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ORIGINAL RESEARCH COMMUNICATION

Effect of high-carbohydrate or high-*cis*-monounsaturated fat diets on blood pressure: a meta-analysis of intervention trials[1,2,3]

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Background: The Dietary Approaches to Stop Hypertension (DASH) diet is recommended to manage blood pressure. The DASH diet is low in saturated fat, but it is not clear whether saturated fat should be preferentially replaced with carbohydrate or unsaturated fat, especially *cis*-monounsaturated fat.

Objective: A meta-analysis of intervention studies comparing high-carbohydrate and high-*cis*-monounsaturated fat diets was conducted to increase understanding of the effect of carbohydrate and *cis*-monounsaturated fat on blood pressure.

Design: For study diets to be included in the analysis, they had to be isoenergetic, and the subjects' body weight had to remain stable. Ten studies (6 randomized crossover, 1 randomized parallel, and 3 nonrandomized) met the inclusion criteria.

Results: According to the random-effects model, which incorporates between-study variation to estimate the overall effect, diets rich in carbohydrate resulted in significantly higher systolic blood pressure [$\bar{x}$ difference: 2.6 (95% CI: 0.4, 4.7) mm Hg; $P = 0.02$] and diastolic blood pressure [1.8 (0.01, 3.6) mm Hg; $P = 0.05$] than did diets rich in *cis*-monounsaturated fat. When the meta-analysis was limited to randomized crossover studies, both systolic [1.3 (−0.3, 2.9) mm Hg; $P = 0.11$] and diastolic [0.9 (−0.2, 2.1) mm Hg; $P = 0.11$] blood pressure were higher with a high-carbohydrate than with a high *cis*-monounsaturated fat diet, but the differences were not significant.

Conclusions: Diets rich in carbohydrate may be associated with slightly higher blood pressure than diets rich in *cis*-monounsaturated fat. However, the magnitude of the difference may not justify making recommendations to alter the carbohydrate and *cis*-monounsaturated fat content of the diet to manage blood pressure.

Key Words: High-carbohydrate diet • high-*cis*-monounsaturated fat diet • high-*cis*-MUFA diet • blood pressure • meta-analysis • hypertension

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