Reviewer’s report

Title: Assessment of right atrium dysfunction in patients with obstructive sleep apnea syndrome using velocity vector imaging

Version: 0 Date: 15 Jun 2018

Reviewer: Chan Seok Park

Reviewer’s report:

This is a study about the relationship between obstructive sleep apnea and right atrial function.

1. All the values of continuous variable should be described as "mean±SD". But the authors used "t" from the beginning of the abstract. What does "t" mean? Then they wrote that they described that numeric values as "mean±standard deviation" (page 7, line 43). All the forms of continuous variables in the manuscript should be corrected.

2. Authors used ANVOA for the continuous variables between normal control and OSAS patients. They also divided OSAS into three groups, "mild", "moderate" and "severe". To compare the differences between continuous variables derived from more than two groups, just like 4 groups in this article. They should have used post-hoc analysis also. So it should be more clearly described which statistical methods were used.

The descriptions of variables and statistical methods are considered inadequate for the publication. These things should be checked before the submission although the subjects are interesting.

3. Authors used right atrial volume for the analysis for the right atrial function too. They also used maximal, minimal and pre-contraction volumes which are used for the left atrial function. Then they described it has reservoir, conduit and contractile function just like left atrium. For that description, there should be a reference.

4. Right atrial length and volumes already showed the differences between the normal control and OSAS group. What is the benefit of VVI analysis in right atrial function?. To check that further analysis should be performed such as AUC.

5. The examples of VVI curve in normal control and OSAS (such as Fig 1. a. normal control and Fig 1. b. severe OSAS) will help the readers for the understanding.

Minor comments.

1. Check the abbreviations. A lot of abbreviations are used differently in the manuscript.

2. Check the symbols. Symbols used in table 2 and 3 are different from those in table 1.
3. Check the spaces between the words, sentences and values.

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