

December 22, 2014



Dear Editor,

Please find enclosed the edited manuscript in Word format (file name: ESP 15459-Review.doc).

Title: Left atrial physiology and pathophysiology: Role of deformation imaging

Author: Johannes Tammo Kowallick, Joachim Lotz, Gerd Hasenfuß, Andreas Schuster

Name of Journal: *World Journal of Cardiology*

ESPS Manuscript NO: 15459

The manuscript has been improved according to the suggestions of reviewers:

1 Format has been updated

2 Revision has been made according to the suggestions of the reviewer

Reviewer 1:

I think it's a basic although clear review in this field. If this is the objective it's fine, although it should be completed with more information if the purpose was to write a complete review in the field. Nonetheless, an image of an Strain and/or SR acquisition with echo and/or MRI should be useful.

Thank you very much; the aim of this editorial is to introduce the reader to the topic and highlight the potential of the novel CMR feature tracking application of left atrial function assessment rather than provide a comprehensive review in the field. For in depth information, we have cited the relevant literature including two recently published comprehensive and detailed review articles. Furthermore, we added an image showing a CMR-FT acquisition.

Reviewer 2:

The authors briefly introduce possible readers to modern aspects of imaging of left atrial physiology and pathophysiology. Some comments. 1. Instead of this brief introduction, the authors should consider providing a review of the current literature in the field. It would be more interesting for the reader to learn about findings in different disease states. 2. Introduction, line 5: reduction should probably be relation. 3. Speckle tracking echo: p-wave should be P wave.

Thank you for this comment. 1. The aim of this editorial is to introduce the reader to the topic (please see comments to Reviewer 1). The body of literature concerning this novel MR application is not yet very large. However, the current available literature has been incorporated in this editorial. 2. Reduction has been changed to relation. 3. p-wave has been changed to P wave.

Reviewer 3:

Kowallick and colleagues submit a review article describing echocardiographic and cardiac magnetic resonance imaging techniques for assessing left atrial function. Left atrial function is increasingly being recognized as an important indicator of cardiac function. The review article covers a timely and important topic. Having said that, the topic is covered in a somewhat cursory fashion. It would be helpful to delve into the topic in more detail. Specifically I suggest the following: 1. The authors repeatedly state that LA function offers prognostic information in several clinical situations, but specifics are not given. I would suggest including more detail in regards to the exact means by which LA function is prognostic. In this regard, how do the different elements of LA function compare? Is one more prognostic? Are they more prognostic in specific situations, such as diastolic dysfunction? 2. What are the downsides or limitations of the techniques mentioned? Are they accurate with atrial fibrillation, for example? 3. An additional figure summarizing or depicting the different aspects of LA function would be helpful. In addition, images of the echocardiographic and CMR measures would be valuable additions.

Thank you very much for the comments. 1. We have added more information on LA function and its prognostic role in the paragraph "Future potential of LA deformation quantification". 2. Thank you for this important point - since CMR-FT represents a very novel approach for the characterisation of atrial performance, it is important to discuss the potential of this technique in more detail. Accordingly, advantages and drawbacks have been discussed in more detail, especially in the paragraph on CMR-FT and also in the paragraph "Future potential of LA deformation quantification". 3. Thank you, we added an image showing a CMR-FT acquisition as suggested by Reviewer 1 as well.

Reviewer 4:

This is a well-written comprehensive mini review regarding to recent advance in LA deformation analysis especially focusing on speckle tracking echocardiography (STE) and cardiovascular magnetic resonance myocardial feature tracking (CMR-FT) from Kowallick and colleagues. Specific comments: 1. The reviewer realized in abstract and introduction section that there is a significant amount of "a turn of phrase". It would be great to improve the expression. 2. It would be better to have a separated section to show your perspective to the future direction of this field including the application for the use of these methods to the risk stratification in clinical settings.. 3. In Page 2, "The left atrium (LA) represents a modulator of left ventricular (LV) filling due to its three basic functional elements (reservoir function: collection of pulmonary venous return during LV systole; conduit function: passage of blood to the left ventricle during early LV diastole; and contractile booster pump function (augmentation of ventricular filling during late LV diastole)." Please check again the structure of this sentence. 4. In Page 2 "Corresponding imaging biomarkers are increasingly recognized to have an incremental roles in determining..." Change to " incremental roles". 5. In page 2, "This article introduces...." Change to " This review". 6. In Page 3, "Within its development left atrial (LA) enlargement....." Change "within" to "During".

Thank you very much for the comments. 1. The abstract has been amended to avoid a turn of phrase. 2. We added more information on LA function and its role in prognosis in the pre-existing paragraph "Future potential of LA deformation quantification". 3. Thank you, we have amended the structure of this sentence for clarification. 4. This has been changed to "incremental roles". 5. We changed that into "The current editorial". 6. This has been changes into "During".

3 References and typesetting were corrected

Thank you again for publishing our manuscript in the *World Journal of Cardiology*.

Sincerely yours,

Johannes T. Kowallick
Institute for Diagnostic and Interventional Radiology
University Medical Centre Göttingen
Robert-Koch-Straße 40
37075 Göttingen
johannes.kowallick@med.uni-goettingen

Andreas Schuster
Department for Cardiology and Pneumology
University Medical Centre Göttingen
Robert-Koch-Straße 40
37075 Göttingen
andreas.schuster@med.uni-goettingen.de