Author's response to reviews

Title: Impact of ablation duration on rhythm outcome after concomitant maze procedure using cryoablation in patients with persistent atrial fibrillation

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Author’s response to reviews:

Dear Prof. Vipin Zamvar and David Taggart,

We have revised our manuscript entitled “Impact of ablation duration on rhythm outcome after concomitant maze procedure using cryoablation in patients with persistent atrial fibrillation”.

Followings are the changes we have made:

Responses to the First Reviewer

1. On reviewing the literature, it is clear that the optimum duration of ablation with cryo has not been established before. It is generally thought that around 2 minutes of -60 degrees' Nitrous oxide should cause trans mural freezing and cellular destruction to create a trans mural conduction block. This may however be affected by the atrial wall thickness and perhaps the size of the LA.

   “Thank you for your good comment. We also agree that atrial wall thickness and the size of LA are important variables for transmural lesion formation. It is very hard to evaluate the atrial wall thickness while the wall thickness is very associated with LA dimension. Therefore, we surmise that the effect of atrial wall thickness on the outcome is similar in both groups. Because the LA
dimension between the two groups did not show a statistically significant difference in this study.”

2. Authors have not clarified on how the decision was made to use longer duration; was it based on surgeon discretion in anticipation of thickened LA wall or was it done in a random way or alternate patients were selected for the study group.

“We followed the surgeon discretion to determine the longer duration group or the control group. Therefore, there is a possibility of a selection bias even if baseline characteristics preoperatively were similar between the two groups. We added these to the operative technique.”

3. Were all the procedures done by a single surgeon?

“All of the data in this study are data from single surgeons.”

4. Severe TR with right atrial enlargement was excluded. However, Grade 4 TR was there in 30 patients. Was there a cutoff size of RA for excluding the patients from the study?

“We excluded all severe TR from the study. However, moderate to severe TR was included. Grade 4 TR shown in the table I indicates moderate to severe TR. We modified the table I.”

5. LA > 80mm were excluded and in sizes over 60mm, concomitant atrial reduction was done. In how many patients were atrial reductions done and were the final sizes of LA noted in these patients on postoperative echo study? Was there any correlation between the final size of atrial and maintenance of sinus rhythm in these patients.

“There was no statistically significant difference in LA size between the two groups. The number of patients who underwent LA reduction was also not statistically different from 36 in the control group to 42 in the long duration group (p=0.077). We added this in Table 2.

According to transthoracic echocardiographic follow up data (median postoperative 91 months) in patients with sinus rhythm maintenance, the mean left atrial volume index was lower in the long duration group compared with the control group (Figure 3B). We believed that a small LA size might correlate with sinus rhythm maintenance because the long duration group showed the superior rhythm outcome.”

6. Amiodarone was used for maintenance of SR in post operative period. Was any loading dose of Amiodarone used in all patients preoperatively or intraoperatively?

“We did not load amiodarone to avoid any sick sinus events. We added this in the method section.”

7. Five patients needed cardioversion in the post operative period; did they all belong to the same group? this information may be added in Table 3.
“Of the 5 cardioversion patients, 1 was in the control group and 4 were in the long duration group (p=0.179). We added this to Table 3.”

8. In Results (under patient characteristics), the ablation duration mentioned is 120 seconds and 160 seconds for all patients; it would be advisable to correct the same in the abstract and introduction rather than giving a range of 90-120 seconds and 140-160 seconds.

“Thank you for your good comment. We corrected the text according to the suggestion of the reviewer.”

9. As the data collection was over in 2006, it would be of interest to know the follow up at 10 years for the same group of patients.

“Thank you for your comment. We think that it is ideal to show follow-up data for 10 years, but most of our patients are often requested from local hospitals. Therefore, 10-year data is unfortunately unavailable because the majority of patients had been sent back to their local hospital after a certain period of observation (two or more years later).”