Reviewer’s report

Title: Ventilation strategies with different inhaled Oxygen concentration during Cardiopulmonary Bypass in cardiac surgery (VONTCPB): study protocol for a randomized controlled trial

Version: 0 Date: 24 Feb 2019

Reviewer: Ana Kowark

Reviewer’s report:

This is a very interesting study protocol, which adheres to the SPIRIT guideline. Congratulations to the authors.

In general, there are several parts where the language might be improved.

For example:

1. Abstract- Design: "The secondary endpoints referred to the incidence of the oxygenation index....." It has to be "refer to" in a study protocol, as the study is not terminated.

2. Background page 5, line 6-12 : please revise this sentence! Do you mean "during a long period...."

3. Background page 5, line 31-42: this is a very long sentence, please revise!

4. Objectives, page 6, line 47: "indirectly" should be "indirect"

5. Randomization/Blinding, page 8, line 39: The sentence, beginning with "once" is very long for the readers. Please revise.

6. Randomization/Blinding, page 8, line 56: Do you mean "as well as the reason of it" ... instead of "as the reason of it"?

7. Intervention, page 9, line 26-28, sentence beginning with FiO2: "would" should be "will" and "when " should probably be "during". Please check and revise.

8. Data collection, page 11: You write in each section "... data are included" , I think it would be better to write "...data include:"

Other comments:
9. Objectives, page 6, line 42-45: it is not clear to me, when do you assess the primary endpoint? Within 24 h after surgery or 30 days? Please be more precise.

10. Perioperative management and monitoring, page 10, line 59: Mean arterial pressure will be kept between 50 and 70 mmHg. Do you not think that the MAP might have also an influence on your outcome? 50 to 70 is a very broad range. Please discuss it in your discussion.

11. Data collection, page 11, line 31-34: "... at three time points (the moment arriving in the ICU, 6 and 12 hours after arrival in the ICU)," to which outcome does this refer to? This is not clear to me in this section.

12. Statistical considerations, page 11, line 59: Why do you write "eventually"? Do you plan to include 420 patients or not?

13. Discussion, page 13, line 45-53. This sentence is not clear to me. Please rephrase.

14. Discussion, page 13, line 56: "The duration of RM is also short with the consideration of its influence on the hemodynamics ..." This sentence is also not really clear for a reader. Please rephrase. And what is RM? Do you mean ARM?

15. Abbreviations: It would be preferable if you could provide the abbreviations in alphabetical order. I cannot find here RM?

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