

Abstract

Prog Cardiovasc Dis. 2005 May-Jun;47(6):396-449.

Nutraceuticals, vitamins, antioxidants, and minerals in the prevention and treatment of hypertension.

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BACKGROUND: Vascular biology assumes a pivotal role in the initiation and perpetuation of hypertension and target organ damage sequelae. Endothelial activation, oxidative stress, and vascular smooth muscle dysfunction (hypertrophy, hyperplasia, remodeling) are initial events that start hypertension. Nutrient-gene interactions determine a broad array of phenotypic consequences such as vascular problems and hypertension.

DISCUSSION: Optimal nutrition, nutraceuticals, vitamins, antioxidants, minerals, weight loss, exercise, smoking cessation, and moderate restriction of alcohol and caffeine in addition to other lifestyle modifications can prevent, delay the onset, reduce the severity, treat, and control hypertension in many patients. An integrative approach combining these lifestyle suggestions with the correct pharmacological treatment will best achieve new goal blood pressure levels, reduce cardiovascular risk factors, improve vascular biology and vascular health, and reduce target organ damage including coronary heart disease, stroke, congestive heart failure, and renal disease.

SUMMARY: The expanded scientific roles for nutraceutical supplements will be discussed in relation to the prevention and treatment of essential hypertension with emphasis on mechanisms of action and clinical integration with drug therapy as indicated based, in part, on the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, the European Society of Hypertension, the European Society of Cardiology, the International Society of Hypertension, the Canadian Society of Hypertension, and other hypertension guidelines.

PMID: 16115519

