Reviewer's report

Title: Does continuous endurance exercise in water elicit a higher release of ANP and a higher plasma concentration of FFAs in pre-obese and obese men than high intensity intermittent endurance exercise? - A pilot study

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Reviewer: Max LAFONTAN

Reviewer's report:

The design:
The proposed study seems convenient to adequately test the hypothesis raised by the applicants.

The proposed rationale sounds. The comparison between endurance exercise and high intensity intermittent endurance exercise in water is original. It could be tolerated more easily by the obese persons. Plasma levels of ANP are known to be increased during water immersion (at rest but also during exercise).

The protocol possesses an important clinical interest. The results could be useful to select the most adapted protocol of physical exercise optimizing lipid mobilization/utilization in pre-obese and even obese patients.

Major Compulsory Revisions
The background is well covered.

1) Probably, after submission of the proposal two recent studies have also revealed an impact of ANP on brown/beige fat and human skeletal muscle and a review was published (1-3). Particularly, the impact on the oxidative capacity of human skeletal muscle is of interest for the authors. A comment will be useful in the background chapter.


2) It has been proposed that the increase in fat mass could lead to an enhanced expression of NPR-C in fat cells that would diminish the local actions of ANP on fat cells and also lead
to decreased plasma ANP levels. Any comment? Obese and overweight subjects have been described to exhibit low plasma NP levels. Any comment?

3) Some important details are missing concerning the characteristics of the work load and the practical organization of the exercise sessions. Are they chosen according to the anaerobic threshold of each patient? What is the separation between the exercise sessions?

4) p.8: Some details are missing concerning the moment of the day selected to perform the exercise period. It is an important point to clarify. What is the rationale for a selection of a 6-h fast? An overnight fasting period will be a little bit longer and could be followed by exercise in the morning. A standardized diet two days before will be better.

5) p.7: The BMI range >25.0 and <34.9 will provide a mix of obese an overweight will bring heterogeneity. Why not a narrower range with obese only >30.0 and <34.9? Any comment on this point?

Minor Essential Revisions

1) The male gender was selected due to higher complexity of such studies in women. It is a true problem which is understood by the reviewer. Nevertheless a study of Moro et al. have revealed a greater contribution of ANP in the exercise-induced lipid mobilization in women than in men.

2) p.6-7: OK for inclusion and exclusion criteria (see comments on BMI)

3) p.8: outcomes: for primary outcomes: BNP is known to possess lipolytic effects. It could be useful to determine both ANP and BNP.

secondary outcomes: Glycerol is a better index for lipolysis than free fatty acids (which are partly used during exercise).

Discretionary Revisions

Statistical analysis: Fourteen participants seem sufficient. The applicants mention Ten to fourteen in the Abstract. Why? Detailed information's are provided concerning safety, duties of the investigator, evaluation of risks-benefit ratio, quality control and quality assurance.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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

Declaration of competing interests:

'I declare that I have no competing interests'