



Prevalence of Orthostatic Hypotension among Outpatient Clinic with Common Associated Factors in Zheen International Hospital in Erbil, Iraq

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Abstract

Orthostatic hypotension is defined as a decrease in systolic blood pressure of 20 mm Hg or a decrease in diastolic blood pressure of 10 mm Hg within three minutes of standing when compared with blood pressure from the sitting or supine position. The purpose of the present study was to estimate the prevalence of orthostatic hypotension with common factors which are affecting it. This cross sectional study was carried out in the outpatient's clinic in Zheen-private hospital in Erbil city during the period from March 2015 to March 2016, 600 patients including in this study, 306 males while 294 females, their age range between (25-80) years, 90 patients (15%) had orthostatic hypotension, and 42(7%) patients had history of DM or neurological diseases, seventy eight (78) (13%) had history of hypertension, ischemic heart diseases or others cardiac diseases, while 24 (4%) had history of antihypertensive drugs and others drug uses. Blood pressure of each patient was measured with standard mercury sphygmomanometer. The heart rate was counted for 30 second and measurement of blood pressure was taken after third minute of standing, the orthostatic hypotension is said to be present when there was a sustained drop in systolic (≥ 20 mmHg) or diastolic (≥ 10 mmHg). The prevalence of orthostatic hypotension was (15%) also prevalence rate peaked in old age, diabetes mellitus, and neurological diseases and in cardiac diseases especially ischemic heart disease.

Keywords: Orthostatic hypotension, Diabetes mellitus, Prevalence, Age

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Introduction

Orthostatic hypotension (OH) is defined as a sustained reduction of systolic blood pressure (SBP) of at least 20 mm Hg or diastolic blood pressure (DBP) of 10 mm Hg within 3 minutes of standing or head-up tilt to at least 60° on a tilt table [1]. Because the magnitude of the fall in BP depends on the baseline BP. However, prospective studies demonstrate that a decline in SBP of ≥ 20 mm Hg is a risk factor for falls, especially in elderly patients with hypertension [2,3]. An increase in heart rate is often noted when there is a change in posture. This compensatory change occurs in response to the sudden drop in blood pressure [4-6]. For instance, a drop in blood pressure accompanied by a rise in heart rate indicates volume depletion, while no change in heart rate may point to a neurogenic cause [4]. OH is an important area for research because it has heavy symptomatic burden, is associated with falls, depression and cognitive impairment and is also associated with an increase in mortality [7,8], the number of prescribed medications, particularly antihypertensive, and the presence of multiple co morbidities are predictors of OH [9,10]. Orthostatic hypotension has been observed in all age groups, but it occurs more frequently in the elderly, especially in persons who are sick and frail [11,12]. Epidemiological data indicate that orthostatic hypotension has prevalence. Of 4% to 33% in community dwelling elderly populations. [13-15]. It has been clearly shown that ambulatory BP monitoring is better than clinic BP measurements at identifying patients with high cardiovascular risk [16,17]. Acute orthostatic hypotension generally resolves with treatment of the underlying cause. In patients with chronic orthostatic hypotension, pharmacologic and non-pharmacologic treatments may be beneficial. All patients with chronic orthostatic hypotension should be educated about their diagnosis and goals of treatment, which include improving orthostatic blood pressure without excessive supine hypertension, improving standing time, and relieving orthostatic symptoms [18].

Material and Methods

This cross sectional study was carried out in the outpatient's clinic in Zheen-private hospital

Table 1: Prevalence of orthostatic hypotension among outpatient medical clinic.

Without orthostatic hypotension	510 (85%)
With orthostatic hypotension	90 (15%)
Total patient	600(100%)

Table 2: Prevalence of orthostatic hypotension according to genders.

