Fasting during Ramadan induces a marked increase in high-density lipoprotein cholesterol and decrease in low-density lipoprotein cholesterol.

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Abstract

We demonstrated for the first time in a Moroccan population that fasting during Ramadan, the ninth lunar month of the Muslims' year, affected lipid and lipoprotein metabolism in a group of 32 healthy adult male volunteers. This investigation was conducted to study the changes in serum total cholesterol, triglycerides, cholesterol in high-density lipoprotein (HDL) and low-density lipoprotein (LDL), glucose, and body weight during Ramadan. The results showed a significant decrease (7.9%, p < 0.001) in serum total cholesterol concentration during Ramadan as compared with the prefasting period. Also, we obtained a significant decrease of serum triglyceride concentration (30%, p < 0.001) during Ramadan fasting as compared to the period before Ramadan. The reduction of both serum triglycerides and total cholesterol was maintained 1 month after Ramadan. By the end of Ramadan, serum HDL cholesterol had markedly increased (14.3%, p < 0.001) and remained elevated 1 month after Ramadan in contrast to LDL cholesterol which showed a significant decrease (11.7%, p < 0.0001) also maintained 1 month after Ramadan. Mean body weight declined by 2.6% (p < 0.01) on day 29 of Ramadan, whereas during Ramadan, the diet pattern used by our subjects showed an increase of total energy intake due to carbohydrates (+ 1.4% of total energy), proteins (+ 0.4% of total energy) but not fat (-0.7% of total energy) compared to a usual diet used throughout the rest of the year. Moreover, the fat diet is high in monounsaturated (p < 0.05) and polyunsaturated fatty acid in contrast to saturated fatty acid which significantly (p < 0.05) decreased during Ramadan. These findings suggest that feeding behavior that occurs during Ramadan beneficially affects plasma lipids and lipoproteins.

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