

Global assessment of revascularization success in coronary artery disease

Editorial

Acute coronary syndrome (ACS) expectation completely depends on existence and extension of ischemic burden and global LV systolic performance. The probability of survival without ACS in the patients with stress-induced preserved or reduced ejection fraction is different.¹ The indication for revascularization for eliminating future ACS events would be defined by the ischemia extension. For patients who show a minimum amount of ischemia, medical therapy would be recommended because their annual ACS event rate is very low. Conversely, patients who have a large amount of ischemia may benefit from revascularization. Poststress EF is a strong and independent predictor of cardiac death and nonfatal MI.² When cardiac death and nonfatal MI are separated, Poststress EF is the best predictor of cardiac death, whereas ischemia extension is the best predictor of nonfatal MI. Combined assessment of myocardial perfusion and EF for predicting ACS has shown that the predictive value of both significant myocardial ischemia and low post stress EF (<45%) is the best for detection of future ACS. Because recurrent ACS will progress LV dysfunction, early revascularization is important especially for these patients.³

Exercise capacity also is a powerful outcome predictor for cardiovascular disease as described in selected and unselected populations.⁴ Besides an established marker for severe and extensive coronary artery disease (CAD), stress-induced LV dilation is another strong prognostic indicator, independent from stress modality. The patients with CAD who have no evidence of stress-induced perfusion defects and resting systolic dysfunction should be evaluated for transient LV dilation.⁵ Decreased exercise capacity and stress-induced LV dilation should have priority for early effective revascularization to prevent future progression of LV dysfunction. The contribution of ischemic dysfunction to stress-induced enlargement of LV chamber size has a prognostic value and should be considered for routine use of coronary angiography and possible revascularization.^{6,7}

In addition to ischemia extension, hypertension is also independent predictor for future recurrent ACS which is the main factor for consequent LV dysfunction. In the population, approximately 18% of hypertensive is being treated appropriately and regularly followed-up. In global risk assessment, all contributing risk factors which effective on CAD progression should be under controlled including hypertension which is the unique mechanically effective risk factor on endothelial dysfunction and has enormous importance in disease progression. Therapeutic failure and extremely low success in achievement of effective antihypertensive therapy will be leading to more organized and integrated approach in evaluation of this very large group of patients. We recently have mentioned the importance of evaluation this group under stress including determination of quantitative functional tissue performance and exaggerated blood pressure response to stress induction which becomes increasingly common and potential danger on endothelial cells in hypertensive patients.⁸

Volume 1 Issue 2 - 2014

Fatih Yalcin,^{1,2} Celalettin Karatepe,² Theodore P Abraham¹¹Division of Cardiology, Johns Hopkins Medical Institutions, USA²Department of Cardiology, Mustafa Kemal University, Turkey

Correspondence: Fatih Yalcin, Johns Hopkins University, Cardiovascular Research Center, 720 Rutland Av. Ross Research Building, Room 1044, Baltimore, MD 21210, Tel 410-502-2505, Email fyalcin1@jhmi.edu

Received: April 23, 2014 | **Published:** May 24, 2014

Routine consideration of coronary angiography and possible revascularization must be associated with the optimal antihypertensive medication to minimize future cardiovascular events and eventually progressive LV dysfunction. It has been documented that risk stratification by the amount of stress-induced ischemia is extremely important for revascularization success. In CAD patients who have no documented ischemia, early revascularization could possibly be harmful contrary to the patients with documented ischemia. These information mentioned above and relevant clinical preventions will be providing optimal life expectancy and successful outcome. In achieving this goal, physicians need to separate enough time to remember target organ evaluation for detection of active ischemia instead of focusing on only coronary vessels and enough time to evaluate global risk especially elimination of irregular blood pressure and blood pressure fluctuations in clinical practice.

Acknowledgement

None.

Conflicts of interest

Authors declare that there are no conflicts of interest.

References

1. Kucukler N, Yalcin F, Abraham TP, et al. Stress induced hypertensive response: should it be evaluated more carefully? *Cardiovasc Ultrasound*. 2011;9:22.
2. Sharir T, Germano G, Kang X, et al. Prediction of myocardial infarction versus cardiac death by gated myocardial perfusion SPECT: Risk stratification by the amount of stress-induced ischemia and the poststress ejection fraction. *J Nucl Med*. 2001;42(6):831-837.
3. Hachamovitch R, Hayes SW, Friedman JD, et al. Comparison of the short-term survival benefit associated with revascularization compared with medical therapy in patients with no prior coronary artery disease undergoing stress myocardial perfusion single photon emission computed tomography. *Circulation*. 2003;107(23):2900-2907.

4. Myers J, Prakash M, Froelicher V, et al. Exercise capacity and mortality among men referred for exercise testing. *N Engl J Med.* 2002;346(11):793–801.
5. Abidov A, Bax JJ, Hayes SW, et al. Transient ischemic dilation ratio of the left ventricle is a significant predictor of future cardiac events in patients with otherwise normal myocardial perfusion SPECT. *J Am Coll Cardiol.* 2003;42(10):1818–1825.
6. McClellan JR, Travin MI, Herman SD, et al. Prognostic importance of scintigraphic left ventricular cavity dilation during intravenous dipyridamole technetium-99m sestamibi myocardial tomographic imaging in predicting coronary events. *Am J Cardiol.* 1977;79(5):600–605.
7. McLaughlin MG, Danias PG. Transient ischemic dilation: a powerful diagnostic and prognostic finding of stress myocardial perfusion imaging. *J Nucl Cardiol.* 2002;9(6):663–667.
8. Yalcin F, Yalcin H, Kucukler N, et al. Quantitative left ventricular contractility analysis under stress: a new practical approach in follow-up of hypertensive patients. *J Hum Hypertens.* 2011;25(10):578–584.