

Smoking and diabetes differ in their associations with subclinical atherosclerosis and coronary heart disease — the ARIC Study

ATHEROSCLEROSIS

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Abstract

Atherosclerosis, nearly universally present in major arteries of Western adults, is characterized in all affected arteries by cholesterol-laden plaques and consistently associated with blood cholesterol levels. Other risk factors are reported to have relatively stronger or weaker associations with different atherosclerotic manifestations, but such differences have never previously been quantified. Measuring them may offer fresh clues to atherogenic processes and their prevention. The Atherosclerosis Risk in Communities Study (ARIC) ascertained incident coronary heart disease (CHD) and measured subclinical atherosclerosis as carotid artery intimal medial thickness using ultrasound and as lower extremity arterial disease (LEAD) using ankle-brachial blood pressure index. Blood cholesterol was associated with all endpoints. When standardized against LDL cholesterol associations, diabetes and smoking showed substantially different strengths of associations with different endpoints. Relative to associations with LDL cholesterol: (1) smoking, but not diabetes, increased in its strength of association with the severity of the underlying arterial disease; (2) the diabetes and smoking associations with CHD were much stronger in women than men, a phenomenon which, the standardization pattern suggests, is due to a gender difference in CHD pathogenesis, possibly attributable to arteriolar differences.

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Associations of diabetes and current cigarette smoking with early vs. advanced subclinical atherosclerosis 12,377 ARIC participants, aged 45-64

