


## Vascular and Alzheimer Disease in Dementia

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Gustavsson et al<sup>1</sup> recently showed that midlife atherosclerosis is related to vascular dementia and small vessel disease but not to Alzheimer-type dementia (AD) in the Swedish population-based Malmö Diet and Cancer Study. Although AD is frequently cited as the most common type of dementia, the relative contributions of vascular and neurodegenerative pathology to clinical dementia have not been clear. These separations are, however, important because they have direct implications for prevention. Although “pure” AD still defies causal treatment, there are possibilities for vascular prevention.

We have earlier compared results from a systematic review of studies reporting clinicopathological data of dementia cases<sup>2</sup> and detailed death records of vascular comorbidity with dementia in the 49-year follow-up of older men (Helsinki Businessmen Study [HBS]).<sup>3</sup> This comparison<sup>4</sup> suggested that pure AD would comprise only one-quarter of all dementia cases in older age. The proportions of “pure” vascular dementia in neuropathological studies (26%) and vascular dementia in the HBS (22.5%) were also quite close. We have now added data from dementia types in the Swedish study, and the distributions show remarkable similarity (Table).

In the HBS, we examined dementia diagnosis in older age in relation to vascular risk factors measured in midlife, at a median age of 42 years. In multivariate adjusted analyses, only

serum cholesterol was significantly associated with dementia with vascular features, whereas none of the midlife vascular risk factors were related to pure AD—findings supporting the Swedish study.<sup>1</sup> The relationship of midlife cholesterol that was specific to vascular-type dementia may also shed light on the results of a further recent study<sup>5</sup> using Mendelian randomization (MR); in agreement with observational findings, genes encoding targets of several lipid-lowering drug classes were not related to diagnosis of AD (not separating pure and mixed types) in people aged 70 years and older. Further explanation may be selection bias associated with MR studies, especially for earlier and later developing health conditions that have shared etiology.

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## Potential Conflicts of Interest

T.E.S. reports various cooperation (educational, research, consultation) with several companies marketing cardiovascular drugs, including Amgen, AstraZeneca, Merck, Orion Pharma, Pfizer, and Servier, and minor stock in Orion Pharma. P.J.T. and M.K. declare no conflict of interest related to this letter.

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**TABLE. Comparison of Distributions of Dementia Types in Various Studies**

Type of Dementia	Systematic Review of Clinicopathological Studies <sup>2</sup>	Helsinki Businessmen Study <sup>3</sup>	Malmö Diet and Cancer Study <sup>1</sup>
“Pure” Alzheimer disease	24	25.5	29.9
Vascular dementia	26	22.5	23.6
Alzheimer disease with concomitant vascular pathology	27	34.5	31.8
Lewy body disease	7	3.8	3.0
Other	16	13.7	14.7