

# ERRATUM

## Erratum to: CME Instructions: Cardiac Autonomic Imaging with SPECT Tracers

### ERRATUM TO: J NUCL CARDIOL 2013;20:144-149 DOI 10.1007/S12350-012-9670-2

The Journal CME exam for the CME Article entitled, “**Cardiac Autonomic Imaging with SPECT Tracers**” (Jan/Feb 2013 issue, Volume 20, Number 1) contained an invalid assessment question, which thereby renders the original test invalid. If you took this exam and passed, your CME credit remains intact.

The American Society of Nuclear Cardiology has revised the exam, which can be found in this attachment.

The Journal CME article entitled, “**Cardiac Autonomic Imaging with SPECT Tracers**” published in the Jan/Feb 2013 issue can be accessed by going to Volume 20, Number 1.

### CME INSTRUCTIONS: CARDIAC AUTONOMIC IMAGING WITH SPECT TRACERS

#### STATEMENT OF NEED

The following educational gaps have been identified to demonstrate need for this journal continuing education activity:

- Demonstrate an increase in or affirmation of his/her knowledge of nuclear cardiology.
- Evaluate the appropriateness of the clinical information as it applies to the providers’ competence and performance.
- Demonstrate an increase in the knowledge required to maintain competence, and strengthen the habits of critical inquiry and balanced judgment.
- Utilize the latest protocols for gated myocardial perfusion SPECT, including instrumentation, software and pharmacologic stress agents

The online version of the original article can be found under doi:[10.1007/s12350-012-9670-2](https://doi.org/10.1007/s12350-012-9670-2)

J Nucl Cardiol 2013;20:489-93.

1071-3581/\$34.00

Copyright © 2013 American Society of Nuclear Cardiology.

doi:10.1007/s12350-013-9711-5

#### TARGET AUDIENCE

This activity is targeted at imaging professionals and is intended to provide the latest information on clinical practice and cutting-edge scientific advances in nuclear cardiology and cardiac imaging.

#### OBJECTIVES

After reading and reflecting upon an article in the Journal of Nuclear Cardiology, the learner should demonstrate increased competence in:

1. Cardiac autonomic anatomy and physiology
2.  $^{123}\text{I}$ -*m*IBG imaging procedure and image interpretation
3. Recognize normal variants of  $^{123}\text{I}$ -*m*IBG distribution. Understand reasons for reduced heart to mediastinal ratio of  $^{123}\text{I}$ -*m*IBG in advanced heart failure
4. Recognize normal rate of washout for  $^{123}\text{I}$ -*m*IBG
5. Clinical applications of  $^{123}\text{I}$ -*m*IBG.

#### ACCREDITATION AND CONTINUING EDUCATION CREDIT

##### Physicians

The American Society of Nuclear Cardiology is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The American Society of Nuclear Cardiology designates this Journal-based CME activity for a maximum of 1 *AMA PRA Category 1 Credits*<sup>TM</sup>. Physicians should only claim credit commensurate with the extent of their participation in the activity.

##### Technologists

The American Society of Nuclear Cardiology is a recognized provider of continuing education credit for technologists. ASNC’s Continuing Education (ACE) credit is accepted by both NMTCB and ARRT. This Journal-based activity has been approved for a maximum of 1 ACE credits for Technologists.

## FACULTY DISCLOSURE

As an accredited provider of the Accreditation Council for Continuing Medical Education (ACCME), The American Society of Nuclear Cardiology (ASNC) adheres to the ACCME's 2008 Standards for Commercial Support. In compliance with these standards, it is ASNC's policy to ensure balance, independence, objectivity, and scientific merit in all of its educational activities through the disclosure of relevant relationship with commercial companies. The financial interest or relationships requiring disclosure are outlined in ASNC's CME Conflict of Interest Policy. All authors involved with this activity are required to disclose any relevant financial relationships.

The following planners, author(s) and peer reviewer(s) reported no financial relationships: **Mark Travin, MD, George A. Beller, MD, FASNC and Wendy Passerell.**

The following ASNC staff and Post-Test Question Item Writers and Reviewers who were involved in the planning and development of this activity reported no financial relationships: **Cathlin Bowman, MBA; Saorabh Malhotra, MD.**

The following Post-Test Question Item Writer(s) and Reviewer(s) who was/were involved in the planning and development of this activity reported a financial relationship: **Sharmila Dorbala, MD; Grant Research Support: Astellas; Advisory Board: Astellas.**

## OFF LABEL USE

Articles may include discussion of drugs or devices, or uses of drugs or devices, that have not been approved by the Food and Drug Administration (FDA) or have been approved by the FDA for specific uses only. The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or device he or she wishes to use in clinical practice. ASNC is committed to the free exchange of medical education. Inclusion of any discussion in this program, including discussion on off-label uses, does not imply an endorsement by ASNC of the uses, products or techniques presented.

