Author’s response to reviews

Title: Atrial fibrillation and cycling. Six year follow-up of the Taupo Bicycle Study

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Version: 5 Date: 14 November 2014

Author’s response to reviews: see over
To: The Editor  
BMC Public Health  

Re: MS 2281936331264128  
Atrial fibrillation and cycling. Six year follow-up of the Taupo Bicycle Study

Thank you for the opportunity to respond to reviewers’ comments.

Reviewers 3 and 4 reported that they had no further comments to make on the paper, and we infer they were satisfied with the revisions we had made.

Reviewer 1 reported “the data are generally interesting and the manuscript is well written”. However he pointed to 4 issues, that he felt were weaknesses in the paper, and should be acknowledged.

1. “the group … are not representative and this cannot be explained away”  
We accept this point, and say so in the paper. (Fourth paragraph in the discussion, sentence beginning “We do not claim the study sample is representative of all who participated…” ) However, we feel, as we say in the discussion, that the important issue here is whether the relation between amount of exercise and hospitalization for AF is different in the study sample to the population at large. We argue there is no reason to believe this is the case. For these reasons, we feel that no further changes are required in the paper.

2. “one cannot tell conclusively if the patients had atrial fibrillation”  
3. “hospital admission is not the best measure of AF”  
We believe these comments both apply to the question of what outcome measure is used, and in particular, the limitations of relying on hospitalizations as a surrogate for incidence. The reviewer’s concern is an important one, since occurrences of AF leading to hospital admission are only a fraction of all occurrences of the disorder. In response, we have strengthened the language in the discussion. In the fifth paragraph we have changed “it is unlikely that the data presented here capture all occurrences
of AF” to “it is almost certain that the data presented here do not capture all occurrences of AF”. We go on to argue that the critical issue, for this particular analysis, is whether the under-estimate is differential (in relation to amount of cycling). We don’t know for sure, but our best judgement is that ascertainment within the study cohort is unlikely to be biased by level of physical activity.

4. “long term activities of the participants is unknown”
We accept that the study is based on limited information about levels of physical activity – this is acknowledged in the discussion as a weakness of the study.
To strengthen the paper, we have added new material. Self-reported levels of cycling are imprecise, though probably not biased in this case (given the prospective nature of the study). As another indicator of activity, we have extracted finishing times from the Taupo Cycle Challenge website for all participants who completed the one lap event. (This is the great majority – 1751 out of 2590.) We have examined the relation of finishing time to subsequent hospitalization for AF, using the approach adopted by Andersen et al (2013) in their study of cross-country skiers. This involves a comparison of quartiles of finishing time. The result, which we report in the results section, is consistent with our analysis using self-reported levels of cycling – there is no sign of an increase in the frequency of hospitalization for AF amongst those participants with faster finishing times.
We have added text accordingly in the methods, analyses, results and discussion sections, and have added Andersen et al (2013) to the reference list.

We submit the paper in its new form, which we believe responds appropriately to reviewer 3’s comments. We appreciate the time and care that all the reviewers took in reading and critiquing our paper.

Yours truly,

Alistair Woodward