Reviewer's report

Title: Thyroid function and Age-related Macular Degeneration: a prospective population-based cohort study - The Rotterdam Study

Version: 1 Date: 19 February 2015

Reviewer: Till Ittermann

Reviewer's report:

This is an interesting manuscript on the association between thyroid function and macula degeneration. Overall the manuscript is well written, but the presentation of the study characteristics and the statistical analyses have to be improved. Furthermore, the authors should try to explain why fT4 but not TSH was associated with macula degeneration.

Major Compulsory Revisions

1. Study population: Please provide the number of excluded subjects for each of the two cohorts. A flow chart would help here.

2. From the description in the introduction I assume that hypertension, cholesterol and diabetes are mediators and no confounders for the association between thyroid function and AMD. Thus, I suggest to not adjust for these variables in Cox analysis.

3. Another issue is the drop-out of individuals to follow-up. It is unlikely that this drop-out is completely at random. Therefore, methods to model at least missing at random should be performed. I suggest to apply inverse probability weights. This requires the following steps:
   a) Define variable R (Participation at follow-up yes/no)
   b) Run logistic regression with R as outcome and baseline explanatory variables X_O (e.g. education, income, smoking, alcohol consumption, and specific diseases related with drop-out) as covariables: log(odds(P(R)=1))= X_O*#+e
   c) Calculate the predicted probabilities from that model
   d) Calculate the inverse of these predicted probabilities (IPW's)
   e) Use the IPW's as weights in the data analysis

4. Do you have an idea why fT4 but not TSH was associated with AMD? Can you include a paragraph on this in the discussion?

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.