Reviewer’s report

Title: Does Left Atrial Volume Affect Exercise Capacity of Heart Transplant Recipients?

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Reviewer: Mushabbar Syed

Reviewer’s report:

This paper by Abdul-Waheed et al contributes to the growing literature on the clinical value of left atrial volume (LAV) estimation by echocardiography. The factors leading to decrease in exercise capacity after heart transplantation (HT) remain ill-defined and are likely multifactorial. Authors hypothesized that increased LAV is associated with decreased exercise capacity in HT recipients and used echocardiography to determine LAV. They selected 54 HT patients that met the study inclusion criteria after screening 108 patients. LAV measurements were performed by modified Simpson’s biplane method that has been validated in previous studies. As expected the LAV were significantly larger which is typical for post-HT patients. There was small change in LAV over 1 year of 1.9 ± 8.5 ml•m\(^{-2}\)•year\(^{-1}\). Exercise capacity defined as the ventilatory efficiency as reflected in the VE/VCO2 slope was modestly associated with baseline LAV and #LAV over 1 year. Authors conclude that increased LAV may be a significant component of the mechanism that limits exercise capacity in HT recipients.

The study design is retrospective and authors state their hypothesis clearly. Study methodology is straight forward. Manuscript is well written and data presentation is easy to follow. Manuscript length, number of tables and figures are adequate.

This study raises interesting questions regarding the reasons for increasing LAV in HT patients over time – whether LV diastolic function or atria mechanical dysfunction. If the authors can add an estimate of LA ejection fraction from LAV in end-systole and end-diastole this will be helpful in providing further clarification to their results. I hope that authors expand on their results in future studies to include LA function and exercise diastolic function assessment.

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:
I declare that I have no competing interests.