	Female	male
Without orthostatic hypotension	240(40%)	270(45%)
With orthostatic hypotension	54(9%)	36(6%)
Total (600) (100%)	294(49%)	306(51%)

in Erbil city. From all patients demographic data including age, sex, history of smoking, relevant clinical history as history of dehydration, hypertension ,antihypertensive drugs, DM or others neurological diseases and full clinical examination performed. Blood pressure of each patient was measured with standard mercury sphygmomanometer. The systolic BP was defined as the first regular Korot-koff sound heard; the diastolic BP was defined as the last regular sound heard (phase V). After a supine BP and heart rate were obtained by palpating radial pulse, the participant was assisted to a seated position for up to 30 seconds, and then to a standing position for a second pulse and BP reading., the heart rate was counted for 30 second Thus, orthostatic measurements included one supine BP and heart rate and one 3-minute standing BP and heart rate measurement.

Result

Six hundred (600) patients screen from outpatients clinic, their age between (25- 80) years, mean age (58) years, (90) patients, (15%) had orthostatic hypotension as shown in Table 1. From a total 600 patients assessed, 306 (51%) were male and 294(49%) were female as shown in Table 2 30 (5%) patients below 50 years and 60(10%) patients above 50 years, and 42(7%) patients had history of DM or neurological diseases, seventy eight (78) (13%) had history of hypertension, ischemic heart diseases or others cardiac diseases, while 24(4%) had history of antihypertensive drugs and others drug uses Six (6) (1%) patient had history of dehydration while none of our patients with orthostatic hypotension in our study had history of smoking as shown in Table 3.

Discussion

In recent years, plenty of data have been accumulated on orthostatic hypotension (OH), its pathophysiology and its consequences [19-21]. In our study, the overall prevalence of OH at 0 or 3 min after standing in outpatient's clinic sample-based in ERBIL study was 15% and more in female than male which near the range of other study, compared with study in Korea (14%)in male and(13.8%)in female [22]. One third of our patients with orthostatic hypotension below the age of 50 years while two third above the age of 50 years this main orthostatic hypotension increases in prevalence with age; aging is associated with reduced baroreflex responsiveness, decreased cardiac compliance, and attenuation of the vestibulo sympathetic reflex [23] . Diabetes mellitus was an independently associated factor of OH, as in our study, regarding the mechanism of OH in diabetes mellitus, a neurogenic cause is usually associated with efferent involvement of the baroregulatory reflex arc with damaged sympathetic vasoconstrictor fibers in the splanchnic bed, muscle, and skin [24]. Studies have shown that cardiac diseases especially hypertension and ischemic heart diseases are a risk factor for OH [11,25,22,26] and our study demonstrated similar results. The mechanism is related

Table 3: Factors which are affecting the orthostatic hypotension.

Characteristics		Patients without orthostatic hypotension	Patients with orthostatic hypotension
AGE	<50 years	270(45%)	30(5%)
	>50 years	240(40%)	60(10%)
DM OR NEUROLOGICAL DISEASES		96(16%)	42(7%)
HT+IHD OR OTHORS CARDIAC DISEASES		168(28%)	78(13%)
ANTIHYPERTENSIVE DRUGS &OTHORS		78(13%)	12(2%)
SMOKING		30(5%)	0(0%)
DEHYDRATION		24(4%)	6(1%)

to impaired baroreflex sensitivity due to a decrease in vascular Compliance and consequent diminution of baroreceptor stretch and relaxation during BP change [24]. The explanation for the prevalence of OH in patients on antihypertensive medication may be due to an adjustment of the treatment regimen due to a side effect or related symptom, resulting in the underestimation of their relationship [27]. Furthermore, the incidence of OH decreased significantly followed by decreasing or normalizing BP after use of antihypertensive agents [28]. Some authors claimed smoking, but in our study found no effect on orthostatic hypotension [29] also we did not find significant effect of dehydration probably due to small number of patients.

Conclusion

The overall prevalence's of orthostatic hypotension in outpatient clinic were 15%

OH is a dynamic entity, it is frequent, and increases with age. Its prevalence further increased in DM and neurological disorders also increases in cardiac diseases specially IHD.

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