Alteration of lipid profile in hyperlipidemic rabbits by allicin, an active constituent of garlic.

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Abstract

BACKGROUND: The effect of garlic on the serum lipid profile has been the subject of controversy. This study was therefore designed to examine the effects of allicin, an active constituent of garlic, on the lipid profile in a rabbit model.

METHODS: Allicin was produced by reacting alliin, synthesized in our laboratory, with purified alliinase. Nineteen New Zealand White rabbits were fed a cholesterol-rich diet (0.25% cholesterol) for 18 weeks. Ten rabbits received freshly produced allicin (3 mg/kg orally) starting at 8 weeks, and nine received placebo. There was no significant difference between the lipid profiles of the two groups at baseline up to 8 weeks.

RESULTS: From day 28 of allicin supplementation a significant difference was found between the allicin and placebo groups in the graph regression lines describing the influence of allicin on serum cholesterol: \( Y = 41.39 + 8.69 \times \text{day} \) (control) versus \( Y = -877.24 + 17.67 \times \text{day} \) (allicin). The same trend was found for low-density lipoprotein concentrations: \( Y = 10.3 + 8.4 \times \text{day} \) (control) versus \( Y = -750.4 + 15.7 \times \text{day} \) (allicin). The serum high-density lipoprotein levels also differed significantly between the groups: \( Y = 20.29 + 0.24 \times \text{day} \) (control) versus \( Y = -109.9 + 1.65 \times \text{day} \) (allicin).

CONCLUSIONS: Our results indicate that allicin has a beneficial effect on the serum lipid profile in hyperlipidemic rabbits, and should be further tested clinically.

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