Reviewer's report

Title: Coronary artery occlusions diagnosed by transthoracic Doppler

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Reviewer: Antti Saraste

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Vegsundsvåg et al. have studied feasibility and accuracy of the detection of total coronary occlusions by transthoracic Doppler echocardiography (TTE) in 108 patients (28 total occlusions) undergoing invasive coronary angiography due to acute or chronic chest pain.

Increased (cut-off >0.57 m/sec) antegrade peak diastolic flow velocity in the septal perforating branches predicted occluded RCA/LCX. Combination of different parameters provided good accuracy for the detection of chronic occlusions.

General comment: The paper adds to the information that chronic occlusions can be detected by coronary TTE. This is a relatively large and well characterised series of patients. The study is well written and reported. Complexity of this approach is reasonably discussed. Images are demonstrative.

Minor essential revisions:

It appears that the patient recruitment is prospective that is a merit. The patient inclusion could be described more specifically: Prospective? Consecutive patients? Selected from what population (angiography referrals?)? Time frame? Hospital?

One main finding is cut-off > 0.57 m/sec in septal branches for the detection of occlusion. Absolute flow values are problematic due to angle dependency, physiological variation etc. as discussed. It is stated that angle correction was used, but can you give an estimate how large was the angle (appears from the images that the the flow is relatively perpendicular to the beam that is good).

Feasibility to differentiate epicardial collaterals from pericardial fluid?

Results, page 8, 1st para: groups A – D not defined in text.

Figures: Numbering of panels with “subcodes” (A1, A2 etc.) is difficult, please consider just letters for each panel.

Level of interest: An article of importance in its field

Quality of written English: Acceptable
**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

none