



The effects of age, gender, obesity, health habits, and vegetable consumption frequency on hypertension in elderly Chinese Americans

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Abstract

The purpose of this study was to assess the effects of age, gender, obesity, consumption frequency of selected vegetables, alcohol consumption, cigarette smoking, and tea consumption on the prevalence rate (PR) of hypertension in elderly Chinese Americans. Hypertension is defined as having a systolic blood pressure (SBP) and/or diastolic blood pressure (DBP) ≥ 140 mm Hg and ≥ 90 mm Hg, respectively. A total of 205 subjects were recruited in the Chinatown section of Los Angeles, CA. Hypertension was more prevalent in the oldest age groups for both sexes (45.1%), and the percentage of hypertension for men was lower than those of female counterparts (47% vs. 53%, respectively). The percentage of lean (body mass index [BMI] < 25 kg/m²) hypertensive subjects was higher than those of obese (BMI > 27 kg/m²) hypertensive subjects in group 1 (50–64 years), group 2 (65–74 years), and group 3 (≥ 75 years) (32%, 24%, and 26%; vs. 3%, 11%, and 13%, respectively). The overall percentage of obese hypertensive subjects was higher in women than those of their male counterparts (13% vs. 6%, respectively) and increased substantially with age as well. In conclusion, age and gender (particularly in lean men and obese women), were the greater risk factors for the development of hypertension.

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Keywords: Elderly Chinese Americans; Hypertension; Vegetable consumption frequency; Alcohol consumption; Cigarette smoking; Tea consumption

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1. Introduction

Epidemiological studies have demonstrated that arterial hypertension or high blood pressure is a significant risk factor for cardiovascular mortality and morbidity [1]. The number of hypertensive cases in the United States continues to rise due to improper diet, sedentary lifestyle, and the growing population of the elderly. According to Svetkey et al., approximately 43 million Americans have hypertension and 50% of adults aged ≥ 60 years have high blood pressure [2]. Furthermore, systolic hypertension adds to the risk of cardiovascular disease independently of any associated arteriosclerosis [3]. The two major types of hypertension most common in older persons are isolated systolic hypertension and combined systolic-diastolic hypertension [4].

Fortunately, the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) reported that dietary and lifestyle modifications have been shown to reduce arterial blood pressure, especially in patients with prehypertension (systolic blood pressure [SBP] 120-139 mm Hg and/or diastolic blood pressure [DBP] 80-89 mm Hg) or stage 1 hypertension (SBP 140-159 mm Hg and/or DBP 90-99 mm Hg) [5]. One nutritional antihypertensive therapy available to hypertensive patients is the Dietary Approaches to Stop Hypertension (DASH) diet. The rationale and efficacy of the DASH diet is attributed to its low total fat consumption and high fruits/vegetables intake. Studies have shown that high-quality nutrient dense foods such as fruits/vegetables contain various phytochemicals, vitamins, minerals, and fiber that are associated with healthy systolic and diastolic blood pressures [6]. However, it has been difficult to isolate the specific nutrients responsible for differences in the prevalence rate of hypertension among different age, gender, and ethnic groups.

Even though dietary habits can have a direct effect on blood pressure, lifestyle choices such as alcohol intake, cigarette smoking, physical activity, and obesity can profoundly impact blood pressure regulation as well. The JNC 7 report has advised four lifestyle changes for reducing hypertension: weight loss, increased physical exercise, reduced alcohol intake, and reduced sodium consumption [7]. Despite increased advancement in the pathophysiology and detection of hypertension, not adhering to set nutritional dietary and lifestyle guidelines could result in the accumulation of other health complications such as juvenile/adult obesity, elevated plasma lipid levels, and advanced progression of atherosclerotic lesion formation [8].

Of the many known risk factors for hypertension, age, sex, ethnicity, and genetic predisposition cannot be altered. However, certain risk factors can be minimized, and it is essential to characterize the specific causes that can reduce the progression of this disease in various age groups and ethnic populations. The purpose of this study was to assess the following: 1) the prevalence of various classifications of hypertension according to the Chinese population's three age groups and according to gender; 2) the influence of age, gender, and obesity on the prevalence rate of hypertension; and 3) the influence of vegetable consumption frequency, cigarette smoking, alcohol intake, and tea consumption on the prevalence rate of hypertension.

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