Abstract

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Protective effect of apolipoprotein E2 on coronary artery disease in African Americans is mediated through lipoprotein cholesterol.

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OBJECTIVE AND METHODS: We studied the relationship of apolipoprotein E (apoE) isoforms and coronary artery disease (CAD) in 224 African Americans and 326 Caucasians undergoing diagnostic coronary angiography. The presence of CAD was defined as >50% stenosis in at least one artery.

RESULTS: ApoE allele frequencies were 0.12, 0.62, and 0.26 for epsilon 2, epsilon 3, and epsilon 4, respectively, in African Americans and 0.08, 0.78, and 0.14 for epsilon 2, epsilon 3, and epsilon 4, respectively, in Caucasians. Among African Americans, CAD was present in 9 of 34 epsilon 2 carriers (26%), significantly smaller ($P < 0.05$) in proportion compared with 39 of 82 epsilon 3 carriers and 43 of 92 epsilon 4 carriers (48% and 47%, respectively), suggesting a protective effect of the epsilon 2 allele. No such difference was seen in Caucasians. In African Americans but not Caucasians, LDL cholesterol was lower in epsilon 2 carriers than in epsilon 3 and epsilon 4 carriers (106 vs. 127 and 134 mg/dl, respectively; $P < 0.005$). After adjusting for lipid levels, the association between apoE2 and CAD was no longer significant.

CONCLUSION: Thus, the protective effect of apoE2 seen in African Americans could be explained by a favorable lipid profile in epsilon 2 carriers, whereas in Caucasians, the absence of such a protective effect could be attributable to the lack of effect of apoE2 on the lipid profile.

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