Reviewer's report

Title: Population studies of sporadic cerebral amyloid angiopathy and dementia: a systematic review

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Reviewer: Maarit Tanskanen

Reviewer's report:

This is a well-written narrative review article attempting to gather data on connection between cerebral amyloid angiopathy (CAA) and clinical dementia. The severe end state complications of CAA – cerebral haemorrhages and small infarctions – have long been recognized, as well as the common occurrence of CAA in the brains of Alzheimer’s disease (AD) patients. Recently, CAA has been connected with Lewy body disease also (Jellinger KA, Attems J 2008: J Neural Transm 2008: 115; 473-82). However, the role of CAA in the background of dementia, especially in AD, is uncertain, and as the authors state, CAA, although is very common, does not include to the criteria for neuropathological AD diagnosis. The authors conclude that, in four population-based and in 38 selected samples, cases with dementia had a significantly higher prevalence than those without, and, except for one study, CAA prevalence correlated significantly with dementia. As the methods used in the studies are varying, and, as the authors state, there currently even is no standard consensus on methods to diagnose CAA, the author’s conclusions have a significance in dementia field. The variability of methods used in the studies does not support a conceivable statistical approach either.

I have no Major Compulsory Revisions.

Some Minor Essential Revisions:

1) P 5, second paragraph (Background)
Definition of CAA: CAA is the deposition of Abeta …in the media and adventitia of small and medium -sized cerebral cortical and leptomeningeal arteries and capillares. In addition, it is accepted that veins may also be affected (Vinters H 1987: Stroke 18; 311-9).

2) P 7 (Methods)
The authors report that six studies were identified as being fully population-based. However, only five are reported here; the HAAS -study (Pfeifer et al) is missing in the list.

3) P 15 (Discussion)
The style of references : (Chalmers et al., 2003; Eng et al.,2004, Greenberg et al., 1995; Nicoll et al., 1996) and P 16 : (Greenberg, Bacskai, and Hyman 2003, and Eng et al., 2004, and Greenberg et al., 2003), does not correspond the
The authors discuss factors leading to varying incidence rates for CAA: the methods used in diagnosing dementia; the age of the individuals in the studies, and the staining methods used to diagnose CAA. Three additional factors may be added: I) Studying both cortical and leptomeningeal CAA versus cortical CAA only. This is relevant in determining the total CAA score, as mild CAA may be present in leptomeninges only. However, severe CAA almost always is also cortical. II) Scoring (grading) of CAA, i.e. grades 0-3 versus grades 0-4, and how the limits for each grade have been set. III) The cerebral regions studied (being discussed also later).

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.

Declaration of competing interests:

I declare that I have no competing interests.