

Reviewer A

Thank you for the submission. It is interested to relate pacing parameters to TTE measurements. There is significant body of research on leadless pacemakers so this study adds more support to the safety and efficacy of the Micra system. A few points

1) There are multiple grammar mistakes and typos throughout the paper. I am not able to note all of them. Please review the paper carefully

Reply: We tried our best to improve the manuscript and made some changes to the manuscript. These changes will not influence the content and framework of the paper. And here we did not list the changes but marked in blue in the revised paper. We appreciate for Editors warm work earnestly and hope that the correction will meet with approval.

2) In the abstract the acronym MLP is written without an explanation of what it stands for

Reply: We feel sorry for our carelessness. In our resubmitted manuscript, we have made an explanation of what MLP stands for.

Changes in the text: Page 1, line 5

3) Does RV5 refer to R wave in lead V5?

Reply: Thanks for your careful checks. We are sorry for our carelessness. Based on your comments, we have added an explanation of RV5.

Changes in the text: Page 2, line 8-9

4) Please include some follow-up information on the patients who had myocarditis. Did they recover conduction at a certain point or were they fully dependent during follow-up. Since there is limited information in the literature about myocarditis patients receiving leadless devices, more information will be important.

Reply: We think this is an excellent suggestion. We have supplemented extra data about patients who had myocarditis to make our results convincing.

Changes in the text: Page 13, line 21; Page 15, line 10-14 and Table 6,

Reviewer B

I have several comments that limit the scientific value of the manuscript. Language needs many refinements for English language style and grammar.

1. LVEDD and LVESD cannot be mentioned in the abstract results without referring to exact numbers.

Reply: We sincerely thank the reviewer for careful reading. As suggested by the reviewer, we have re-written this part and supplemented the exact numbers of LVEDD and LVESD in the abstract results.

Changes in the text: Page 2, line 7-10

2. I suggest using one of the online English editing services to correct language style and grammar.

Reply: Thanks for your suggestion. We have tried our best to polish the language in the revised manuscript, and we used Quillbot, an online proofreading tool to correct

language style and grammar. Here we did not list the changes but marked in blue in the revised paper.

3. How many patients in total had PPM implanted in the same period? What is the percentage of LP? Were these 94 pts selected for this study?

Reply: Thank you for this valuable comment. We have added data related to this issue and explained the reasons for this phenomenon. The advantages and disadvantages of the various pacemakers are fully explained to the patients and they make the final decision on which pacemaker to implant.

Changes in the text: Page 6, line 14-16

4. What is the primary endpoint?

Reply: We apologize for our unprofessional and unclear presentation. In revised manuscript, we have clearly indicated the primary endpoint.

Changes in the text: Page 1, line 11-15; Page 5, line 3-8

5. Pls remove from the results text related to comorbidities and medications as this is repetition of what was supposed to be presented in tables.

Reply: Thank you for your reminder, we were really sorry for our repeated expressions. In the latest manuscript, we have revised these.

Changes in the text: Page 6, line 17-22; Page 7, line 1-2,7-12

6. What are the post procedural LVEDD and LVEDS values?

Reply: Thank you for this valuable comment. We apologize for the lack of post-operative echocardiogram data. What we want to explain is that due to our negligence, we did not routinely review the post-operative cardiac ultrasound, resulting in excessive missing values. Given the time lag, it has become difficult for us to obtain echocardiogram data for the same period postoperatively. To compensate for this shortcoming, we tried to persuade the participants to review the cardiac ultrasound, but most of them refused or had to delay the review due to various force majeure reasons. In the future study, we will perform related studies to deeply and thoroughly understand this problem.

7. Pls remove decimals from the results since you have less than 100 pts – no need to say 1.1% patient.

Reply: Thank you for your reminder, we have revised it in the latest manuscript.

Changes in the text: Page 9, line 9;

8. The authors need to present indications for LP and explain the rationale? How many pts had moderate/severe TR or TV IE?

