

Abstract

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The apolipoprotein E4 allele is not associated with an abnormal lipid profile in a Native American population following its traditional lifestyle.

Aguilar CA, Talavera G, Ordovas JM, Barriguete JA, Guillén LE, Leco ME, Pedro-Botet J, Gonzalez-Barranco J, Gómez-Pérez FJ, Rull JA.

Departamento de Diabetes y Metabolismo de Lípidos, Instituto Nacional de la Nutrición, Tlalpan, Mexico City, Mexico.

OBJECTIVE: The apolipoprotein E4 allele is associated in industrialized countries with an elevated LDL cholesterol concentration and an increased cardiovascular risk. Our purpose in this study was to assess the influence of the genetic variation at the APOE gene locus on the lipid profile of a Native American rural population.

METHODS: We examined plasma lipid levels and the common apo E alleles in 142 healthy randomly selected adults living in their native communities in western Mexico.

RESULTS: Their age was 38+/-17 years and the BMI 25.7+/-4.5 kg/m². Plasma cholesterol, triglycerides, LDL C and HDL C were 165+/-29.6, 126+/-83, 98+/-26 and 42+/-12.7 mg/dl respectively. Ninety-one per cent of the subjects had Lp(a) concentrations below 20 mg/dl and 30% had levels lower than 2 mg/dl. The most common APOE genotype was E3/3 (63%), followed by E3/4 (30.1%). The prevalence of the E2 allele was very low (2.3%). No difference was observed in LDL C concentrations between the E3/E3 and E3/E4 subjects; however carriers of the E2/3 genotype had lower LDL C levels. Similar results were obtained for cholesterol and apo B levels.

CONCLUSION: In summary, the increased LDL C levels associated with the E4 allele in previous studies were not observed in a population with non-westernized habits. Environmental factors, such as diet and lifestyle, could outweigh the hypercholesterolemic predisposition resulting from the presence of the apo E4 allele.

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