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RESEARCH ARTICLE

PREVALENCE OF ORTHOSTATIC HYPOTENSION AMONG HYPERTENSIVE PATIENTS AND HEALTHY ADULTS.

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Manuscript Info

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Abstract

Male involvement in family planning is one of the strategies that were Orthostatic hypotension is defined as a fall in systolic blood pressure of at least 20mmHg or diastolic blood pressure of at least 10mmHg when a person assumes a standing position from sitting or lying. In the last few years it has been identified as an independent risk factor for cardiovascular morbidity and in all leads to mortality.

Aim : This study was carried out to assess the prevalence of orthostatic hypotension among hypertensive patients and healthy adults.

Setting and Design : Medicine OPDs were used to select 100 hypertensive patients (cases) and 100 healthy adults (adults) were used to collect relevant data. Quantitative research approach and case control design was used for the study.

Material and Methods : The study was conducted on a sample of 100 hypertensive patients and 100 healthy adults selected from medicine opds. Self report (pen and paper), bio-physiological method and observation method was used for this study. The collected data was organized, tabulated, analyzed and interpreted using descriptive and inferential statistics.

Results : The findings of the study revealed that orthostatic hypotension increases with age in age group 35-45 yrs to ≥ 65 yrs. There was significant association of BMI, educational status, WHR, WHR, systolic blood pressure from sitting to standing position among hypertensive patients and healthy adults at $p < 0.05$ level of significance.

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Introduction:-

Orthostatic hypotension is defined as a fall in systolic blood pressure of at least 20mmHg or diastolic blood pressure of at least 10mmHg when a person assumes a standing position from sitting or lying. The prevalence of orthostatic hypotension is considered to be age dependent, ranging from 5% in patients under 50 years of age to 30% in those over 70% years of age. A survey was done on elderly in which medications were implicated in orthostatic hypotension in 40 out of 50 patients. Drugs prescribed was a diuretic 56%, benzodiazepines 26%, antidepressants 24% and anti-parkinsonian drugs 22%. According to the revised American Academy of Neurology Diagnostic Criteria, 25% out of 297 participants had OH (orthostatic hypotension) found to be an independent predictor of fall and according to standard criteria, it affected 80% of the population and was associated with falls. In one of the meta-analysis, it was confirmed that presence of orthostatic hypotension is related to a significant increase in the risk for development of congestive heart failure.

Materials And Methods:-**Research approach & Research design:**

For the present study, quantitative research approach and case control research design was used.

Target population:

The target population of the study included hypertensive patients (cases) and healthy adults (control) taken from medicine OPD of Dayanand Medical College and Hospital, Ludhiana.

Sample and Sampling technique :

100 hypertensive patients (cases) and 100 healthy adults were selected using purposive sampling technique.

Description of the Research tool**Research tool:**

Research tool was divided into following three parts :

Part A (1) :

A sociodemographic sheet which includes age, gender, marital status, educational status, occupational status and religion of healthy adults (controls) and hypertensive patients (cases).

Part A (2) :

A clinical profile sheet to assess present illness history among hypertensive patients (cases), past medical history, family history, treatment details of hypertension among hypertensive patients, previous experience of orthostatic sway and anthropometric measurements.

Part B :

A data collection sheet for blood pressure measurement.

Part C :

Checklist to assess physical symptoms associated with Orthostatic hypotension.

Data collection procedure

Prior to data collection, permission was obtained from the concerned authority of hospital and ethical committee of the institution. The objective and purpose of the study was explained to the subjects. Subjects who met the inclusion and exclusion criteria were included in the study. Written informed consent was taken from the subjects. Duration of the procedure was 10-15 minutes per individual.

Major Findings

1. Orthostatic hypotension is more prevalent among hypertensive patients (cases) than healthy adults (controls).
2. Orthostatic hypotension increases with age from 35-45 yrs (16.70% in controls and 28.60% in cases) to ≥ 65 yrs (33.30% in controls and 42.90% in cases).
3. Orthostatic hypotension increases with BMI.
4. There was significant association of BMI, educational status, WHR, WHR, systolic blood pressure from sitting to standing position among hypertensive patients and healthy adults. At $p < 0.05$ level of significance.

