Abstract

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Leukocyte telomere length and carotid artery intimal medial thickness: the Framingham Heart Study.

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BACKGROUND AND PURPOSE: Leukocyte telomere length (LTL) is relatively short in individuals who have evidence of cardiovascular disease. The purpose of this study was to examine the link between LTL and the predisposition to atherosclerosis, as determined by carotid artery intimal medial thickness (IMT) in participants of the Framingham Offspring Study.

METHODS AND RESULTS: LTL was assayed by the mean length of the terminal restriction fragments and carotid artery IMT by B-mode ultrasonography in 1062 individuals (496 men, 566 women) aged 33 to 86 years. In the whole sample, there was a significant association of age- and sex-adjusted LTL with internal carotid artery IMT (ICA-IMT) (r = -0.07, P = 0.02). In sex-stratified analysis, this association remained significant for men (r = -0.11, P = 0.02) but not for women (r = -0.04, P = 0.36). After further adjustment for cigarette smoking and BMI, a borderline significant association persisted in men (P = 0.06). In secondary analysis, the age-adjusted LTL was significantly (and negatively) associated with ICA-IMT (r = -0.28, p = 0.0006) in obese (BMI > 30 kg/m(2)) men but not in nonobese (BMI < or = 30 kg/m(2)) men. In addition, age-adjusted LTL was significantly shorter in men (6.89+/-0.02 kb) than women (7.01+/-0.02 kb; P < 0.0009) and in current cigarette smokers (6.87+/-0.05 kb) than never smokers (6.99+/-0.03 kb; P = 0.0006). Although there was no significant association of LTL with common carotid artery-IMT or with carotid artery stenosis, there was a significant inverse association of LTL with common carotid artery IMT in obese men.

CONCLUSIONS: In obese men, shortened LTL is a powerful marker of increased carotid IMT. Given the public health impact of atherosclerosis and in particular the current epidemic of obesity, the associations noted in obese men warrant further confirmation.

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