

Gated myocardial perfusion SPECT in patients with kidney transplantation: Semi-quantification

Iran J Nucl Med 2013;21(2):44-45

Published: October, 2013

<http://irjnm.tums.ac.ir>

TO THE EDITOR: I read with great interest the recent article by Fard-Esfahani et al. titled "Evaluation of myocardial perfusion and function after kidney transplantation by Gated SPECT myocardial perfusion scintigraphy" [1].

There are two points that I would like to comment about some aspects of semi-quantification in gated myocardial perfusion SPECT:

- First, it is better to use 17-segment scoring system for semi-quantitative evaluation. Based on segmental modeling, the LAD, RCA and LCX territories can better be delineated, though there is some controversy regarding these segmental nomenclatures as well. I should be mention that 20-segment scoring system is useful and nowadays still used frequently. Several models for semiquantitative analysis of the perfusion tomograms either by 17- or 20-segment model has been previously recommended by the QA Committee of the American Society of Nuclear Cardiology. In order to facilitate consistency of nomenclature with other imaging modalities, the 17-segment model is preferred and the 20-segment model should no longer be used [2]. The last recommendation of the American Heart Association suggests the use of the 17-myocardial segment model for all cardiac imaging modalities [3].
- The authors didn't mention which phase of study was used for calculation of SMS (summed motion score), STS (summed thickening score), end-diastolic volume (EDV), end-systolic volume (ESV) and left ventricular ejection fraction (LVEF). I think they reported the rest phase findings of these variables. But we know that there are some differences between left ventricular functional indices calculated based on pos-stress images or rest images even in patients with normal myocardial perfusion [4]. In patients with stress-induced myocardial ischemia and stunning, these differences will be more significant. These differences were noticed even after several hours of pharmacological stress [5]. In some software, same SMS, and STS abbreviations was used for both gated stress and gated rest images. Therefore, the nuclear medicine physician has to be familiar with these terms and their appropriate applications.

REFERENCES

1. Fard-Esfahani A, Fallahi B, Mirpour S, Gholamrezanezhad A, Abdi E, Karimi M, Beiki D, Emami-Ardekani A, Akhzari F, Ansari M, Eftekhari M. Evaluation of myocardial perfusion and function after kidney transplantation by Gated SPECT myocardial perfusion scintigraphy. Iran J Nucl Med. 2012;20(2):20-24.
2. Holly TA, Abbott BG, Al-Mallah M, Calnon DA, Cohen MC, DiFilippo FP, Ficaro EP, Freeman MR, Hendel RC, Jain D, Leonard SM, Nichols KJ, Polk DM, Soman P; American Society of Nuclear Cardiology. Single photon-emission computed tomography. J Nucl Cardiol. 2010 Oct;17(5):941-73.
3. Pereztol-Valdés O, Candell-Riera J, Santana-Boado C, Angel J, Aguadé-Bruix S, Castell-Conesa J, Garcia EV, Soler-Soler J. Correspondence between left ventricular 17 myocardial segments and coronary arteries. Eur Heart J. 2005 Dec;26(24):2637-43.
4. Kakhki VRD, Zakavi SR, Sadeghi R, Emadzadeh MR, Vejdani A. Normal values of left ventricular functional indices in gated 99mTc-MIBI myocardial perfusion SPECT. Iran J Nucl Med. 2008;16(1):14-19.
5. Kakhki VRD, Jabari H. Dipyridamole stress and rest gated 99mTc-sestamibi myocardial perfusion SPECT: left ventricular function indices and myocardial perfusion findings. Iran J Nucl Med. 2007;15(1):1-7.

Vahid Reza Dabbagh Kakhki, MD

Nuclear Medicine Research Center, Ghaem Hospital, Mashhad University of Medical Sciences, Mashhad, Iran
E-mail: Dabbaghvr@mums.ac.ir

REPLY: I greatly appreciate the comments offered by Dr. Dabbagh Kakhki regarding our article under the title "Evaluation of myocardial perfusion and function after kidney transplantation by Gated SPECT myocardial perfusion scintigraphy". While I agree to his insightful comments, I would like to clarify a couple of points.

As the writer correctly mentioned, the 17-segment scoring system model is now the preferred method for myocardial semi-quantitative evaluation, but the only available soft-ware at our center during this study was based on the 20-segment model which is also a useful and valuable method.

Stress phase is used for our gated data (the preferred phase for gating if only one phase is acquired with gated mode), which at the time of this study was the routine protocol at our department, though at present both stress and rest phases are available and used for gated data acquisition.

Armaghan Fard-Esfahani, MD
Research Center for Nuclear Medicine,
Tehran University of Medical Sciences,
Tehran, Iran
E-mail: fardesfa@sina.tums.ac.ir