

Abstract

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A diet rich in coconut oil reduces diurnal postprandial variations in circulating tissue plasminogen activator antigen and fasting lipoprotein (a) compared with a diet rich in unsaturated fat in women.

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BACKGROUND: The effects of high and low fat diets with identical polyunsaturated/saturated fatty acid (P/S) ratios on plasma postprandial levels of some hemostatic variables and on fasting lipoprotein (a) [Lp(a)] are not known.

OBJECTIVE AND METHODS: This controlled crossover study compared the effects of a high fat diet [38.4% of energy (E%) from fat; HSAFA-diet, P/S ratio 0.14], a low fat diet (19.7 E% from fat; LSAFA-diet, P/S ratio 0.17), both based on coconut oil, and a diet with a high content of monounsaturated fatty acids (MUFA) and PUFA (38.2 E% from fat; HUFA-diet, P/S ratio 1.9) on diurnal postprandial levels of some hemostatic variables (n = 11) and fasting levels of Lp(a) (n = 25).

RESULTS: The postprandial plasma concentration of tissue plasminogen activator antigen (t-PA antigen) was decreased when the women consumed the HSAFA-diet compared with the HUFA-diet (P = 0.02). Plasma t-PA antigen was correlated with plasminogen activator inhibitor type 1 (PAI-1) activity when the participants consumed all three diets (Rs = 0.78, P < 0.01; Rs = 0.76, P < 0.01; Rs = 0.66, P = 0.03; on the HSAFA-, the LSAFA- and the HUFA-diet, respectively), although the diets did not affect the PAI-1 levels. There were no significant differences in postprandial variations in t-PA activity, factor VII coagulant activity or fibrinogen levels due to the diets. Serum fasting Lp(a) levels were lower when women consumed the HSAFA-diet (13%, P < 0.001) and tended to be lower when they consumed the LSAFA-diet (5.3%, P = 0.052) than when they consumed the HUFA-diet. Serum Lp(a) concentrations did not differ when the women consumed the HSAFA- and LSAFA-diets.

CONCLUSION: In conclusion, our results indicate that a coconut oil-based diet (HSAFA-diet) lowers postprandial t-PA antigen concentration, and this may favorably affect the fibrinolytic system and the Lp(a) concentration compared with the HUFA-diet. The proportions of dietary saturated fatty acids more than the percentage of saturated fat energy seem to have a beneficial influence on Lp(a) levels.

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