

Orthostatic Hypotension of Elderly Patients with Hypertension: A Retrospective Analysis of the Effects of Smoking

Abstract

Orthostatic hypotension is a common outcome in elderly patients treated with antihypertensive drugs. The purpose of this paper to analyze and compare the rate and type of orthostatic hypotension observed in two groups of elderly patients, partly smokers and partly non-smokers considered as a control group. The results observed clearly documented a major incidence of orthostatic hypotension in elderly never smokers when compared with similar smoker individuals as a demonstration of the protective effects of smoking compound towards this type of pathology.

Keywords: Orthostatic hypotension; Elderly; Cigarette smoking

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Introduction

Orthostatic hypotension is a common occurrence in elderly patients (pts) with hypertension, primarily when they are treated with antihypertensive drugs [1]. In addition, there is evidence that orthostatic hypotension could be increased by the more advanced age [2-3]. Little attention has been specifically directed to the role of smoking on the rate and role of orthostatic hypotension in elderly chronic smokers.

Smoking, usually, exerts sympathetic effects that reduce hypotension rate [4,5]. There is also evidence that sympathetic stimulation enhances adrenergic response able, itself, to increase blood pressure [6,7].

The purpose of this retrospective study was to assess the rate of orthostatic hypotension in hypertensive male smokers and non-smokers treated with antihypertensive drugs.

Methods

Study population consisted of 78 patients (Table 1), 36 (46%) hypertensive smokers aged from 75 to 88 years (mean: 80.5+/-4.5 years, mean Systolic Blood Pressure 135+/-11 mmHg and mean Diastolic Blood Pressure 92+/-8 mmHg), and 42 (54%) hypertensive non-smokers (age from 75 to 86 years, mean: 81.6+/-3 years, mean Systolic Blood Pressure 129+/-9 mmHg, and mean Diastolic Blood Pressure 88+/-8 mmHg), used as a control group. The antihypertensive therapy in smokers consisted of diuretics (18 patients), ACEI-Inhibitors (12 cases) and the association of both drugs (6 cases) (Table 2). Statistical analysis was conducted by using t-test with a P<0.05 significant. Symptomatic orthostatic hypotension was recorded and compared in both groups, smoker and never smoker elderly individuals.

Table 1: Characteristics of study population.

Number (total)	78 (100%)
Sex	
Male	78 (100%)
Smokers	36 (46%)
Non-smokers (control group)	42 (54%)
Mean age (ys.) smokers	80.5+/-4.5
Mean age (ys.) non-smokers	81.6+/-6.3
Systolic blood pressure smokers (mean mmHg)	135+/-11
Diastolic blood pressure smokers (mm Hg mean)	92+/-8
Systolic blood pressure non-smokers (mean mmHg)	129+/-9
Diastolic blood pressure non-smokers (mean mmHg)	88/-8

Table 2: Antihypertensive therapy in smoker individuals.

Diuretics	18/36 patients
ACEI-Inhibitors	12/36 patients
Diuretics+ ACEI-Inhibitors	6/36 patients

Results

Table 3 shows the outcome of blood pressure in the study population. 5 patients (5/36, 14%) with orthostatic hypotension, aged from 80 to 87 years, were smokers, while non-smokers, acting as a control group, displayed 14 events characterized by orthostatic hypotension (14/42, 33%) distributed in individuals aging from 78 to 86 years. The P - value was less than 0.05 statistically significant, although CI (confidence interval) 95% was comprised between 4 to 25 for smoker individuals versus 25 to 51 for non-smokers.

Table 3: Outcome of blood pressure in the study population.

Smokers	
Orthostatic hypotension	5/36 (14%)
No orthostatic hypotension	31/36 (86%)
Non-smokers	
Orthostatic hypotension	14/42 (33%)
No orthostatic hypotension	38/42 (67%)
P-value smokers/non smokers	< 0.05
CI 95% smoker	Apr-25
CI 95% non-smokers	25-51

Conclusion

These observations clearly show that in the elderly patients treated with antihypertensive drugs, orthostatic hypotension is a prevalent occurrence in non-smokers while cigarette smoking seems to reduce the rate of this outcome probably because of the sympathetic and adrenergic effects attributed to smoking compounds usually able to induce hypertension.

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