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LETTERS TO THE EDITOR

Stress Echocardiography for Diagnosis of Coronary Artery Disease

The report by Dagianti et al. (1) makes the point of comparing exercise echocardiography, dobutamine echocardiography and dipyridamole echocardiography in the diagnosis of coronary artery disease. The topic is interesting, but the report may already appear old at birth. In fact, the field of pharmacologic stress echocardiography is in rapid evolution.

In the continuing quest for ideal diagnostic accuracy, pharmacologic stresses have quickly moved over the years from low dose to high dose regimens and eventually to atropine coadministration (2–4), which optimizes sensitivity. As a consequence, the pharmacologic stress protocols used by the authors can be considered obsolete, although this point was not mentioned as a study limitation. If atropine protocols are used, the sensitivity gap is filled because dobutamine–atropine and dipyridamole–atropine have a similar sensitivity (5).

This sensitivity is particularly important because the issue of sensitivity was the key factor in the conclusion of Dagianti et al. that exercise echocardiography should represent the approach of first choice, dobutamine the second and dipyridamole the third in their diagnostic algorithms. In addition, the authors did not cite the study with the largest patient series (136 patients), in which exercise, high dose dobutamine and high dose dipyridamole were compared by Beleslin et al. (6), who found similar accuracy (82% vs. 77%, respectively) for dobutamine versus dipyridamole. After the publication of the report by Dagianti et al., additional reports appeared that documented the nearly identical accuracy of high dose dipyridamole and high dose dobutamine (7,8).

Finally, the authors did not cite their own previously published data on dipyridamole echocardiography, which reported a striking 92% sensitivity and 100% specificity with transesophageal echocardiography (9). In the present study, the sensitivity falls to 55%, and even 33% in patients with previous myocardial infarction. Rather than pointing out the merits of transesophageal versus transthoracic echocardiography, the present study may be the most obvious demonstration of a statement reported by Picano (4) regarding the two basic laws of published reports on stress echocardiography:

1. No test is so bad that you cannot make it look good.
2. No test is so good that you cannot make it look bad.

Probably before drawing any conclusion on the relative merits of various stress tests, data obtained with state of the art protocols are warranted. The risk may be that useless data may be generated if obsolete protocols are administered (and even proposed), ignoring hard evidence reported by others.

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Reply

The vast scientific and clinical potential of stress echocardiography has led to the publication of interesting reports on the diagnostic value of single stress echocardiographic modalities. However, for the practicing cardiologist, the choice of which stress test may be better for his or her patient is the most compelling issue. This issue can be adequately addressed only by studies like our own (1) that directly compare diagnostic efficacy by having the same patient undergo exertion, dipyridamole and dobutamine echocardiography, an approach that was lacking in published reports on stress echocardiography. Unfortunately, such studies are difficult to perform in a large patient series because of ethical and economical reasons. Our results compare well with most previous investigators and with those reported in a recent study by Beleslin et al. (2), which we did not quote because it published after the submission of our study (1). We want to also point out that in that study, recently published in *Circulation*, atropine coadministration, recently proposed to enhance the sensitivity of pharmacologic stress echocardiography, was not included in the dobutamine stress protocol; therefore, according to Torres, this study may also already appear old at birth. However, superiority of dobutamine–atropine echocardiography over exercise echocardiography cannot be inferred for lack of comparative studies. In our study, atropine was not used because we wanted to investigate the effects of dobutamine on hemodynamic variables and on the behavior of left ventricular volumes during the test that would be affected by the cholinergic antagonist. Insofar as concerns the hard evidence on the relative merits of dipyridamole echocardiography by Torres, we point out that in a comparative study by Picano et al. (3), no more recent than ours and quoted in our study, exercise and dipyridamole echocardiography yielded similar diagnostic results, whereas Marangelli et al. (4) recently obtained significantly higher sensitivity values for exercise than for dipyridamole. We would like to mention the most recent report of a higher diagnostic value for exercise echocardiography and dobutamine echocardiography over dipyridamole and even adenosine echocardiography (5). Accordingly, in our report we mentioned our previous experience using the transesophageal approach (6) with the view of underlining the need of improving the sensitivity values of dipyridamole echocardiography. Nevertheless, in that study the sensitivity for one-vessel disease was also low (67%).

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