Reviewer's report

Title: Exercise Stress Echocardiography in the treadmill - upright evaluation During and after Exercise. Clinical Applications

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Reviewer: Alberto Bouzas-Mosquera

Reviewer's report:

Cotrim and colleagues provide a comprehensive review of the methodology and applications of imaging acquisition during exercise in treadmill exercise echocardiography, not only for evaluation of myocardial ischemia but also for other indications beyond detection of coronary artery disease. The manuscript is well written and the subject is relevant. Nonetheless, some issues deserve comment.

Major Compulsory Revisions

- The authors claim in the abstract that “we use an original methodology, firstly published by us in 2000”. Then in page 4, lines 4-5, they state: “In 2001 we published this method [7] and most recently other groups also published the same methodology [8,9]”. Reference 7 refers to a paper published by Cotrim and colleagues in 2000. Reference 8 cites a paper by Peteiro et al published in 2010. Notwithstanding the unquestionable merit of Cotrim et al, it should be noted that Peteiro et al had already described echocardiographic imaging acquisition during exercise on treadmill in a paper published in 1999 (J Am Soc Echocardiography 1999;12:1073-9).

- Regarding the selection of the most appropriate stress echocardiography modality in patients with left bundle branch block (page 5), only an abstract published in 1993 is mentioned. Additional pertinent literature (e.g., Am J Cardiol. 2000;85(7):890-3, Eur J Nucl Med Mol Imaging. 2006;33(12):1442-51) should also be taken into account.

Minor Essential Revisions

- Regarding the role of exercise echocardiography in patients with mitral stenosis, the authors report that 10 patients of their series were referred for valvuloplasty or valve replacement based on values of tricuspid regurgitation gradient obtained during exercise. The authors state that “These patients would have continued with medical therapy if the decision had been based on the values obtained during the recovery period”. Among other references they cite the European Society of Cardiology guidelines on valvular heart disease (reference 29, European Heart Journal 2012;33:2451-2496) for supporting the decision to refer patients with mitral stenosis for valvuloplasty or surgery if they develop a systolic pulmonary artery pressure >60 mmHg during exercise. Far from that, the ESC guidelines do not include any recommendations on exercise.
pulmonary artery pressure for guiding therapy in these patients.
- Page 16: The authors state that “we routinely use exercise stress echocardiography in the evaluation of patients with asymptomatic aortic stenosis”. Do the authors mean all patients with “asymptomatic aortic stenosis” or just those with “asymptomatic severe aortic stenosis”?.
- There are a number of minor grammatical errors that should be carefully corrected.

Discretionary Revisions

- When recommending aortic valve replacement if the aortic mean pressure gradient increases more than 20 mmHg (page 16), the authors might consider mentioning the degree of recommendation that current ESC guidelines have recently established for that indication.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests