

## BOOK REVIEW

Nuclear Cardiac Imaging: Principles and Applications 5<sup>th</sup> Edition

Ami E. Iskandrian, MD, NACC, MASNC<sup>1)</sup>, Ernest V. Garcia, PhD, MASNC<sup>2)</sup>

Received: February 17, 2016/Revised manuscript received: February 23, 2016/Accepted: February 23, 2016

© The Japanese Society of Nuclear Cardiology 2016

## Abstract

The 5<sup>th</sup> edition of our book “nuclear cardiac imaging: principles and applications” is written to encompass the vast new developments in cardiac imaging. To accomplish this we solicited contributions of seasoned authors who have gone beyond updating what was in 4<sup>th</sup> edition by rewriting literally every single chapter. There is also consistency in the format as each chapter starts with 10 key points and many are supplemented by real life case presentations to highlight specific points. The electronic version provides easy access to download power point slides from high quality color figures and tables and access to references linked to PubMed. Each chapter was read by the 2 editors and revised as needed. The book stands as a testimony to the hard work of all authors and as a service to the imaging community.

**Keywords:** Gamma camera, Imaging, Ischemia, Nuclear cardiology, PET, Radiotracers, SPECT  
**Ann Nucl Cardiol 2016 ; 2 (1) : 192-193**

The 5<sup>th</sup> edition of our book (Nuclear Cardiac Imaging: Principles and Applications 5<sup>th</sup> Edition Oxford University Press, November 26, 2015, Editors: Ami E. Iskandrian and Ernest V. Garcia) is just released as a hard copy plus an electronic version (please see cover image below). It is entirely a new version and vastly different from prior 4 editions. It is structured in 5 sections and 35 chapters (see below) covering 746 pages with numerous high quality images, figures, tables and videos. Each chapter starts with 10 key points and is well referenced. There are numerous case studies. The new developments are blended with historic data, experimental data and clinical data on tracer kinetics to hybrid imaging and anything in between (1-8). The electronic version includes all text, tables, and figures that appear in the printed book, the video appendix, the ability to zoom in and enlarge figures, download tables and images to a Power-point slide, references linked to PubMed and other sources, and with the ability to search within the book and across all 800 + titles that are part of the Oxford Medicine Online platform. The chapters are authoritative, up-to-date both technically and clinically and written mostly by authors who are Editors and Board members of the Journal of Nuclear Cardiology.

This book should be a useful reference to guide patient care and as a teaching and learning tool for those involved in cardiac imaging regardless of background training, level of knowledge, geographic location or affiliation.

Reprint requests and correspondence:

Ami E. Iskandrian, MD

Division of CV Diseases/Department of Medicine University of Alabama at Birmingham, 318 LHRB/1900 University BLVD, Birmingham, AL 35294  
 E-mail: aiskand@uab.edu

## References

1. Iskandrian AS. Nuclear Cardiac Imaging: Principles and Applications. Iskandrian (Ed.), F.A. Davis Co., Philadelphia, 1986.
2. Iskandrian AS, Verani MS (Ed). Nuclear Cardiac Imaging: Principles and Applications (2nd edition), F. A. Davis Company, Philadelphia, 1995.
3. Iskandrian AE, Verani MS (Ed). Nuclear Cardiac Imaging Principles and Applications. (3rd Edition), Oxford University Press, New York, 2003.
4. Iskandrian AE, Garcia EV0 (Ed). Nuclear Cardiac Imaging Principles and Applications. (4th Edition), Oxford University Press, New York, 2008.
5. Iskandrian AE, Garcia EV (Ed). Atlas of Nuclear cardiology. Imaging companion to Braunwald's Heart disease. Elsevier /Sunders. Philadelphia, PA 2012.
6. Iskandrian AS, Verani MS (Ed). New Developments in Nuclear Cardiac Imaging. Futura Publishing Co., New York, 1998.
7. Iskandrian AE, van der Wall EE. Myocardial Viability: Detection and Clinical Relevance. Kluwer Academic Publishers, Netherlands, 1994.
8. Shamari AM, Iskandrian AS (Eds). Cardiac Output and Regional Flow in Health and Disease. Kluwer Academic Publishers, Netherlands, 1993.

doi : 10. 17996/ANC. 02. 01. 192

1 ) Ami E. Iskandrian

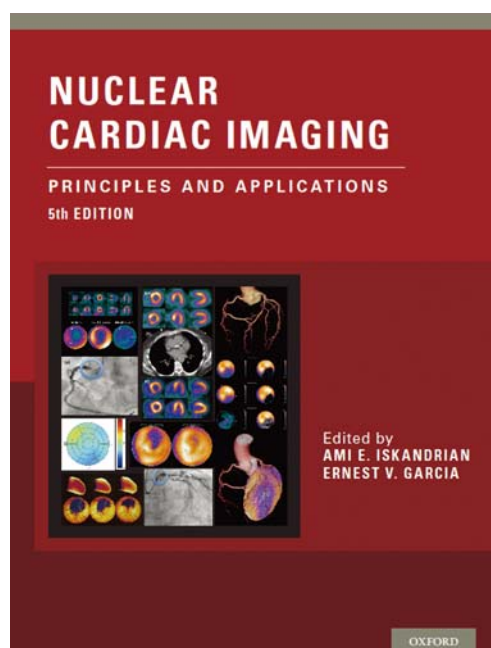
Division of CV Diseases/Department of Medicine University of Alabama at Birmingham, 318 LHRB/1900 University BLVD, Birmingham, AL 35294

E-mail: aiskand@uab.edu

2 ) Ernest V. Garcia

Department of Radiology and Imaging Science Emory University School of Medicine, Atlanta, GA

E-mail: ernest.garcia@emory.edu



### Table of content

#### Section 1 – Historical, technical and physiological considerations

1. Nuclear cardiology: history and milestones
2. Radiation physics and radiation safety
3. SPECT and PET Instrumentation: conventional and new
4. Kinetics of conventional and new radiotracers
5. Radionuclide angiography: planar and tomographic
6. Gated SPECT MPI: Imaging protocols and Acquisition
7. Gated SPECT MPI: Processing and quantitation
8. Image Artifacts
9. SPECT Attenuation correction
10. Pharmacological Stress testing

#### Section 2 – Diagnosis and risk assessment

11. Treadmill exercise testing
12. Gated SPECT perfusion in diagnosis and risk assessment in stable patients
13. Risk assessment in acute coronary syndromes
14. Risk assessment before noncardiac surgery
15. Myocardial perfusion imaging before and after cardiac revascularization
16. Screening asymptomatic subjects
17. Role of imaging in chronic kidney disease
18. Role of imaging in diabetes mellitus
19. Imaging patients with chest pain in the emergency department
20. Role of PET in diagnosis and risk assessment in patients with known or suspected CAD
21. Myocardial Viability assessment: Nuclear techniques and clinical implications

#### Section 3 – Role of nuclear imaging beyond CAD

22. Phase analysis for dyssynchrony by MPI and MUGA
23. Imaging myocardial innervation
24. Image-based Measurements of myocardial blood flow
25. Imaging of myocardial metabolism
26. Inflammatory and infiltrative diseases and tumors
27. Radionuclide imaging in heart failure

#### Section 4 – Advances in cardiac imaging

28. Hybrid cardiac imaging
29. Cardiovascular molecular imaging
30. Use of artificial intelligence including decision support systems in cardiac imaging

#### Section 5 – Challenges for nuclear cardiology

31. Physician certification and Lab accreditation
32. Cost-effectiveness of imaging
33. Guidelines and appropriate use criteria
34. Radiation considerations
35. Practical issues: ask the experts