## CONTINUING EDUCATION TERM OF APPROVAL

Original Release Date: January 15, 2013

Re-Release Date: April 1, 2013

Expiration Date: January 15, 2014

## METHOD OF PARTICIPATION

To receive a statement of credit, participants must successfully complete the quiz and evaluation questions

after reading and reflecting on the article. The participant selects the single most appropriate answer for each question. A score of 80% or higher is needed to pass the quiz. If less than 80% of the questions were correct, the participant will be notified and may resubmit the quiz with modified answers up to three times. Tests will be graded by ASNC staff members.

Estimated time of completion is one hour.

Send your completed post-test and evaluation by mail, fax, or e-mail to:

American Society of Nuclear Cardiology  
Attn: JNC Continuing Education  
4340 East-West Highway, Suite 1120  
Bethesda, MD 20814-4578  
Fax: (301) 215-7113  
E-mail: JournalCredit@asn.org

## PROCESSING FEES

ASNC members may claim continuing education credits at no charge. Non-members will be charged \$50 per activity. Please fill out the payment area included on the evaluation form.

## ACKNOWLEDGEMENT OF COMMERCIAL SUPPORT

This activity is not supported by commercial support.

## PRIVACY & CONFIDENTIALITY STATEMENT

ASNC will record learner's personal information as provided on CME evaluations to allow for issuance and tracking of CME certificates. ASNC may also track aggregate responses to questions in activities and evaluations and use these data to inform the ongoing evaluation and improvement of its CME program. No individual performance data or any other personal information collected from evaluations will be shared with third parties.

For questions regarding CME content or obtaining CME credit, please contact ASNC at 301.215.7575 or info@asn.org.

## REVISED: CME QUIZ & REGISTRATION FORM

In order to earn CME credit for this journal activity, you must read the article and successfully pass the post-test. A passing grade of 80% is required to earn credit.

CME/ACE certificates will be sent within ten (10) business days.

**Please mail or fax this form to:**

American Society of Nuclear Cardiology

Attn: JNC CME  
4340 East-West Highway, Suite 1120  
Bethesda, MD 20814  
Fax: (301) 215-7113  
Email: Journalcredit@asn.org  
*Please circle one response per question.*

## REVISED CME QUIZ

### Revised CME Questions

- In the heart, cardiac sympathetic nerves are anatomically co-localized with which of the following vessels:
  - Epicardial coronary arteries
  - Cardiac veins
  - Inferior vena cava
  - Superior vena cava
- Norepinephrine (NE), the major neurotransmitter of the sympathetic nervous system, is produced in which part of the neuron:
  - Synaptic cleft
  - Neuronal axons
  - Postsynaptic region
  - Presynaptic terminal
- The correct imaging technique for  $^{123}\text{I}$ -mIBG imaging includes slow intravenous injection of 3-5 mCi of  $^{123}\text{I}$ -mIBG over 1-2 minutes followed by planar imaging...
  - At 1 hour and 4 hours
  - With a standard Anger camera at a symmetric 20% energy window centered at a photopeak of 159 keV.
  - With a high energy collimator
  - All of the above
- The washout rate of myocardial  $^{123}\text{I}$ -mIBG adjusted for background activity is calculated using background corrected heart counts (heart counts per pixel minus mediastinal counts per pixel) as the:
  - Difference in heart counts between the early and the late images expressed as a percentage of early uptake and corrected for radioactive decay
  - Ratio of heart counts on the early to the late images
  - Difference in H/M ratio between the late and the early images expressed as a percentage of early H/M ratio and corrected for radioactive decay
  - Ratio of the heart uptake on the late to the early images
- The mean washout rate of myocardial  $^{123}\text{I}$ -mIBG in normal individuals is approximately
  - 10%
  - 1%
  - 100%
  - 50%
- Heart-to-mediastinal (H/M) ratio on myocardial  $^{123}\text{I}$ -mIBG imaging is assessed as the counts/pixel in the myocardium divided by the counts/pixel in the mediastinum. The mediastinal counts are measured by a region of interest at the level of:
  - The heart
  - Below the lung apices
  - At the level of the thyroid gland
  - Above the level of the lung apices
- Reduced heart-to-mediastinal (H/M) ratio on myocardial  $^{123}\text{I}$ -mIBG imaging is due to which of the following neuronal processes?
  - Down-regulation of presynaptic norepinephrine transporter 1 (NET1) mechanism
  - Up-regulation of postsynaptic norepinephrine uptake 2 mechanism
  - Reduced uptake of norepinephrine into the presynaptic storage vesicles
- There may be slightly increased regional  $^{123}\text{I}$ -mIBG uptake in the lateral wall compared to the inferior wall because:
  - Of attenuation artifacts in the inferior wall
  - Higher vagal tone in athletes
  - Anatomic variation of sympathetic nerve activity
  - b and c
- A heart to mediastinum (H/M) ratio of  $< 1.6$  on  $^{123}\text{I}$ -mIBG imaging in the ADMIRE HF study identified which of the following findings:
  - A high positive predictive value for sudden cardiac death
  - Patients who are low risk for cardiac mortality
  - A high negative predictive value for heart failure hospitalizations
  - A doubling of the composite end point over a 2 year follow-up