Reply: We feel great thanks for your professional review work on our article. As you are concerned, it is necessary to present indications for LP and explain the rationale. We are sorry for our carelessness. In our resubmitted manuscript, we have added more information into the Material and methods part. It is an excellent suggestion to assess tricuspid valve function before and after LP implantation as it is increasingly recognized that tricuspid regurgitation (TR) associated with cardiac implantable electronic devices (CIEDs) and worsening TR after PPM are linked to a higher risk of heart failure and mortality. We carefully reviewed the preoperative echocardiogram. None of the patients had moderate or severe TR. Unfortunately, we did not routinely review echocardiograms after surgery, so we were unable to assess postoperative tricuspid valve function, but we did follow up the patients by telephone and there were no re-hospitalisation for new

tricuspid valve diseases. It should be explained that this may be due to insufficient sample size and follow-up, although some of the tricuspid structural or functional changes occurred early and did not result in clinical symptoms. Undoubtedly, It is true that our oversight has led to the absence of this important indicator, and we will pay attention to this issue in future studies.

Changes in the text: Page 7, line 21-22

9. Limitations are modestly discussed – pls add some of the missing.

Reply: Thank you for the helpful comments. We apologize for the shortcomings of our study. We have reflected on and summarized them and included them in the resubmitted manuscript.

Changes in the text: Page 16, line 2-17

10. Conclusions consist of overstatements and need to be re-phrased – there are some missing data before saying the implantation is safe and effective. Pls correct the results as suggested above.

Reply: Thank you for your reminder. We apologize for our inaccurate and overestimated expression. We have carefully reviewed the original manuscript and made the necessary revisions to improve its accuracy. Meanwhile, we added more data to support its safety and efficacy.

Changes in the text: Page 2, line 13-18; Page 1--17

It is an interesting topic; however, the manuscript needs major revision due to missing data, many language mistakes, and overstatements in conclusions.

Reviewer C

The authors studied the efficacy and safety of leadless pacemaker implantations in a single-center, observation study. They reported patients' characters and outcomes. Additionally, they compared procedural characters and results between MICRA VR and AV. They also analyzed the predictors for high threshold and predictors for AV synchrony.

Here are my comments:

Abstract

1. What does MLP and RV5 stand for? Please defines abbreviations at the first mention. Also, in the manuscript, you used LP instead of MLP. Please be consistent.

Reply: We feel sorry for our careless. In our resubmitted manuscript, we gave the definitions of MLP and RV5 at the first mention. Based on your comments, we have made the corrections to make the word harmonized within the whole manuscript.

Changes in the text: MLP: Page 1, line 5; RV5: Page 2, line 8-9; We have made the word harmonized, and here we did not list the changes but marked in blue in the revised paper

2. You wrote "Meanwhile, we contrasted patients who had MLPs installed, the Micra VR and Micra AV". Did you mean COMPARE instead of CONTRAST? If so, what aspects did you compare?

Reply: We were really sorry for our careless mistakes. In our resubmitted manuscript, we have corrected the "contrast" into "compare". I understand your concern about the vagueness of the description. We have clearly indicated what we have compared.

Changes in the text: Page 1, line 15-17; Page 8, line 5-16; Page 9, line 4-6

3. You concluded that leadless pacemaker was safe. However, there was no

complication rate reported in the result section of the abstract.

Reply: Thank you for your feedback. We have reported complication rate in the result section of the abstract.

Changes in the text: Page 1, line 21-22

Main Manuscript

1. I am uncertain what the main objective(s) in this study is/are. In the abstract session, the objective, from my understanding, was to study the application of leadless pacemaker in general population. In the manuscript, the objective was to study to safety, utilization, and outcome.

Reply: Thank you for pointing out the problem that the main objectives of this study are not clear. We apologize for the confusion this may have caused. We have carefully reviewed the original manuscript and made the necessary revisions to improve its clarity.

