Reviewer’s report

Title: Quantifying late gadolinium enhancement on CMR provides additional prognostic information in early risk-stratification of nonischemic cardiomyopathy: a cohort study

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Reviewer: Benjamin Cheong

Reviewer’s report:

Pöyhönen et al. submitted an article on delayed-enhancement MRI (DE-MRI) in 86 patients with non-ischaemic cardiomyopathy (NICM). They assess the extent of DE-MRI and correlate with cardiovascular events and death.

Here are my comments:

1). Overall, the paper is well written.

2). ABSTRACT, CONCLUSIONS line 5/6, Pg 2. “Even though the final diagnosis is indefinite in NICM”. Is there a typo or what do the authors meant by “indefinite”?

3). In page 5, METHODS/STUDY DESIGN, coronary artery disease (CAD) was defined as………. At page 6, it is evident some do not have angiography nor SPECT. How many patients were there?

4). Page 6 CMR PROTOCOL, line 18 and 22 – “interslice gap 100%”. Do the author meant gap of 6 mm in the cine and 8 mm in the DE-MRI?

5). Pg 7 DE-MRI analysis. Looking through the RESULT section, the authors did not described regarding the “morphology” of the DE – are they mid-myocardial (for dilated cardiomyopathy)? Mid-myocardial or transmural for hypertrophic cardiomyopathy (HCM)? Patchy enhancement in the trabeculation in patient with non-compaction?

Whilst visual estimation is used almost by everybody in clinical practice and with good accuracy when compared to quantitative analysis, the scoring system used in this study (very similar to Kim and Judd NEJM 2000 paper) would be more applicable to patient with CAD. In addition, patients with amyloidosis would be very difficult to score by visual estimation.

Whilst one can still use the scoring system, e.g. patient with thin mid-myocardial DE would score 1 for each segment, would formal quantitative analysis provide more robust result?

6). Pg 9 RESULTS LINE 1. Do 7 of the left ventricular hypertrophy patients have hypertrophic cardiomyopathy (HCM) and should HCM be counted as NICM? LINE 2: What would inflammatory cardiomyopathy consists of e.g. myocarditis?
7). Pg 9 RESULTS LINE 11-14. This sentence is not quite clear. Are comparisons made between DE+ versus DE- and SWMA + vs SWMA -? This should be stated clearly. Same as in LINE 14 to 16.

8). A lot of papers suggested that DE-MRI is associated with VT / arrhythmias. In TABLE 2, it appears (from the p-values) that those with DE has similar incidence of VT when compared to those without DE. Any thoughts? Maybe patient numbers are small to detect a difference.

9). Pg 9. Do SWMA correlates with the presence and locations of DE?

10). Please kindly spell out abbreviations like HCM (Page 11 line 20).

11). The DISCUSSION is quite well written. Perhaps, the authors should also say a few words on T1 mapping and may be useful in NICM. T1 mapping is still not widely done, as the sequence may not be commercially available; there appears to be variability between which sequence to use e.g. MOLLI, short MOLLI…….; a haematocrit has to be taken as well for ECV estimation; and sometimes the indication of the CMR is vague – e.g. to access heart failure.

A few words would be nice to complete the discussion.

12). Table 3 and 4. Please use the same fonts.

13). The Diagrams are quite well done.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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