

# Turkish Journal of Medical Sciences

Turkish Journal

Apolipoprotein-E Genotyping in Patients with Coronary Heart Disease

of

Medical Sciences

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 [Keywords](#)

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**Abstract:** The aim of the study was to establish apolipoprotein E genotype in the patients with coronary heart disease (CHD) who are inhabitants of the north-east of Turkey. The study involved 106 patients (70 male, 36 female; ages ranging from 37 to 69 years) who are local people and were angiocardigraphically diagnosed for CHD. The risk factors such as smoking, alcohol and obesity were determined and serum triglyceride, total cholesterol, LDL and HDL were measured in the subjects. Each patient sample was apolipoprotein E genotyped, which was achieved by PCR amplification of the 227 bp region followed by Cfo I digestion to release specific band patterns. Subjects with CHD had more hypertension than the control (20.8% vs 7.7%, p: 0.038, z:-2.074), whereas risk factors such as smoking, obesity, alcohol and sedentary life-style were not more frequent in patients with CHD than in healthy controls. Distribution of apolipoprotein E genotypes among the patients was 5.7% E4/E4 (n=6), 22.6% E4/E3 (n=24), 62.3% E3/E3 (n=66), 7.5% E3/E2 (n:8), 0.94% E2/E2 (n:1) and 0.94% E4/E2 (n:1). The control group exhibited 1.9% E4/E4 (n:1), 9.6% E4/E3 (n:5), 61.5% E3/E3 (n:32), 19.2% E3/E2 (n:10), 3.8% E2/E2 (n:2) and 3.8% E4/E2 (n:2). In our study, the most common apolipoprotein E genotype obtained was E3/E3, either in patients with CHD or in the healthy control group. Therefore, the difference between the groups was not significant (62.3% and 61.5%, p: 0.92 respectively). The genotype E3/E3 of apolipoprotein E in patients with CHD was, however, significantly high, as compared to healthy controls (22.6% vs 9.6%; p: 0.0476, z:-1.98). The frequency of the E3/E2 genotype was significantly higher in the control group than in patients with CHD (19.2% vs 7.5%; p: 0.03, z:-2.16). Mean total cholesterol levels in CHD patients were  $175.4 \pm 29.4$  mg/dl, while they were  $164.4 \pm 28.6$  mg/dl in the control group (t: 2.26, p: 0.026). Mean LDL-C levels were  $107.9 \pm 24.6$  mg/dl in patients and  $99.5 \pm 23.6$  mg/dl in the control group (t: 2.04, p: 0.043). There were no significant differences between the two groups regarding triglyceride and HDL-Cholesterol. On the other hand, the levels of total cholesterol and LDL-C in patients with CHD were significantly different according to apolipoprotein E genotypes. In conclusion, according to our study, the E4/E3 genotype was the most common genotype in patient with CHD. This finding, at least in part, could explain one of the important risk factors for coronary heart disease in subjects in eastern Turkey.

**Key Words:** Apolipoprotein E Genotypes, Coronary heart disease

Turk J Med Sci 2001; **31**(3): 229-233.

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