



## MEDIZINISCHE EINRICHTUNGEN

Medizinische Klinik und Poliklinik B - Klinik für Kardiologie, Pneumologie und Angiologie

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**Manuscript No 19703: “Initial clinical experience using the EchoNavigator®-system during structural heart disease interventions”**

### Responses to Reviewers

We appreciate the decision of the editorial board to consider the publication of our manuscript. We therefore carefully revised our manuscript and have consecutively addressed the reviewer comments. For the convenience of the reader the changed sections are marked with a colored headlining throughout the document. Suggestions made by the editorial office and any other minor changes in the document according to the instructions for authors aiming to submit an original article were performed within the text using the Track Changes function. These changes are marked with a red text color throughout the document along the comments made by the editorial office. According to the writing requirements for the format of a basic study, title, running title, authorship, abstract, keywords, and core tip were adapted respectively. Especially the title was changed to **“Initial clinical experience using the EchoNavigator®-system during structural heart disease interventions”**. Furthermore, a comments section was added according to the demands of a basic study and the references were changed as required.

**This manuscript summarize the beneficial effect of EchoNavigator for guidance of several interventions in structural heart disease. The authors list several beneficial usages during various situations in the treatment of structural heart disease. However, the manuscript lacks critical evaluation and statistical analysis of these usages. For instance, the authors mention the decrease of complications by EchoNavigator in transseptal puncture or implantation of MitraClip. The comparison with complication rate in the absence of this method (For instance, in previous period when this method can not be used) should be performed.**

We appreciate the comments made by the reviewer. We marked the changes in our manuscript concerning his comments with a green headlining. We completely agree with him, but at this point we do not have any data that fulfill his wishes. These data are in progress but are not yet ready for publication. This original article is supposed to describe the initial experience with this new technique, as we believe that the prospects of this technology are going to a breakthrough in future guidance of structural heart disease interventions. To our knowledge, no similar studies presenting such a broad applicability of this hybrid imaging technique have been published so far. For that reason we decided to publish our work at this early stage without being able to present hard end-point data. We elaborately addressed this issue in the discussion part of the manuscript within the “Limitations” paragraph on page 12 marked with a green headlining.

**In addition, is there any problem about the wrong orientation by EchoNavigator during procedure?**

We did not experience any misguidance by the EchoNavigator system in our present study. Still, the technique has limitations that mainly depend upon the image quality of the echocardiographic data. The more the echocardiographeur has to manipulate with the probe, the less reliable are the markers in the overlay. As the technology represents an add-on imaging without influencing the formal way of monitoring structural heart disease interventions, there is always the possibility to switch back to

the normal operating procedure relying on the image data without an overlay. We addressed this in the discussion section on page 12 marked with a green headlining.

Reviewer 00227375

**Classification of the manuscript: grade A**

**Language evaluation: grade A**

**This is an excellent manuscript about the clinical experience using the EchoNavigator®-system. The authors have suggested that the EchoNavigator®-system is a feasible and safe tool for guidance of interventional procedures, such as left atrial appendage (LAA), atrial septal defect (ASD) and paravalvular leak closure, transaortic valve repair (TAVR) and MitraClip® in structural heart disease. This manuscript is nicely structured and very well written. I have no question about this manuscript.**

We would like to thank the reviewer for his critical revision of our manuscript!

Reviewer 00259340

**The authors present a nice review on EchoNavigator based in their own experience. I think the final result is pretty good. However, I missed a discussion more complete about this new imaging system (limitation, costs, pathologies/conditions in which the technique is more useful/almost essential, current echonavigator key limitations, ...).**

We would like to thank the reviewer for his comments. According to his comments we completely overworked our discussion section and addressed his remarks within. The changes to our discussion section are marked with a yellow headlining on pages 11 and 12.

**Finally, I would probably add a brief take home message on echonavigator compared the classic TEE + x-ray separated.**

According to the instructions for authors we added a section at the end of the document where we comment on the research frontiers, the innovation and the applicability of the EchoNavigator®. In this section on pages 13 and 14 we included a detailed take home message, especially in the section “Application” marked with a yellow headlining.