Reviewer’s report

Title: Atrial fibrillation alters the microRNA expression profiles of the left atria of patients with mitral stenosis

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Reviewer: Konstantinos Stellos

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Review Report of the paper entitled:

“Atrial fibrillation alters the microRNA expression profiles of the left atria of patients with mitral stenosis”

by Hai Liu et al

The authors tried to provide a spectrum of miRNAs that are differentially regulated during atrial fibrillation in patients with mitral stenosis. First, they employed the microarray-based detection technology and next they tried to verify the results with the use of quantitative RT-PCR. Although this study tried to approach this issue by employing two different methods, its contribution to the field remains unclear and there are major concerns before its acceptance for publication.

Major Comments:

1. Materials and Methods are vague and this undermines the reliability of the study: reagents that were used and their origin as well as the primers that they were used to determine the expression levels of miRNAs etc.

2. There is no control group with healthy subjects indicating the basal expression levels of the tested miRNAs.

3. The hypothesis on which the study is based is missing. The results of the study do not provide any additional value since there is no sufficient explanation throughout the manuscript regarding why the authors investigated the miRNAs expression profile in the left atria. Another study has already adequately examined the miRNAs expression profile in the same pathological context in the right atria (John B, Eur Heart J, 2008).

4. The observed alterations in the levels of miRNAs are inadequately associated with the pathophysiological role of them during the atrial fibrillation. No mechanism is suggested regarding the specific differentially expressed miRNAs as well as there are no potential clinical applications mentioned.

5. The quantification of miRNAs which are ~22 nucleotides long is a sensitive process and requires a more reliable RT-PCR method like TaqMan real time PCR.

6. The patients’ sample is very small and this is a major limitation of the study in
order any appropriate conclusions to be drawn from it.

7. Which are the relative expression levels of the tested miRNAs normalized to the internal control according to the 2-\(\Delta\Delta C_t\)? Please provide a table or a graph with these data.

Minor Comments:
1. Please indicate the standard deviation of each miRNA expression in figure 2.

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

NONE