vetran athlete. Future research might elucidate the clinical implications (if they exist) of such morphological changes.

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Please note: The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

REFERENCES


THE AUTHORS REPLY:

We appreciate the kind comments of Dr. Sanchez-Gomar and colleagues about our meta-analysis of left atrial (LA) size in athletes (1) as well as their novel use of cardiac magnetic resonance to assess LA volume more accurately in older former elite endurance athletes. Their results suggest that LA size adjusted for body surface area is almost 50% (58 ± 14 ml/m² vs. 39 ± 14 ml/m²) greater in their athletes than control subjects, a percentage difference much greater than the 30% (30.9 ± 1.4 ml/m² vs. 24.1 ± 1.0 ml/m²) that we observed in our meta-analysis, probably because the athletes in the study by Dr. Sanchez-Gomar and colleagues were older (age 57.0 ± 4.3 years) than those in our study (age 27 ± 4 years) (1), and all were formerly elite endurance competitors. Sanchez-Gomar et al. consider the increase in LA size noted in both of our studies as “an overall benign adaptation.” This may be true, but the risk of atrial fibrillation (AF) increases with LA size, and it is not clear that an increase in LA size from endurance training presents less risk of AF than other causes of LA enlargement. Indeed, increased LA size may be 1 explanation for the possible increase in AF noted in endurance athletes (2).

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Please note: Dr. Thompson has received research support from the National Heart, Lung, and Blood Institute, National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Center for Complementary and Alternative Medicine, Genomas, Roche, Sanofi, Regeneron, Esperion, Amarin, and Pfizer; has served as a consultant for Amgen, AstraZeneca, Regeneron, Merck, Genomas, Runners World, Sanofi, Esperion, Amarin, and Novartis; has received speaker honoraria from Merck, Pfizer, Abbott, AstraZeneca, Kowa, and Glaxo-SmithKline; and holds stock in Abbvie, Abbott Labs, J&J, General Electric, and JA Wiley. Dr. Iskandar has reported that he has no relationships relevant to the contents of this paper to disclose.

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Right Ventricle Involvement in Takotsubo Cardiomyopathy

We read with great pleasure the work by Dawson et al. (1). The investigators did a commendable job in studying the application of cardiac magnetic resonance (CMR) spectroscopy in Takotsubo cardiomyopathy (TTC). Indeed, CMR spectroscopy is a very valuable diagnostic tool. In combination with CMR imaging, it provides a correlation between the metabolic, structural, and functional properties of the heart in health and diseased states (2,3). In their reporting, the researchers did not provide any data about CMR imaging or spectroscopy on the right ventricle. Prior randomized controlled investigations using the CMR imaging technique alone have shown that TTC with a biventricular ballooning pattern may be seen in up to one-third of cases (4). In particular, patients with concomitant right ventricular dysfunction in TTC have overall worse prognosis,
including significantly increased lengths of hospital stay, heart failure admissions, and pleural effusions (5). Thus, it would be valuable to know the data on the phosphocreatine:adenosine triphosphate ratio and T1 relaxation time of the right ventricle in the patients and healthy individuals involved in their study. This will indeed further strengthen our understanding about the disease pathophysiology and will help improve our knowledge on the metabolic, structural, and functional correlation of the right ventricular indexes in TTC.

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http://dx.doi.org/10.1016/j.jcmg.2015.02.031

Please note: Both authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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THE AUTHORS REPLY:

We thank Drs. Chhabra and Chaubrey for their interest in our publication (1) and for the questions they raised, which are a natural extension of our reported investigation. We can confirm that we indeed observed abnormalities in the right ventricle (RV) in our cohort of patients with Tako-tsubo cardiomyopathy. The word count constraints of a “letter to the editor” prevented us from elaborating beyond the findings of myocardial edema and profoundly altered cardiac energetics in the left ventricle and incomplete recovery of both at 4 months’ follow-up—which were the novelties in our report that move the field forward. We recently reported the preliminary RV findings in abstract form at the SCMR/EuroCMR Joint Scientific Sessions (February 4 to 7, 2015; Nice, France). However, with regard to 31P-magnetic resonance spectroscopy of the RV, it is difficult to achieve with current technology and has so far been reported only once, specifically in RVs that demonstrated significant hypertrophy (2). By comparison, in our patients, the RV wall was thinner. Furthermore, the basal part of the RV has significant motion during the cardiac cycle and the RV is generally very trabeculated, which would result in significant blood contamination if a voxel of interest were to be placed in the RV wall. If all of these constraints were surmountable, a separate acquisition time would also have to be dedicated, which would prolong the scan time further. For all of these reasons, we have not attempted to acquire 31P spectra for quantification of cardiac energetics of the RV at this stage. However, we agree that this would be a fascinating avenue of exploration, which we hope to look into in the future.

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http://dx.doi.org/10.1016/j.jcmg.2015.02.032

Please note: Dr. Dawson has a research agreement with Philips Healthcare. This work was supported by a grant from Tenovus Scotland (to Dr Dawson) and NHMRC Australia (to Prof. Horowitz). All other authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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Is the Heart Really Stressed Out of Energy?

One of the puzzling features of Takotsubo cardiomyopathy (TTC) is the inconsistency between remarkable left ventricular (LV) systolic dysfunction and...