

# Abstract

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## Leukocyte telomere length is associated with measures of subclinical atherosclerosis.

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**AIMS:** Our aim was to test the association of mean leukocyte telomere length (LTL) with ultrasonic measures of subclinical atherosclerosis such as intima-media thickness in the common carotid (IMTcc) and sum of plaque areas (SPA) and with serological markers.

**METHODS AND RESULTS:** Carotid and femoral bifurcations were scanned in 762 general population volunteers (46% men) over 40. Four features were considered: (a) IMTcc, (b) sum plaque areas of carotid plaques (SPAcar), (c) sum plaque area of common femoral plaques (SPAfem) and (d) sum plaque area (SPA--sum of the plaque areas of the largest plaques present in each of both carotid and femoral bifurcations). Mean LTL was determined with a quantitative real-time PCR-based method. IMTcc was strongly associated with mean LTL both before and after correction for traditional risk factors (B=-0.002; 95% CI=-0.004 to -0.00; p=0.014). In sex-specific analysis, the association was stronger in men (p for sex interaction<0.001). SPAfem was associated with LTL in women before and after correction (B=-0.195; 95% CI=-0.38 to -0.01; p=0.037) (p for sex interaction<0.001). LTL was also associated with age and sex-adjusted levels of hsCRP (p=0.012), sCD40L (p=0.042), homocysteine (p=0.006), creatinine (p=0.02), ApoA1 (p=0.01), Lp(a) (p=0.04) and HOMA-IR (p=0.008).

**CONCLUSIONS:** Our results support the telomere hypothesis and highlight potential differences in the biological mechanisms leading to intima-media thickening and/or plaque formation between vascular beds. They may provide insights into a novel treatment of antisenescence to prevent atherosclerosis.

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