

Editorial comment

Editorial comment to the article “Reduction of coronary flow reserve in a patient with type 2 diabetes mellitus without epicardial coronary stenosis” by Maurizio Galderisi and Rosa Raia

In this manuscript, the authors describe a 48-year-old diabetic patient referred for cardiological evaluation following a positive exercise stress test and an abnormal myocardial perfusion scan. The patient was asymptomatic and a coronary angiography excluded significant coronary obstructions. The patient was also hypertensive and a left ventricular hypertrophy was diagnosed by echocardiography. The patient underwent a transthoracic Doppler-derived Coronary Flow Velocity measurement during dipyridamole infusion.

The test did not elicit angina or EKG changes, or regional wall abnormalities. So, given the absence of any marker of ischemia, this test must be labelled as negative.

However, the ratio of peak flow velocity, measured during dipyridamole infusion, to the initial flow velocity was 1.88. This value is below the cut-off value of 2, which in most laboratories is used as the lower limit of normal, therefore must be considered abnormal.

The authors conclude that transthoracic CFR assessment was instrumental in formulating the right diagnosis for this patient. But the right diagnosis for this patient is not clear.

Effort angina? This diagnosis cannot be formulated because the patient was asymptomatic. We are all aware that myocardial ischemia may be not associated with chest pain in diabetic patients; nevertheless we cannot use the term angina in the absence of symptoms.

Syndrome X? To qualify as Syndrome X a patient must have a positive exercise stress test, angina and normal coronary angiography, but again this patient was asymptomatic, therefore this diagnosis cannot be formulated.

Silent ischemia? Silent ischemia (asymptomatic ST segment depression during exercise) is relatively frequent in diabetics, but it is usually associated with coronary obstructions and wall motion abnormalities. So, this diagnosis must also be discarded.

In summary, we have an asymptomatic diabetic patient with EKG abnormalities and myocardial perfusion defects during exercise, and a negative echodipyridamole stress test. Abnormal EKG changes and perfusion defects are frequently observed during stress tests in hypertensive patients and in patients with LV hypertrophy but, in the absence of coronary obstructions, they are usually labelled as “false positive” tests. Diabetes, hypertension, and hypertrophy are all associated with coronary microvascular dysfunction. Microvascular dysfunction may be severe enough to limit flow increase during exercise down to the ischemic threshold. The observation in this patient of an impaired CFR, is consistent with the hypothesis that the abnormalities in the EKG and in the perfusion scan observed during exercise may well be a “true” marker of ischemia even in the absence of an atherosclerotic coronary obstruction. The patient remains asymptomatic as many diabetics, and the negative echo-stress test is consistent with the absence of significant coronary obstructions.

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