Author’s response to reviews

Title: Association of plasma endothelial lipase levels on cognitive impairment

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Katrina A.S. Davis, MRCPsych (Reviewer 1):

(Comment #1) I understand the point about not being able to reconstruct the flow-chart. However, the reader is entitled to know how this group was sampled as per comment 101 and 202. Even a convenience sample will have been chosen on some characteristic (e.g. the first 20 to reply to an advert, or those people who received both an MRI and PET scan during the nine months of recruitment, or those with enough spoken English to understand the instruction sheet
seen in the consultant clinic on a Wednesday). The authors need to state how both cases and controls were recruited, and it needs to be in the manuscript (not just in response to reviewers) under methods and included in the discussion under limitations, so that the reader can evaluate whether the results could be due to sampling bias.

(Our response) As your comment, we added recruitment procedure in subject section of the methods (page 6, line 4-12) as shown below and restructured the flow chart (Additional file 1: figure S1);

We recruited 97 participants including cognitively normal individuals (N=39), amnestic MCI (N=38), and AD-type dementia (N=20) from the memory clinic in Samsung Medical Center, from February 2017 to August 2017. Additionally, we recruited 29 cognitively normal participants from the local community. Five participants were excluded due to the withdrawal of consent, and a participant was excluded due to the failure of obtaining an amyloid PET scan. Of the remaining 120 participants, 11 subjects with a coefficient of variation of 30 % or more in the EL measurements were excluded. A total of 109 elderly participants (mean age; 75.3 years) over 65 years of age were recruited from a clinic and local community (Additional file 1: figure S1).

We also mentioned sampling bias in the discussion under limitations (page 14, line 18-21) as follows;

The samples might not be representative, because we performed continuously rather than random sampling. Other center or multi-center validation studies are needed to address sampling errors and limitation of single center study.

TorfinnLodoen Gaarden (Reviewer 3):

(Comment #2) I thank the authors for a manuscript nuancing the understanding of mechanisms that may be involved in the development of Alzheimer's disease (AD). This study has limitations regarding sample size, single center and cross sectional design as the authors commendable have
pointed in the discussion. Additionally, clinical studies on elderly always face the problem of recruiting healthy controls and homogenous patient groups as ageing implies degenerative biological changes and is proper addressed in this manuscript. Despite the methodological concerns this study expands the knowledge on mechanisms that may be targets in future prevention of AD. This study additionally may contribute to adequate power calculation in the planning of future studies.

(Our response) We rewrote the recruitment procedure in method section on page 6, line 4-12 to resolve the methodological concerns.