Reviewer's report

Title: Association of plasma endothelial lipase levels on cognitive impairment

Version: 1 Date: 28 Jan 2019

Reviewer: Pallavi Dham

Reviewer's report:

Thank you to the authors for the corrections. The study has some pertinent information which may tie in with the existing literature. However, these need further clarity so that it can contribute towards future study designs.

Following queries are for consideration of the authors:

1. Most of the referenced studies refer to endothelial lipase rather than LIPG. Uniform terminologies are essential to avoid confusion and maintain consistency in interpretation as well as comparison to other studies.

2. The recruitment process is still unclear. What was the period of recruitment, how did you approach the eligible cohort? How many were eligible? How many were excluded? How many declined consent? Was all the clinical and test information part of the usual clinic assessment? The flow chart does not clearly define the steps so as to verify if the sample was biased in any way and how can it be generalised? It appears more like cherry picking or a convenient sample.

3. Use of PET amyloid should be mentioned in the methods section but can be detailed in the supplement section. When it suddenly appears in the result section, it can get confusing.

4. There is specific relevance of EL (LIPG) levels in early stages of dementia as per the current literature. This has not been highlighted by the authors. Can it be hypothesised that EL (LIPG) levels are relevant in early stages of the cognitive impairment when the process of change is underway rather than when the damage has occurred."depending on disease severity, with higher levels of inflammation observed in earlier stages of the disease process" -ref: Serum MCP-1 levels are increased in mild cognitive impairment and mild Alzheimer's disease.Galimberti D, Fenoglio C, Lovati C, Venturelli E, Guidi I, Corrà B, Scalabrini D, Clerici F, Mariani C, Bresolin N, Scarpini E Neurobiol Aging. 2006 Dec; 27(12):1763-8. This could increase the relevance of the findings.

5. How did you define early stages of dementia in your analysis- was it based on CDR of less than 1? Or was that a clinical diagnosis?

6. EL (LIPG) levels: are there any human studies on normal expected levels of EL in healthy adults. Some of the studies on atherosclerosis mention levels between 122 -over 800 ng/ml.
Your study mentions levels in micrograms per ml. Some of the tables do not mention the units of measurement-please add the measuring units. Also, it may help to clarify if the sample is pre heparin or post heparin since post heparin samples increase the plasma levels almost 3 folds. Your cut off for high and low levels seems arbitrary at mean of your sample plus 1 SD. This may have no comparison to other populations and to make it relevant, it may help to review other studies on EL (LIPG) levels.

7. Is there any information available on ethnicity or is this specific to Korean population. Then this must be spelt out in the limitation. Also it is single centre study which must also be reported in the limitations.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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Needs some language corrections before being published

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