

Nuclear Cardiology and Other Noninvasive Imaging Techniques in Cardiology

Edited by José Manuel Castro-Beiras. Madrid: Meditécnica S.L.; 2005; 795 pages. 334 figures and 100 tables. ISBN: 84-609-2793-8.

This new book on nuclear cardiology and other noninvasive techniques is written by 120 authors. It starts with a presentation by the editor himself and there follow 4 prologues and a total of 63 chapters divided into 6 sections. The numbers themselves suggest the ambitious scale of this project and indicate that, very much to his credit, the editor has had to make innumerable contacts. Most authors are Spanish but they are joined by a good number of non-Spaniards of recognized international prestige.

The first part (14 chapters) is dedicated to technical aspects including radiopharmaceuticals, instrumentation, positron emission tomography (PET) technology, solid state, single-photon emission computerized tomography (SPECT) perfusion technology, correction of attenuation, fusion of images, gated-SPECT, and radioactive isotope ventriculography. There are other chapters too but, really, these are the themes they deal with as many reiterate data and some chapter titles are almost identical.

The second part is the most extensive (29 chapters) and deals in depth with clinical applications of nuclear cardiology and some aspects of coronary physiology that improve understanding of cardiac PET. Some chapters might have been omitted as they summarize topics discussed in greater detail elsewhere. For example, Chapter 19 is dedicated to clinical aspects of myocardial perfusion with thallium and repeats topics such as the physiology of exercise and myocardial ischemia and stress types, found in earlier chapters. This chapter also discusses prognostic value, post-infarction evaluation, myocardial perfusion and revascularization and coronary heart disease in women. All of these appear again in later chapters in the same part.

One chapter is devoted to a comparison of myocardial perfusion PET and stress echocardiography. Three chapters refer to endothelial dysfunction and another to the study of coronary flow reserve with transthoracic echocardiography. Others are dedicated to antimyosin antibody imaging, myocardial receptors, neurotransmitters, and adrenergic innervation. Another focuses on detection of atheroma plaque using nuclear medicine. The detection of unstable plaque is framed within "future perspectives for nuclear cardiology" as something possible but not yet feasible with current techniques. Some chapters are clearly redundant: for example, one on interpreting and elaborating reports on myocardial gated-SPECT (already dealt with in Part One, Chapter 14); another on medicine based on the evidence and evaluation of health technologies. This part of the book closes with 2 chapters on pediatric nuclear cardiology which might also have been omitted as magnetic resonance imaging, which

has no radioactive effect, more than adequately replaces nuclear medicine in the study of congenital heart disease.

The middle of the book reveals a number of pages of color images rather missing in the body of each of the chapters. There are 62 good quality images, although some have been over-reduced in size. References to the figures appear in each chapter but you have to search these central pages to find the image instead of seeing it on the page where it is described. Financial constraints probably account for this but it does make reading uncomfortable.

Myocardial viability is the focus of the third part which deals with PET perfusion, radioactive isotope ventriculography, and PET as well as dobutamine echocardiography and magnetic resonance imaging. One final chapter critically evaluates the different techniques in the detection of viable myocardium. Each chapter is interesting although much is repeated elsewhere.

The fourth part centers on using noninvasive imaging techniques to diagnose coronary heart disease and includes magnetic resonance imaging in perfusion studies and visualization of coronary arteries, stress echocardiography, contrast echocardiography and electron-beam computerized tomography.

The fifth part is dedicated to treatments and control of treatments in nuclear cardiology. The chapters range over a variety of topics such as intravascular brachytherapy, intracoronary irradiation using rhenium, cellular therapy and myocardial regeneration in ischemic heart disease, and gene therapy follow-up using nuclear medicine techniques.

Four chapters in part 6 discuss nuclear pneumology, dealing with thromboembolic pulmonary disease, nonthromboembolic pulmonary disease and things alien to the lung such as lymphedema.

The book is well produced, the binding sound, paper of good quality, print clear and the scientific content excellent. I think it deals with almost all the topics that can possibly interest the nuclear medicine specialist and the cardiologist in terms of studies they may want to perform on patients with any type of cardiomyopathy. It is, therefore, a highly recommendable reference book for any library. If so much information were not repeated in various chapters, the book would be far slimmer than it is but too much information is always preferable to too little.

The only thing missing is a table giving the doses of radiation administered to the patient in each study. When talking of other techniques, insufficient importance is given to this aspect. Nuclear medicine can harm patients as each study means they receive a dose of radiation and this must be taken into account; other techniques such as echocardiography and magnetic resonance imaging are innocuous. In Spain, perhaps we give insufficient importance to this but in other countries patients are asked to give written informed consent and are told about the amount of radiation they are going to receive.

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