Reviewer's report

Title: Hypertension after preeclampsia in relation to the C1114G polymorphism (rs4606) in RGS2: data from the Norwegian HUNT2 study

Version: 1
Date: 6 January 2014

Reviewer: Paul Leeson

Reviewer's report:

Kvehaugen et al present data that associates the C1114G rs4606 polymorphism in RGS2 with later hypertension in women from a Norwegian study. This paper extends their previous observation of a higher incidence of the GG and CG polymorphism in women with preeclampsia. In the current study the differences in genotype between groups relates to a 4-5% drop in CC carriers with a matched increase in CG carriers in the preeclampsia group. Interestingly, the relevance to higher blood pressure seems to be largely in the GG carriers. An association is reported between severe hypertension and the GG polymorphism, independent of a history of preeclampsia, and that the association between preeclampsia and hypertension is independent of the polymorphism. It strikes me the key message is of an association between this polymorphism and the later development of severe hypertension independent of pregnancy history or a history of preeclampsia? To strengthen the paper I think it would be useful to consider the following.

Discretionary revisions

1. The title could be adjusted to reflect the concept that the association between polymorphism and blood pressure is independent of pregnancy history or that preeclampsia is associated with higher blood pressure independent of the polymorphism.

2. As the results are informative about genetic associations with blood pressure it will be of value to put the results into the context of results from large scale Hypertension GWAS studies that have been reported in the last few years.

3. The section on interaction with physical activity is interesting but the study group is probably underpowered to do this interaction analysis and the results are lost in the detailed statistical analysis related to pregnancy history. There is only a very brief comment made in the abstract. I wonder whether this interaction with genotype should be removed and perhaps explored in more detail in a separate study with additional data?

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

I declare that I have no competing interests