Table 1:-Association of orthostatic blood pressure related changes among healthy adults (controls) and hypertensive patients (cases) with educational status.

Educational status	Systolic BP				Diastolic BP			
	n ₁	Control Mean±SD	n ₂	Cases Mean±SD	n ₁	Control Mean±SD	n ₂	Cases Mean±SD
Illiterate	-	-	3	151.25±34.44	-	-	3	83.75±17.88
Upto elementary	1	177.75±0	3	132.50±41.13	1	72.75±0	3	86.15±24.86
Matric	-	-	3	151.08±32.6	-	-	3	87.00±14.51
Higher secondary	-	-	3	150.25±16.6	-	-	3	88.50±10.18
Graduation	5	130.65±11.38	2	158.25±1.41	5	89.87±7.2	2	89.87±7.24
t/F		3.77*		0.26 ^{NS}		0.41 ^{NS}		0.05 ^{NS}
p		0.01		0.89		0.69		0.99

NS= non significant

*significant

Table 2:-Association of orthostatic blood pressure related changes among healthy adults (controls) and hypertensive patients (cases) with occupational status.

Occupational status	Systolic BP				Diastolic BP			
	n ₁	Control Mean±SD	n ₂	Cases Mean±SD	n ₁	Control Mean±SD	n ₂	Cases Mean±SD
Working	5	130.65±11.38	6	155.08±12.08	5	76.9±9.12	6	88.91±7.71
Non working	1	177.75±0	8	142.65±34.18	1	72.75±0	8	85.33±18.0
t/F		3.77*		0.84 ^{NS}		0.41 ^{NS}		0.45 ^{NS}
p		0.01		0.41		0.69		0.65

NS= non significant

*significant

Table 3:-Association of orthostatic blood pressure related changes among healthy adults (controls) and hypertensive patients (cases) with BML.

BMI	Systolic BP				Diastolic BP			
	n ₁	Control Mean±SD	n ₂	Cases Mean±SD	n ₁	Control Mean±SD	n ₂	Cases Mean±SD
Underweight	-	-	1	86.25	-	-	1	57.70
Normal	1	123	5	139.15±23.85	1	76	5	82.81±14.87
Overweight	4	141.12±26.9	4	171.5±9.36	4	74.06±9.15	4	99.37±3.03
Obese	1	143.5	4	150.93±12.31	1	85	4	86.75±6.31
t/F		0.01 ^{NS}		7.71 ^{NS}		0.57 ^{NS}		4.92*
p		0.82		0.07		0.61		0.02

NS= non significant

*significant

Table 4:-Association of orthostatic blood pressure related changes among healthy adults (controls) and hypertensive patients (cases) with WH ratio.

WHR	Systolic BP				Diastolic BP			
	n ₁	Control Mean±SD	n ₂	Cases Mean±SD	n ₁	Control Mean±SD	n ₂	Cases Mean±SD
Below normal	-	-	1	86.25	-	-	1	57.70
Normal	1	123	1	115.75	1	76	1	73
Above normal	5	141.60±22.7	12	155.81±18.7	5	76.25±9.30	12	90.45±11.3
t/F		0.74 ^{NS}		7.96 ^{NS}		0.02 ^{NS}		4.64*

p		0.49		0.07		0.98		0.03
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NS= non significant

*significant

Discussion:-

Findings of the present study revealed that the prevalence of orthostatic hypotension is more among hypertensive patients (cases) that is 14% than healthy adults (controls) that is 6%. A similar study was conducted by Kamaruzzan S (2010) on 3775 subjects to assess the prevalence of orthostatic hypotension and findings revealed that orthostatic hypotension was 28% and was found to be more among patients diagnosed with hypertension.

The present study revealed that there is significant association of mean systolic blood pressure among hypertensive patients (cases) in sitting and standing position at $p < 0.05$ ($p = 0.04$). A similar study was conducted by Shaw B (2007) revealed the significant association of mean systolic blood pressure during postural change from supine to standing position.

In present study, orthostatic blood pressure changes were significantly associated with increased BMI. Similar results were depicted by a study conducted by Tomohiko N, Masahi S, Miki Ueda et al (2016) which revealed that there was significant association with BMI and orthostatic blood pressure changes.

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