Reviewer's report

Title: Retinal nerve fiber layer thickness and cognitive ability in older people: the Lothian Birth Cohort 1936 study

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Reviewer: Jacques J Hugon

Reviewer's report:

This is an interesting report that tries to correlate cognitive ability with RFNL thickness in healthy elderly individuals. The concept to evaluate RFNL thickness in neurodegenerative diseases is now quite well advanced and this work propose to extrapolate this concept to cognition. There are several important questions that should be addressed.

1- It is now admitted that the reduction of RFNL thickness might be linked to primary or secondary neuronal loss in Alzheimer's Disease, Multiple sclerosis or other diseases. The question addressed in this paper is not clear at least for this reviewer. Do the authors think that neuronal loss occurs in normal aging? Do the authors think that cognitive modifications detected in elderly individuals and marked by reduced speed processings could have a link to RFNL thickness? The switch from neurological diseases to cognitive modifications observed in elderly should be explained by a proper review of the literature of the RFNL in aging to bring about a clear rational.

2- Are there any statistical changes between the clinical findings of the Lothian Birth Cohort and the sub-sample? Why the authors have chosen these 105 subjects?

3- RFNL thickness seems to be reduced in patients with Mild Cognitive Impairment. Since all MMSE scores were in the normal range, how the authors have excluded monodomain or multidomain MCI?

4- Did the subjects had brain MRI to exclude sub-clinical neurological diseases?

5- A major question is the link between 11 IQ test and cognition in elderly. Cognitive ability might depend upon IQ but also on cognitive reserve acquired at least by education which can be evaluated by cognitive reserve. All those results should be adjusted to the level of cognitive reserve (years of education?) that can delay the onset of cognitive troubles while CSF biomarkers and brain lesions are progressing.

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

Quality of written English: Acceptable
**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.