Reviewer’s report

Title: Angiographically borderline left main coronary artery lesions: correlation of transthoracic Doppler echocardiography and intravascular ultrasound

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Reviewer: Rosa Sicari

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This is an interesting manuscript addressing the relation between stenosis severity of left main disease and Doppler velocities. Authors conclude that the relation is fair and that Doppler velocity may be a suitable option to assess stenosis severity of the left main. However, the study has several limitations that authors should address:

Patient population selection: please give criteria of selection

Indications and contra-indications to coronary angiography

Give details on coronary anatomy. It is not clear if these patients had single vessel left main disease, which would be a difficult population to be selected.

The patient population is small. Please give data on feasibility of such an approach.

Doppler velocity has important limitations and may give unreliable data in relation to differences in systemic blood pressure, geometry of the vessel and the plaque, incidence of the ultrasound beam and state of the microvascular bed down to stenosis. Please address

Do authors have data on coronary flow reserve?

The ROC curve show a poor ability of discrimination of Doppler velocity. Please discuss.

Stenosis severity and Doppler velocities do not correlate whereas the area as assessed by IVUS has a fair correlation. With this results, it is unreliable to use Doppler velocities as a stand alone parameter to assess coronary artery stenosis severity.

Please tone down the statement that this is the first study addressing this issue and discuss Caiati et al. Eur Heart J 2009; 14: 1797

The clinical implications of their work is not clear. Please provide a clinical algorithm. The specificity of test is poor and may increase the number of false positive testing.

Due to the nature of the journal please upload images with sample cases.

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
'I declare that I have no competing interests'