See CME article, Cardiac Autonomic Imaging with SPECT Tracers (Volume 20, Number 1)

| CE Registration Form   |               |          |
|--|---------------|----------|
| <i>In order to process the post-test, please complete the registration information below. A CME/ACE certificate will be issued once the test is processed.</i> |               |          |
| <b>PLEASE PRINT</b>  |               |          |
| <b>I am requesting:</b> <input type="checkbox"/> CME <input type="checkbox"/> ACE  |               |          |
| _____  |               |          |
| Last Name  | First Name    | Degree   |
| _____  |               |          |
| Phone Number   | Fax Number    |          |
| _____  |               |          |
| E-mail   |               |          |
| _____  |               |          |
| Member ID (If Applicable)  |               |          |
| _____  |               |          |
| <b>BILLING</b>   |               |          |
| <input type="checkbox"/> <b>Member (\$0 fee)</b> <input type="checkbox"/> <b>Non-Member (\$50 fee)</b>   |               |          |
| <i><u>Non-Members</u> please fill out the information below:</i>   |               |          |
| Type of Card: <input type="checkbox"/> Visa <input type="checkbox"/> MasterCard <input type="checkbox"/> Amex  |               |          |
| _____  |               |          |
| Name on Card   |               |          |
| _____  |               |          |
| Card Number  |               |          |
| _____  |               |          |
| _____ / _____  | _____         |          |
| Exp Date   | Security Code |          |
| _____  |               |          |
| Billing Address  |               |          |
| _____  |               |          |
| _____  | _____         | _____    |
| City   | State         | Zip Code |
| _____  |               |          |
| Cardholder Signature   |               |          |
| _____  |               |          |

## EVALUATION FORM

### Cardiac Autonomic Imaging with SPECT Tracers

*The American Society of Nuclear Cardiology appreciates and values your opinions. In order to assist us in evaluating the effectiveness of this program and to make recommendations for future online educational offerings, please take a moment to complete this evaluation form.*

**Directions:** Please select your responses to complete this evaluation form.  
Your comments and suggestions will aid in planning future activities.

Please rate how strongly you agree or disagree with these statements:

**Strongly Agree**    **Agree**    **Neutral**    **Disagree**    **Strongly Disagree**  
**5**                    **4**                    **3**                    **2**                    **1**

|   |                       |                       |                       |                       |                       |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. <i>The following stated learning objectives were achieved:</i>   |                       |                       |                       |                       |                       |
| 2. Cardiac autonomic anatomy and physiology   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. <sup>123</sup> I-mIBG imaging procedure and image interpretation   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Recognize normal variants of <sup>123</sup> I-mIBG distribution Understand reasons for reduced heart to mediastinal ratio of <sup>123</sup> I-mIBG in advanced heart failure | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Recognize normal rate of washout for <sup>123</sup> I-mIBG   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. Clinical applications of <sup>123</sup> I-mIBG.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. Disclosure was made to the participants  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. Did you perceive any commercial bias throughout the article? If so, please list the author(s) and the perceived bias(es):  |                       |                       |                       |                       |                       |
| 9. Will any of the topics presented in the article improve the quality of care in your practice? If so, in what way?  |                       |                       |                       |                       |                       |
| 10. Do you feel future activities on this subject matter are necessary or important to your practice?   | <input type="radio"/> | Yes                   | <input type="radio"/> | No                    |                       |
| 11. Please list any comments/suggestions for future activities:   |                       |                       |                       |                       |                       |

The Journal CME article entitled, “**Cardiac Autonomic Imaging with SPECT Tracers**” published in

the Jan/Feb 2013 issue can be accessed by going to Volume 20, Number 1.