JACC: CARDIOVASCULAR IMAGING
VOL. 9, NO. 4, 2016
© 2016 BY THE AMERICAN COLLEGE OF CARDIOLOGY FOUNDATION
ISSN 1936-878X/$36.00
PUBLISHED BY ELSEVIER
http://dx.doi.org/10.1016/j.jcmg.2016.01.004

iREVIEWS

STATE-OF-THE-ART PAPERS

Noninvasive Imaging to Evaluate Women With Stable Ischemic Heart Disease

Lauren A. Baldassarre, MD,[a] Subha V. Raman, MD,[b] James K. Min, MD,[c] Jennifer H. Mieres, MD,[d] Martha Gulati, MD,[e] Nanette K. Wenger, MD,[f] Thomas H. Marwick, MD, PhD,[g] Chiara Bucciarelli-Ducci, MD, PhD,[h] C. Noel Bairey Merz, MD,[i] Dipti Itchhaporia, MD,[j] Keith C. Ferdinand, MD,[k] Carl J. Pepine, MD,[l] Mary Norine Walsh, MD,[m] Jagat Narula, MD, PhD,[n] Leslee J. Shaw, PhD,[f]
for the American College of Cardiology's Cardiovascular Disease in Women Committee

JACC: CARDIOVASCULAR IMAGING CME

CME Editor: Ragavendra R. Baliga, MD

This article has been selected as this issue's CME activity, available online at http://www.acc.org/jacc-journals-cme by selecting the CME tab on the top navigation bar.

Accreditation and Designation Statement

The American College of Cardiology Foundation (ACCF) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The ACCF designates this Journal-based CME activity for a maximum of 1 *AMA PRA Category 1 Credit(s)*™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

Method of Participation and Receipt of CME Certificate

To obtain credit for this CME activity, you must:

1. Be an ACC member or *JACC: Cardiovascular Imaging* subscriber.
2. Carefully read the CME-designated article available online and in this issue of the journal.
3. Answer the post-test questions. At least 2 out of the 3 questions provided must be answered correctly to obtain CME credit.
4. Complete a brief evaluation.
5. Claim your CME credit and receive your certificate electronically by following the instructions given at the conclusion of the activity.

CME Objective for This Article: After reading this article the reader should be able to provide an updated review on advances in noninvasive stress imaging and noninvasive coronary angiography in the evaluation of women presenting with stable, suspected ischemic heart disease.

CME Editor Disclosure: *JACC: Cardiovascular Imaging* CME Editor Ragavendra R. Baliga, MD, has reported that he has no relationships to disclose.

Author Disclosure: Dr. Raman has received research support from Siemens Healthcare; and is a co-inventor and founding member of EXCMR. Dr. Min is a consultant for HeartFlow; is on the Scientific Advisory Board of Arineta; has ownership of MDDX and Autoplak; has a research agreement with GE Healthcare; and is the recipient of grants NIH/NIHLBI R01HL111141, NIH/NIHLBI R01HL115150, NIH/NIHLBI R01HL118019, NIH/NIHLBI U01HL105907, and NPRP09-370-3-089. Dr. Bucciarelli-Ducci is a consultant for Circle Cardiovascular Imaging. Dr. Bairey Merz has received grant support from Gilead, Practive Point, and Medscape. Dr. Ferdinand is a consultant for Amgen, Sanofi, Boehringer Ingelheim, and Eli Lilly; and has received research support from Boehringer Ingelheim. Dr. Pepine received grant UL1TR001427 from the National Center for Advancing Translational Sciences. Dr. Shaw has received the Dean's Distinguished Faculty Award and the Albert E. Levy Scientific Research Award from Emory University; and has received grant support from the Woodruff Foundation and the Antinori Foundation, and grants NIH-NHLBI R01HL118019-02, R01HL111150, and 1U01HL10556-01; and is a past president of the American Society of Nuclear Cardiology and President-Elect of the Society of Cardiovascular Computed Tomography. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose.

Medium of Participation: Print (article only); online (article and quiz).

