

Skin Cholesterol Content Identifies Subclinical Atherosclerosis in Asymptomatic Adults

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Background: An assay to measure skin total cholesterol content (Tc) that does not require a skin biopsy has recently become available for use as a cardiovascular (CV) risk prediction tool. Carotid intima-media thickness (CIMT) is a well-validated surrogate for subclinical atherosclerosis. Our objective was to determine if skin Tc levels are associated with increased CIMT after adjusting for known CV risk factors and Framingham CV risk.

Methods: Consecutive patients without known vascular disease who were referred for determination of CIMT underwent B-mode ultrasonography of the carotid arteries and measurement of skin Tc using a non-invasive assay. Use of medications, cardiac risk factors, and Framingham 10-year CV risk were determined prospectively. Multivariable regression was used to determine predictors of increased CIMT.

Results: Among 81 subjects, the mean (standard deviation) age was 55.6 (7.7) years and the mean skin Tc was 95.9 (18.3) units. CIMT was significantly higher among individuals in the highest quartile of skin Tc (0.87 mm vs. 0.76 mm, $p=0.011$). In multivariable analyses, skin Tc was associated with increased CIMT even after adjusting for age, sex, glucose, systolic blood pressure, total:high-density lipoprotein cholesterol ratio, and use of lipid-lowering therapy (odds ratio [OR] per 10-unit increase=1.590, 95% confidence intervals [CI]=1.525-1.658, $p=0.031$). Skin Tc also was associated with increased CIMT after adjustment for Framingham risk (OR=1.341, 95% CI=1.302-1.380, $p=0.048$).

Conclusions: Skin Tc is an easy-to-measure, non-invasive marker that can help identify subclinical atherosclerosis in asymptomatic middle-aged adults, even after controlling for risk factors and CV risk predicted by the Framingham model.

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