there are discussions of cerebral blood flow measurements made with xenon-133 in cerebrovascular disease, including transient ischemic attacks and stroke, head injury, dementia, and neuropsychiatric disorders. Similarly, the utility of positron-labeled indicators of blood flow, oxygen utilization, glucose and protein metabolism is discussed with regard to ischemic vascular disease, including evolution of infarction, epilepsy, different causes of dementia and neoplasm. New concepts emerge from these discussions concerning function: impairment of neuronal centers at a distance from disease affecting the primary center to which they are related—diaschisis; neurotransmitter receptor depletion; decreased blood flow to highly vascular tumors; monitoring BCNU brain neoplasm distribution; ability to monitor a transient ictal episode by injecting a compound, the distribution of which does not change significantly over a several hour period, allowing study of the acute episode in a more convenient imaging environment.

There are also current summaries of the blood-brain-barrier phenomenon and standard radionuclide brain imaging techniques in the clinical setting. In addition, there is a thoughtful, physiologic explanation of cisternographic findings in communicating hydrocephalus.

I share some of the discouragement of one of the authors with the slowness of progress imposed by governmental bureaucracies