Small dense low-density lipoprotein and carotid atherosclerosis in relation to vascular dementia.

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OBJECTIVE: Vascular dementia (VaD) and Alzheimer's disease (AD) are the most common causes of dementia in the elderly. The aim of this study was to investigate carotid atherosclerosis, serum lipid profiles, and atherogenic hormone levels in nondiabetic Japanese men with VaD or AD.

METHODS: Carotid artery intima-media thickness (IMT) and plaque, serum lipid and lipoprotein profiles, including low-density lipoprotein (LDL) particle size, as well as insulin-like growth factor-I (IGF-I, somatomedin C) and testosterone levels, were determined in 34 patients with AD, 37 patients with VaD, and 63 healthy male controls.

RESULTS: Age, body mass index, systolic and diastolic blood pressure, and fasting plasma glucose, hemoglobin A1c (HbA1c), triglyceride, high-density lipoprotein (HDL)-cholesterol, and apolipoproteins (apo) A-I, B, and E levels did not differ significantly among the 3 groups. However, the mean value of carotid IMT, the frequency of atherosclerotic plaque deposition, the serum levels of LDL-cholesterol, lipoprotein(a), and lipid peroxides, and the incidence of small dense LDL (particle diameter ≤ 25.5 nm) were increased significantly in VaD patients compared with AD patients or controls. VaD patients had a close reverse correlation between carotid IMT and LDL particle diameter, which were statistically proven independent risk factors for VaD. In contrast, AD patients had significantly lower serum levels of IGF-I and testosterone than either VaD patients or controls.

CONCLUSION: Our results indicate that VaD is associated with atherogenic dyslipidemia, in particular, small dense LDL and carotid atherosclerosis, whereas AD is associated with hyposomatomedinema and hypogonadism rather than atherosclerosis.

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