CME Term of Approval

Issue Date: April 2016
Expiration Date: March 31, 2017

From the [a]Yale University School of Medicine, New Haven, Connecticut; [b]The Ohio State University College of Medicine, Columbus, Ohio; [c]Weill Cornell Medical College, New York, New York; [d]Hofstra Northshore-LIJ School of Medicine, Hempstead, New York; [e]The University of Arizona College of Medicine, Tucson, Arizona; [f]Emory University School of Medicine, Atlanta, Georgia; [g]Menzies Research Institute, Hobart, Tasmania, Australia; [h]University of Bristol, Bristol, United Kingdom; [i]Cedars-Sinai Medical Center, Los Angeles, California; [j]Hoag Memorial Hospital Presbyterian Hospital, Newport Beach, California; [k]Tulane University School of Medicine, New Orleans, Louisiana; [l]University of Florida College of Medicine, Gainesville, Florida; [m]St. Vincent Heart Center, Indianapolis, Indiana; and the [n]Icahn School of Medicine at Mount Sinai, New York, New York. Dr. Raman has received research support from Siemens Healthcare; and is a co-inventor and founding

JACC: CARDIOVASCULAR IMAGING, VOL. 9, NO. 4, 2016
APRIL 2016:421–35

Noninvasive Imaging to Evaluate Women With Stable Ischemic Heart Disease

ABSTRACT

Declines in cardiovascular deaths have been dramatic for men but occur significantly less in women. Among patients with symptomatic ischemic heart disease (IHD), women experience relatively worse outcomes compared with their male counterparts. Evidence to date has failed to adequately explore unique female imaging targets and their correlative signs and symptoms of IHD as major determinants of IHD risk. We highlight sex-specific anatomic and functional differences in contemporary imaging and introduce imaging approaches that leverage refined targets that may improve IHD risk prediction and identify potential therapeutic strategies for symptomatic women. (J Am Coll Cardiol Img 2016;9:421–35)
© 2016 by the American College of Cardiology Foundation.

For more than 2 decades, population case fatality rates for cardiovascular (CV) disease have been higher for women compared with men (1). Recent declines in CV deaths in men have been dramatic; yet declines are significantly less for women than men (2,3). The term ischemic heart disease (IHD) now broadly includes higher risk status associated with symptomatic patients with obstructive and nonobstructive coronary artery disease (CAD), including coronary microvascular disease (CMD) (4). Among patients with IHD, women experience relatively worse outcomes ranging from stable angina to acute coronary syndromes (ACS) and heart failure compared with men (5–8). Determining sex-specific causality has been elusive because series often include only women (9), are invasive coronary angiographic series (6,10), or include cohorts of women with attempted case-matching to men, thus limiting identification of a unique female risk profile (11). For example, the National Institutes of Health National Heart, Lung, and Blood Institute–sponsored Women's Ischemia Syndrome Evaluation (WISE) included only symptomatic women undergoing a variety of ischemia and other physiological testing without comparative assessments of male patients (9). The ensuing selection and other biases represent sizable challenges to uncover sex-specific findings that may explain the higher risk status of women with IHD compared with men. Evidence to date fails to explore unique female imaging targets and their correlative signs and symptoms of IHD as major determinants of IHD risk. This paper highlights sex-specific anatomic and functional differences across imaging targets and introduces contemporary imaging approaches that leverage refined targets that may improve IHD risk prediction and identify potential therapeutic strategies for symptomatic women.

LIMITATIONS OF DEMAND ISCHEMIA TESTING IN WOMEN

Traditional diagnostic approaches for the assessment of risk associated with IHD are derived from the notion that identification of the consequences of flow-limiting stenosis(es) in major epicardial coronary arteries represents the major mechanism for ischemia. Accordingly, this concept is extended to clinical practice guidelines and appropriate use

member of EXCMR. Dr. Min is a consultant for HeartFlow; is on the Scientific Advisory Board of Arineta; has ownership of MDDX and Autoplak; has a research agreement with GE Healthcare; and is the recipient of grants NIH/NIHLBI R01HL111141, NIH/NIHLBI R01HL115150, NIH/NIHLBI R01HL118019, NIH/NIHLBI U01HL105907, and NPRP09-370-3-089. Dr. Bucciarelli-Ducci is a consultant for Circle Cardiovascular Imaging. Dr. Bairey Merz has received grant support from Gilead, Practive Point, and Medscape. Dr. Ferdinand is a consultant for Amgen, Sanofi, Boehringer Ingelheim, and Eli Lilly; and has received research support from Boehringer Ingelheim. Dr. Pepine received grant UL1TR001427 from the National Center for Advancing Translational Sciences. Dr. Shaw has received the Dean's Distinguished Faculty Award and the Albert E. Levy Scientific Research Award from Emory University; and has received grant support from the Woodruff Foundation and the Antinori Foundation, and grants NIH-NHLBI R01HL118019-02, R01HL111150, and 1U01HL10556-01; and is a past president of the American Society of Nuclear Cardiology and President-Elect of the Society of Cardiovascular Computed Tomography. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose. Jonathon Leipsic, MD, served as Guest Editor for this paper.

Manuscript received December 22, 2015; revised manuscript received January 20, 2016, accepted January 21, 2016.

Download English Version:

https://daneshyari.com/en/article/2937711

Download Persian Version:

https://daneshyari.com/article/2937711

Daneshyari.com