Changes in the text: Page 1, line 11-15; Page 5, line 3-8

2. If the objective is to study safety, utilization, and outcome. What parameters represented each of the aspects?

Reply: We feel great thanks for your professional review work on our article. We used complications, procedural characteristics and pacing parameters to represent the safety, preferred AV synchrony, hospitalization and post-implantation life quality to represent the efficacy.

Changes in the text: Page 1, line 11-15; Page 5, line 3-8

3. Definition of several endpoints are required, detailed as followed:

a. Normal sinus node function and predominantly complete AV block.

-- The authors picked 25 patients with "normal sinus node function and predominantly complete AV block" post-hoc analysis. What are the definitions of normal sinus node function and "predominantly" complete AV block?

Reply: Thank you for your feedback. According to your nice suggestions, we have added the definitions of normal sinus node function and predominantly complete AV block.

Changes in the text: Page 8, line 18-22;

b. Adverse pacing parameters, high pacing threshold, high sensing, and high impedance.

Reply: Thank you for your suggestion. As suggested by the reviewer, we have added more explanations about above concerns.

Changes in the text: Page 5, line 13-15;

c. AV synchrony: the definitions and the method of assessment.

Reply: Thank you for your reminder. We gave the definitions and the method of assessment in the latest manuscript.

Changes in the text: Page 5, line 9-12;

4. The authors stated in the method section that they assessed clinical improvement after the implantation. What parameters did you use to evaluate clinical improvement?

Reply: Thank you very much for your strong support of our work. We used Minnesota Living with Heart Failure Questionnaire to evaluate clinical improvement. We are sorry for our unclear expressions. We have revised it to improve its clarity.

Changes in the text: Page 4, line 17-18

5. The authors ran multivariate analysis. What variables were included in the analysis and how did you choose them? Please mention in the method part.

Reply: We think this is an excellent suggestion. We have made explanations in the method part of the resubmitted manuscript.

Changes in the text: Page 6, line 4-8

6. In the discussion part, the authors mentioned the cost and the length of stay. What is the source of this information? Please state clearly. If the information was from the present study, please mention it in the result section.

Reply: Thank you for pointing out this issue. We initially did this to make the study more comprehensive, and after revisiting the full text, we chose to remove it given that it was not relevant to the subject of the study..

Changes in the text: Page 15, line 15-22

7. This is a small, single-center, retrospective study. To concluded based on this study that the procedure is safe and effective, is it a bit too overclaimed? Should it be only applied to your population?

Reply: We understand that the conclusion seemed overstated. We were really sorry for our loose conclusion and have revised it in our resubmitted manuscript.

Changes in the text: Page 2, line 13-18; Page 1--17

Others

Some of the sentences are lost in translation. Readers will likely not understand your intentions. For example,

-Line 10: "Meanwhile, we contrasted patients who had MLPs installed, the MicraTM and MicraTM AV" --- I am not exactly sure what differed than what or if you would like to say to compare, rather than contrast, one with another, please state clearly.

-Line 14: "There were few incidences of both immediate and delayed consequences." - - Did you mean complications rather than consequences?

-Line 95: "There was no significant difference between the Micra VR and Micra AV for these comfort measures" – What did you mean by "comfort measures"? Did you mean "procedural characteristics"?

Reply: We feel sorry for our carelessness. In our resubmitted manuscript, the typo is revised. Thank you for your correction.

Changes in the text: Line 10: Page 1, line 15. Line 14: Page 2, line 102. Line 95: Page 8, line 6

- Small trial, retrospective design.

- Some parts were difficult to understand. It seems that the authors used AI translation.

Reply: Thank you for your feedback. We have carefully reviewed the original manuscript and make the necessary revisions to improve its clarity and coherence. These changes will not influence the content and framework of the paper. And here we did not list the changes but marked in blue in the revised paper.

- Method section needed to be rewrite to explain what was actually done, rather than putting everything in the result section.

Reply: We feel great thanks for your professional review work on our article. According to your nice suggestions, we have made corrections to our previous draft.

Changes in the text: Page 3-6