Lipoprotein(a) as a risk factor for preclinical atherosclerotic disease in a biracial cohort: the Atherosclerosis Risk in Communities (ARIC) Study

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Lipoprotein(a) (LP(a)) is a risk factor for clinically manifest coronary heart disease (CHD) and cerebrovascular disease in Caucasian and in Asian populations. The role of Lp(a) as a risk factor in blacks has not been described, despite the markedly higher levels of Lp(a) and excess CHD and stroke prevalence observed in middle-aged blacks compared with whites. Further, little information exists on the association of Lp(a) and asymptomatic Atherosclerosis in any race or gender group. In this report, 15700 middle-aged black and white participants in the Atherosclerosis Risk in Communities (ARIC) Study had complete B-mode ultrasound scans of their extracranial carotid arteries. Of the 13384 individuals with complete B-mode data at the carotid bifurcation, those with mean carotid bifurcation intima-media wall thicknesses at or above the 90th percentile of the population distribution (approximately 1.2 mm) were considered to have carotid Atherosclerosis. Lp(a) was measured as its total protein content by double-antibody ELISA for apo(a) detection. Blacks in this study had mean Lp(a) protein values that were twice as high as those of whites (168.9, 147.1, 86.6, and 75.1 ug/ml for black females, black males, white females, and white males, respectively). For all race and gender groups, Lp(a) protein concentrations were higher among individuals with carotid Atherosclerosis than for those without. From these cross-sectional, we conclude that Lp(a) protein is a risk factor for preclinical atherosclerosis as well as for clinically manifest cardiovascular disease. The ghigh Lp(a) levels in blacks, without correspondingly thickened intima-media walls at the carotid bifurcation, suggest that race and gender differences in apo(a) phenotypes, hemostatic, activity, or other unrelated risk factors may contribute to this paradox.

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