

# Cardiac volumes and left ventricular ejection fraction on myocardial perfusion scintigraphy

Dear Editor,

Our understanding of cardiac volumes – end-diastolic volume (EDV) and end-systolic volume (ESV) – and left ventricular ejection fraction (LVEF) was constructively and productively enhanced from reading the work of Mardanshahi *et al.*<sup>[1]</sup> It was very thought-provoking that there could be such a degree of difference from varying the filter cutoffs during reconstruction in myocardial perfusion scintigraphy (MPS) with single-photon emission computed tomography (SPECT). Being able to provide information such as ESV, EDV, and LVEF is a great advantage of MPS over some other noninvasive cardiac imaging modalities and should be regarded as a possible unintended benefit as it is far from the primary objective.<sup>[2]</sup>

We wonder if the values differ – and would the interpretation be different – using different software packages to calculate the EDV, ESV, and LVEF values. These can have significant differences. Just this week, we found that one patient was assessed by four Dimension Myocardial SPECT (Vital Images, Minnetonka, MN, USA) as having EDV, ESV, and LVEF of 43ml, 26ml, and 60%, respectively. By contrast, Quantitative Perfusion SPECT (Cedars-Sinai, Los Angeles, CA, USA) assessed these as 38ml, 15ml and 40%. The referring clinician would have a vastly different impression based on the differences in the information provided.

Beyond the anecdote, it has been discussed in greater detail in the literature. While some studies and articles suggest reasonable correlation such as Schaefer *et al.*,<sup>[3]</sup> others<sup>[4,5]</sup> have differed. In this context, the questions that we pose are:

1. How can we apply the findings to the different software?
2. How much weight can we place on this set of data given the discrepancies shown between the software most commonly used?

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### Conflicts of interest

There are no conflicts of interest.

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