



EDITORIAL COMMENT

Predictive value of a positive stress single-photon emission computed tomography or stress cardiac magnetic resonance for ruling in obstructive coronary artery disease in a real-world setting

Valor preditivo da cintigrafia de perfusão miocárdica ou da ressonância magnética cardíaca na avaliação da doença arterial coronária obstrutiva num cenário da vida real

Pedro Matos^{a,b}

^a *Cardiologista, Coordenação Imagiologia e Risco CV, Hospital CUF Tejo, Lisboa, Portugal*

^b *Cardiologista, Coordenador Departamento Cardiologia, Associação Protectora dos Diabéticos de Portugal (APDP), Portugal*

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For the last forty years or so we have been looking at coronary artery disease (CAD) in several different ways. In the eighties, therapy focused on coronary stenosis, and so, intervention also centered on revascularization. Subsequently, attention moved from obstruction to its functional impact on the heart, more specifically ischemia burden and extension, expressed by perfusion abnormalities in stress testing. With a better understanding of the pathophysiology of acute coronary syndromes and causes of sudden cardiac death, we started to learn that events and prognosis went far beyond that, and the concept of vulnerable plaque first and then vulnerable patient came strongly into play.¹

At the present time, we broadly accept that more important than stenosis, more or less important than ischemia, which can be a main trigger for symptoms, is atherosclerotic

burden and its milieu, atherothrombotic, that determine most of the prognoses. This perception tends to change our approach to diagnosis, follow-up, and the treatment of CAD. It has become oriented toward individual risk definition, exclusion of high-risk features and markers and symptom characterization in order to decide between revascularization or optimized medical treatment (OMT).²

For a stable patient, we increasingly opt in favor of OMT in most cases, which appears to be less onerous and is more acceptable to patients. Challenges lie, of course, in defining OMT and translating its principles and target objectives to the real world, where patient adherence is very far from being effective due to many different causes, which are usually difficult to overcome.

These reflections on the rational evolution of intervention in CAD serves as a form of contextualization for the paper under analysis in this Editorial. Being a study that compares two tests for the diagnosis of ischemia, one of

E-mail address: pedmmatos@gmail.com

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them usually extensively used worldwide for decades, and still very popular time, you might wonder if this is the most adequate way to address CAD in current and previously described perspective of this disease. Should we prefer other tests to diagnose, quantify and stratify different levels of underlying CAD?

Based on several trials,³⁻⁵ many authors advise that it could perhaps make more sense in asymptomatic or mildly symptomatic patients to use an anatomical test, such as a computed tomography (CT) angiography to exclude high risk features and quantify total plaque burden. And they reserve functional tests for people with more severe symptoms, a scenario where revascularization would make more sense and bring more benefits. The ISCHEMIA trial⁶ somehow reinforced this approach when patients with at least moderate ischemia were included and no difference was seen between OMT and revascularization.

In this paper,⁷ however, a different question is under review. Independently of how we look at CAD in the current era, there is still a place for functional tests in our practice if we select patients adequately with pretest probabilities and specific clinical scenarios. What is under scrutiny here is how a newer modality such as cardiac magnetic resonance (CMR) performs in comparison with an older, more established one, such as nuclear imaging (SPECT). In particular, in Portugal, where we have encountered long lasting hurdles for using CMR more frequently. This has been largely due to SPECT being the only imaging technique for ischemia detection available in primary care. CMR is mainly available in hospitals or cardiology centers. Although this is slowly and gradually changing, it still is far from what it should be.

The CE-MARC trial⁸ is one of the reference studies for the confirmation of CMR as a similar alternative to SPECT, with the additional value of multiparametric information, precise quantification of function and better spatial and temporal resolution. So, it makes sense that this paper tries to compare both techniques in the same way as the CE-MARC trial but translated into a real-world scenario and in mostly one, more reproducible center.

Not surprisingly, the results are identical to the original trial. And that, not only confirms the value of this modality in modern clinical practice, but also opens the door for its more widespread use in Portugal. A couple of years ago, another paper published by the Portuguese Society of Cardiology Nuclear, CMR and CT Study Group,⁹ and including some of the authors of the current analysis, had already suggested a more inclusive use of CMR and stressed the need for national authorities to review the policy for reimbursement for CAD diagnostic tests. This paper can be another major contribution, with our own population, to a much-needed change in the accessibility and acceptance of newer techniques in the field.

Some small remarks, I believe, are worthy of mention with regard to this paper. First, although the number of patients included is reasonable for one main center, it still is far from what would be needed for a more robust conclusion. A larger number could, even, favor CMR as a better technique. Also, as mentioned by the authors, the number of patients excluded due to missing data (66%) can cause bias and the fact that most tests were done at tertiary level means the data may not reflect what is happening in the

real world nationally, where some asymmetries in the quality of exam performance and subsequent interpretation can be expected. We do not have information about clinical symptoms, including whether the patients were all symptomatic and the severity of symptoms. Finally, the fact that CMR was used only in 17% of patients, probably due to what represents current practice, as the authors themselves comment, may be a limitation to the analysis. With larger numbers for CMR, we may speculate that some difference in favor of CMR could arise. This is a desirable challenge for a future trial.

We are in an era of looking at CAD in a different way. Understanding the global picture, the ever-changing behavior of subclinical atherosclerosis and the way it translates itself into hard events and eventual sudden death, is critical for selecting the appropriate techniques for each clinical scenario. Perhaps non-invasive anatomical imaging with CT for risk stratification and earlier OMT, for more comprehensive prevention are to be preferred and functional tests for detection of severe ischemia in patients with more severe symptoms, for potential revascularization. And in this case, we expect CMR to have a prominent role, if accessibility becomes a reality.

Conflicts of interest

The author has no conflicts of interest to declare.

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