Reviewer's report

Title: Subclinical Hyperthyroidism and Dementia: the Sao Paulo Ageing & Health Study (SPAH), a cross-sectional study.

Version: 1 Date: 11 February 2010

Reviewer: massimo musicco

Reviewer's report:

The authors address the issue of a possible association between thyroid function and dementia, in particular they want to investigate the potential role of subclinical hypothyroidism. The question relative to this issue is well posed and documented.

The methods are well described, but the cross-sectional design adopted by the authors is weaker than the longitudinal one for assessing causal association.

The writing is acceptable.

Major compulsory revisions.

1) The data were collected with standardized instruments or with well-established laboratory techniques and can be considered highly reliable. However diagnosis of dementia and dementia type was based on "an algorithm that combined data from all assessments" but dementia diagnosis remains a clinical diagnosis based on medical judgment. A specialist consideration and evaluation of the potential "cases of dementia" screened by the used scales would have been preferred.

2) The authors report that only 67% of the recruited population was considered for the study. The reason is that thyroid assessment started after the baseline evaluation of the entire cohort. Some information about how many persons of the cohort were offered a thyroid function evaluation and how many evaluation were available for the study are necessary.

3) Data are presented in table 1 for 49 with and 1070 without dementia excluding the 157 with hypothyroidism is there any reason for this exclusion?

4) The author should consider the possibility of presenting the data also by dementia severity?

5) In table 2 the author report the actual number only for dementia but not for hypothyroidism so that the reader cannot appreciate the effect of adjustments on the crude risk estimates. The authors should provide for the readers the complete numbers.

6) In discussion the authors should discuss more in depth the limitation concerned with the diagnostic procedure. For example why there were not in the sample other types of dementia different from vascular or Alzheimer.

7) Another point to discuss is the severity of dementia which is never addressed in the paper, the reader has no information about how many persons with dementia were mild, moderate or severe and how the association with thyroid...
disfunction holds in the different severity types.

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.