

April 22, 2015

Dear Editor,

Please find enclosed the edited manuscript in Word format (17080-revised.docx). The manuscript has been revised according to the editorial and the reviewers' requests, as specified below. As required, the modifications are highlighted in the Word file.

**Title:** Reduction of radiation exposure in catheter ablation of atrial fibrillation: lesson learned

**Author:** Roberto De Ponti

**Name of Journal:** World Journal of Cardiology

**ESPS Manuscript NO:** 17080

*Editorial requests*

Conflict of interest disclosure: the potential conflict of interest is disclosed in the title page and a PDF file with a signed statement is included in the submission

A file with the Audio Core Tip has been added to the submission

Reference numbers: as required, the reference number have been put in square brackets in superscript throughout the manuscript text

Figure 1: as required, \* and \*\* have been changed into b and d, respectively

Figure 2: as required, \* and \*\* have been changed into a and b, respectively

*Reviewer 00227651*

*It would be very useful for the readers if the author include a brief table of all mentioned techniques and/or their modifications.*

In compliance with the reviewer's request, a table has been added (now table 1) in which the technique and the technologies used in the four cohorts of patients to reduce fluoroscopy time and radiation exposure in our center are reported

*In addition, a section "Conclusions" should be added.*

According to the reviewer's suggestion a "Conclusions" section has been added, which reads as follows:

## **CONCLUSIONS**

*Over the last years, the awareness of the radiation injury hazard to the patients and the professional staff has greatly increased. Reduction in the radiation exposure in a complex electrophysiology procedure, such as atrial fibrillation ablation, should be considered. This is an increasingly used procedure with usually longer fluoroscopy times. Therefore, the decrease in radiation exposure is expected to improve the net benefit of the procedure for the patient and to minimize the radiation injury hazard for the professional staff. The lesson learned so far tells us that sophisticated technologies have to combine with a specific know-how to achieve this task. In fact, non-fluoroscopic three-dimensional systems with their constant updating in the technology content have a key role, but minimization in the use of radiations is obtained if these technologies are used with an optimized protocol and after a specific operators' learning curve. This may last several months and be longer for less experience operators.*

**Reviewer 00227341**

*This paper is very useful for cardiologists as the authors describes the techniques for reduction of radiation exposure in catheter ablation of atrial fibrillation. I think that a paragraphs "Conclusions" would be added, emphasizing the benefits of the reduction of radiation exposure*

As also required by the previous reviewer (see above), a "Conclusions" section has been added.

**Reviewed by 01194590**

*In the review manuscript, the author tried to convey the idea of how to reduce radiation exposure during interventional electrophysiology. The manuscript is well written. The scope of this review is too limited and the contents were redundant in the idea of reducing radiation exposure. I strongly encouraged the author to delete the repeated parts and add something novel in the text.*

As also required by the first reviewer, the annoying redundancy in the last paragraph of the paper has been eliminated by simplifying the text and inserting a table (now table 1), which reports the techniques and technologies used in the experience of reduction of radiation exposure. Although it could be interesting to discuss further aspects of reduction of radiation exposure in other fields of interventional electrophysiology, the aim of this paper, as stated in the title, is to focus on catheter ablation of atrial fibrillation. The reasons for this are the followings: this is an increasingly used procedure with generally a high radiation exposure. To reduce radiations is expected to increase the net benefit of this

procedure by reducing the risks, which are also related to radiations. To better clarify this issue to the readership, the following sentences has been added at the end of the first section:

*"The following sections will focus on reducing radiation exposure in catheter ablation of atrial fibrillation. This is an increasingly used procedure especially in patients with paroxysmal forms and, moreover, the use of fluoroscopy in such a complex and demanding procedure can be high. Therefore, reduction of radiation exposure in this procedure is expected to increase the net benefit of the procedure, minimizing the risks, which can be also related to the radiation exposure especially in case of repeat procedures."*

*Minor typo error: Focusing on the field of interventional electrophysiology, these papers ""report"" the radiation dose to the patients for electrophysiology procedures.*

As required, the error has been corrected.

I hope that in the present form the manuscript can be accepted for publication.

Best regards.



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