NUCLEAR MEDICINE: CARDIOLOGY (TOPIC 6: MYOCARDIAL PERFUSION SCINTIGRAPHY—CLINICAL ASPECTS)

E.H. Botvinick, editor. Reston, VA: Society of Nuclear Medicine, Inc., 2001, 396 pages, $182

This book is part of the Self-Study Program III of the Society of Nuclear Medicine. The authors have thoroughly reviewed the clinical applications of myocardial perfusion imaging, from diagnosis of coronary artery disease through comparison with other imaging modalities.

For physicians, the book offers an indepth overview of the role perfusion imaging plays in diagnosis, prognosis, and outcomes in patients with coronary artery disease. The authors discuss what interpreting physicians should include in their interpretation and how the results can be used to aid referring physicians with risk stratification and treatment decisions about their patients. The authors also discuss how to apply and use myocardial perfusion imaging in specific disease states, such as unstable angina, and in the assessment of myocardial viability. The questions and case examples allow physicians to test their knowledge and skills and to assess whether their understanding of a topic is good or needs improvement.

For technologists, both experienced and new to the field, this publication is a valuable learning tool for understanding the function and importance of myocardial perfusion imaging in the diagnosis and treatment of coronary artery disease. The authors have defined terms and clinical situations in a manner that is easy to understand and informative to those who are not familiar with clinical cardiology. The section on other modalities is also helpful to technologists who may not be familiar with different methods of diagnosing coronary artery disease.

The book opens with a detailed overview of the diagnosis of coronary artery disease. The critical role of exercise testing in the detection of coronary disease by myocardial perfusion imaging is explained, and the limitations of stress testing in women are reviewed. This section also discusses the advantages of perfusion imaging and analyzes diagnostic accuracy.

The following 3 sections contain a more advanced discussion on diagnosis, including a review of the ability of both planar and SPECT methods to detect disease, issues surrounding identification of the extent and severity of disease, and the use of gated SPECT and first-pass imaging for detection of disease.

The next several sections are geared toward the role of the physician. The first of these sections is an overview of image quantitation methods and describes how these may be used as a tool for determining the extent and severity of disease. The following sections include quantitation methods for image reproducibility and interpretation. The section on interpretation is thorough and reviews the tools required, the various methods available, the information to be reported, and methods to combine imaging results and clinical findings.

The largest and most informative sections of the book cover the prognostic value of myocardial perfusion imaging and how it is used in specific diseases and in determination of patient outcomes. These sections contain pertinent and valuable data that explain the incremental prognostic value of myocardial perfusion imaging, the clinical situations in which and frequency with which serial imaging should be performed, the uses of myocardial perfusion imaging after myocardial infarction and intervention, and the evidence-based and outcomes-based approaches to patient management.

Later sections of the book review perfusion imaging of noncoronary heart disease, assessment of myocardial viability, other methods of diagnosing coronary disease, and the comparative uses of myocardial perfusion imaging and stress echocardiography. All are informative and provide further insight into the expanding application of myocardial perfusion imaging.

The last section of the book contains questions and case examples involving situations discussed throughout the text. For each question, the correct answer is given with an informative and detailed explanation. This section allows the reader to apply the information gained to various clinical situations and to understand the material more thoroughly.

In summary, this publication offers a detailed overview of the clinical aspects of myocardial perfusion imaging. The book is a good reference for experienced physicians and technologists as well as those who are inexperienced. It is filled with an abundance of references and includes graphs, charts, and case examples that make the data interesting and easy to read, understand, and apply to daily practice.

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