Reviewer's report

Title: Effect of Remote Ischemic Conditioning on atrial fibrillation and Outcome after coronary artery bypass grafting (RICO-trial)

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Reviewer: Peter Tonner

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Effect of remote ischemic preconditioning on atrial fibrillation and outcome after coronary artery bypass grafting (RICO-trial)

D. Brevoord et al.

This is a presentation of an interesting study design of a future study on the effect of remote pre- and postconditioning on surrogate parameters of outcome after cardiac surgery. In order to cut down on sample size atrial fibrillation was chosen as the primary endpoint. Since it was demonstrated before, that atrial fibrillation can be effected by direct preconditioning and since atrial fibrillation has an effect on outcome after cardiac surgery the authors have chosen a valid endpoint.

The background of the study is well presented and arrives at a valid hypothesis, claiming that remote pre- and/or post-conditioning will result in a reduction of atrial fibrillation and boldly of patient outcome.

Method and design appear to be carefully planned and are presented accordingly. It is interesting to note that the actual conditioning procedure is put rather simplistic, just a three times pumping of the inflator cuff at the upper arm. The question is, if it should be better defined what pressure will be achieved in the cuff, if exactly the same pressure will be held throughout the procedure (is this possible with an automatic inflator cuff?) and how ischemia in the arm will be determined. A minor point is the induction of anesthesia. Since propofol is used for maintenance of anesthesia why is it not used for induction. Midazolam seems to be a rather unusual choice for an induction agent, as deep anesthesia cannot be achieved. Will a measure of anesthetic depth be used?

In the statistical analysis it is not explained why a reduction of 45% in afib is clinically relevant in the single conditioning groups and why a reduction of 60% in the combined group. This should be stated more clearly.

The discussion is up to the point and includes relevant issues.

In conclusion, the authors present a study design for an interesting study on remote conditioning. The conditioning procedure needs some more attention in order to create better understanding. Lastly it is up to the reader, if there will be enough interested just in a study design without the presentation of the hopefully very interesting results.
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:

'I declare that I have no competing interests' below