The Effect of the Adoption of the Mediterranean Diet on Cardiovascular Risk: The ATTICA Study

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Methods: The ATTICA study is a prospective population-based cohort designed to enroll 3,073 men and women from the greater area of Athens. A random algorithm was developed and stratified by sex, age, and baseline sampling was performed in 2001. In this work we analyzed data from 520 men (18-66 years old) and 680 women (18-60 years old).

Conclusion: The adoption of Mediterranean diet reduces significantly total cholesterol (203±29 vs. 212±33 mg/dl, P<0.01), LDL cholesterol (87±30 vs. 89±32 mg/dl, P<0.01), triglycerides (112±17 vs. 127±19 mg/dl, P<0.01), fibrinogen (323±36 vs. 346±32 mg/dl, P<0.01), and increases HDL-cholesterol (51±6 vs. 48±3 mg/dl, P<0.01) and apoA1 (167±23 vs. 157±20 mg/dl, P<0.01).

Differences in the Effects of Diet on Lipoprotein Subclasses Distribution Are Related to Triglycerides Levels


Background: The highly atherogenic small-size LDL particles are more prevalent in those with triglycerides (TG) levels above 150 mg/dl. Methods and Results: The aim of the present study was to evaluate the effects of 4 weeks of Mediterranean diet on lipoprotein size and subclasses distribution relating them to basal TG levels. The study included 36 coronary heart disease patients with LDL-cholesterol (LDL-C) levels above 130 mg/dl. Nuclear magnetic resonance spectroscopy of plasma was used to assess the concentrations of total cholesterol (TC), TG and lipoprotein size and subclasses distribution. Statistical methods: 2-factor repeated measure ANOVA. The patients were separated into 2 groups depending on basal TG levels: below or above 150 mg/dl. Low and high TG groups presented baseline differences in TG and LDL-C levels. TC and LDL-C were not different. The changes in lipid levels in low and high TG groups were respectively (all comparisons as low vs. high and TG groups changes in the 4 weeks). TC changed from 236±43 to 239±41 and 236±32 to 213±32 mg/dl (P=0.031). TG from 111±23 to 125±22 and 122±74 to 174±22 mg/dl (P=0.007). LDL-C from 174±42 to 175±38 and 168±30 to 145±20 mg/dl (P=0.0002) and HDL-C from 46±4 to 60±7 and 39±3 to 45±6 mg/dl (P=0.0003). Changes in lipoprotein size were respectively: LDL size from 41.4±3.7 to 45.8±5.2 and 55.2±12.3 to 49.9±12.5 mm (P=0.001). HDL size from 21.0±0.9 to 20.0±0.7 and 20.5±1.0 to 20.5±0.8 mm (P=0.004). LDL HDL-cholesterol levels (75/123±9/12 vs. 77/127±8/12 mmHg, P<0.01). On the other hand, diet increases LDL-cholesterol (51±6 vs. 48±3 mg/dl, P<0.01) and apoA1 (167±23 vs. 157±22 mg/dl, P<0.01). No associations were found between the adoption of Mediterranean diet and LDL(a) uptake, oxidized, and social status (described by educational and financial levels), age and sex (P=0.70). Conclusions: Despite the "ecological" paradox regarding low CVD mortality in Mediterranean populations, where Keys and his colleagues reported at the 1970s, the protective effect of this traditional diet on atherosclerosis seems to be explained, mainly, due to the modification of several biochemical and clinical markers.