Reviewer's report

Title: The association of spatial T wave axis deviation with incident coronary events. The ARIC cohort.

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Reviewer: Marek Malik

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This study by Drs Vaidean et al investigated whether T wave axis deviation measured in general population can predict coronary heart disease during the follow up. Briefly, the conclusion of the study is that the measurement of T wave axis deviation is not clinically useful for this purpose.

There are several questions related to this manuscript.

It has recently been reported by several groups (e.g. the recent publication of the Rotterdam team in the European Heart Journal) that the vectorial deviation between QRS complex and T wave axis is a stronger predictor than T wave axis deviation alone. It is surprising that this measure was not included in this investigation. I do appreciate that the authors used QRS complex deviation as a covariate in the multivariate risk models but it is not exactly the same as calculating the vectorial deviation between QRS and T wave loops.

During the follow-up, the authors included both non fatal and fatal coronary heart disease events. This appears to be rather broad follow-up category. In many instances, coronary heart disease remains sub-clinical and the distinction between sub-clinical and non fatal coronary events depends on the precision and depth of follow-up investigations which is most likely difficult to standardise. The authors should either deal exclusively with fatal events or at least add fatal events as an additional outcome category.

I understand that Minnesota coding was used, among others, to eliminate cases with secondary T wave changes. It might be preferable and more accurate to include QRS duration as a covariate into the multivariate risk models.

Similarly, it is somewhat surprising that heart rate was not considered in the multivariate models. This seems particularly important if the authors include the QRS-T angle since it has been reported that this parameter is heart rate dependent.

Finally, it is puzzling to see Dr Rautaharju who published extensive critics of Bazett’s correction, among the authors of this manuscript which uses QTc by Bazett.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No
Declaration of competing interests:

None