study, we found that papillary muscle dysynchrony >30 ms independently predicted the patients with functional MR >20 mL.8 This information can help to determine the patients with DCM who have moderate MR and would benefit from CRT.

MR in patients with heart failure impairs prognosis and the surgical treatment of MR is associated with perioperative morbidity and mortality. Improvement of MR following CRT is promising and contributes to the mortality benefit of this therapy. Patients with DCM and narrow QRS complexes are usually overlooked and not referred for CRT. However, Achilli et al. demonstrated the improvement in functional MR in 14 narrow QRS patients after CRT. It may be useful to evaluate non-ischaemic DCM patients with narrow QRS intervals for the presence of papillary muscle dysynchrony, and these patients may benefit from CRT by the improvement of their MR severity.

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Exercise echocardiography in hypertrophic cardiomyopathy

In the paper by Jensen et al.,1 the authors state that exercise echocardiography was performed as a treadmill test in a semi-supine position and with a left lateral tilt to enable simultaneous transthoracic echocardiography.2 Furthermore, the authors wrote that the Bruce protocol was used (it is well known that this protocol is used for treadmill exercise testing).

It is our great concern the following three problems with the methodology described by the authors.

First, how is it possible to perform exercise in treadmill test in a semi-supine position and with a left lateral tilt?

Second, if stress testing was performed using the Bruce protocol, as developed by Bruce and Hornstein,3 the workload would have been increased at 3 min intervals, and not at 2 min intervals, as reported by the authors.

Last, according to previous publications,3–9 upright exercise was more physiological than semi-supine exercise stress testing. The reduction of preload in upright position is an important stimulus for inducing left ventricular outflow tract obstruction (LVOTO), not only in hypertrophic cardiomyopathy.10

The authors have mentioned that (i) the majority of patients were unable to stress their cardiovascular systems to expected levels during exercise echocardiography (EE) and that (ii) this may explain why the value of adding EE to Valsalva manoeuvre was low, whereas other studies have found a high degree of LVOTO during EE in younger hypertrophic cardiomyopathy populations. In our opinion, exercise testing should be performed in upright rather than semi-supine position to replicate LVOTO pathophysiology during daily activities, which may trigger the symptoms that patients report to their cardiologists.

We congratulate the authors in their effort to disseminate data on exercise echocardiography and hypertrophic cardiomyopathy. Nevertheless, rigorous attention should be paid to methodology description and performance. Importantly, the exercise echocardiography is rapidly developing method and very recently ‘hands-free’ continuous echocardiography during treadmill exercise (with novel ultrasound transducer) has been proposed as attractive innovation.10

References

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Exercise echocardiography in hypertrophic cardiomyopathy: reply

We read with great interest the comments by Dimitrow et al. on our paper ‘Comparison of