

Study of Newly Diagnosed Hypertensive Patients

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A B S T R A C T

Introduction: In modern era due to stressful lifestyle patients with hypertension are in rising trend. If undiagnosed and untreated it will lead to end organ damage. This study was aimed to study various clinical parameters, laboratory parameters, electrocardiographic and echocardiographic findings in newly diagnosed hypertensive patients.

Material and methods: This is a Cross-Sectional Study of all pts with first time detected hypertension in indoor and outdoor dept from August 2014 to July 2016 in medical department of a tertiary care hospital. All the patients were interviewed as per the prior designed sheet.

Results: Maximum pts of hypertension were amongst elderly (61-70 years) and least in young (18-30 age) with male preponderance. Risk factors were tobacco consumption and alcohol, dyslipidemia, positive history of CVD and obesity were seen in 44%, 44%, 30% and 16% respectively. Commonest symptoms were Headache (25%) and chest pain (21%). Commonest findings in ECG were LV Strain (42%) and LVH (30%). The most common observation in 2D ECHO was concentric LVH (64%). Majority (41%) were having essential hypertension.

Conclusion: Causation of hypertension is depended on multiple factors like age, sex, sedentary life style, obesity, addiction and hormonal changes. Addressing these factors help in knowing and dealing with it in a better manner.

Keywords: Hypertension, Headache, LV strain, Dyslipidemia

INTRODUCTION

Hypertension is a amongst the major health problems because of risks associated with it like cerebrovascular accidents, nephropathy and retinopathy.¹ It is the major risk factor for cardiovascular diseases which kill about 12 million annually worldwide.² According to American Heart Association, the estimated prevalence of hypertension was 73,600,000.³ As per one data, 20.6% of Indian men and 20.9% of Indian women were suffering from HTN in 2005.⁴ Uncontrolled hypertension is a serious public health issue, in respect to morbidity, mortality and high cost in elderly.⁵

Hypertension is defined as blood pressure of systolic over 140 and diastolic over 90 mm Hg. This elevation makes the heart work harder against increased peripheral arterial resistance.^{6,7} It is known as silent killer because pts are not aware of symptoms until damage to organs as the brain and kidneys.⁸ Various risk factors like age, sex, race, sedentary life style, obesity, tobacco consumption and hormonal changes.⁹ Addressing these risk factors may help in reducing preventable risk factors such as weight, excess salt intake, cigarette smoking and alcohol use.¹⁰

The aim of hypertension treatment is to prevent complications by achieving and maintaining the blood pressure at 140/90 mm Hg or lower.^{11,12} Pharmacological and life style changes are cornerstone in the treatment of this disease.¹² Pts need

to be taught about modifiable risk factors and lifestyle changes.¹³

This study's aim was to assess clinical parameters, laboratory parameters, electrocardiographic and echocardiographic findings in newly diagnosed hypertensive patients.

MATERIAL AND METHODS

The present study was undertaken in medical department of N.H.L. medical college and V.S. hospital. It was Hospital Based Descriptive Cross-Sectional Study including All adults presented with first time hypertension as indoor as well as outdoor patients from August 2014 to July 2016.

After due permission of institutional ethical committee all the patients were interviewed with proper interview sheet after informed consent of pts, which was designed especially for this study.

Inclusion Criteria

All adult patients of age greater than 18 years after informed consent with First time diagnosed hypertension according to JNC 8 guideline. (Systolic blood pressure >140; Diastolic Blood Pressure >90)

Exclusion Criteria

1. Pregnant pts
2. Patients with co morbid conditions like diabetes mellitus,

- ischemic heart disease and cerebrovascular accidents
3. Patients on any medications or on hormonal therapy which may alter blood pressure readings
 4. Patients needing ICU management.

Investigations

- Blood pressure was measured with a mercury sphygmomanometer. Two measurements with 15 minutes apart on each arm with the patient sitting and supine. JNC 8 guideline¹⁴ was followed to diagnose hypertension (hypertensive individuals: systolic pressure >140mmHg or diastolic pressure >90mmHg).
- Fasting lipid profile was done in lab. Blood sugar was

Age in years	No of patients	% of patients
18-30	1	1%
31-40	8	8%
41-50	20	20%
51-60	21	21%
61-70	37	37%
71-80	13	13%
Total	100	100%

Table-1: Age wise distribution

Complaints	No. of patients	% of patients
Headache	25	25%
Chest Pain	21	21%
Nausea	15	15%
Giddiness	15	15%
Limb Weakness	14	14%
Gabharman	12	12%
Perspiration	11	11%
Vomiting	10	10%
Slurring of Speech	7	7%
Dyspnea	6	6%
Vision Disturbance	4	4%
Epistaxis	2	2%
Altered Sensorium	2	2%

Table-2: Complaints wise distribution

Risk factors	No. of patients
Addiction	44 (44%)
Dyslipidemia	44 (44%)
Positive Family History	30 (30%)
Obesity/Overweight	44 (44%)
More than 1 Risk factor	9 (9%)

Table-3: Risk factors

ECG findings	No of patients	% of patients	ECHO finding	No of patients	% of patients
LV Strain	42	42%	Concentric LVH	64	64%
LVH Alone	30	30%	RWMA	24	24%
ST- T Changes	14	14%	No Significant abnormality	12	12%
T wave changes	9	9%	Total	100	100%
Normal	5	5%			
Total	100	100%			

Table-4: ECG and echocardiographic findings

done and the diagnosis of diabetes was made according to the definition of the American Diabetes Society.¹⁵

- The BMI was obtained by dividing the weight (in kg) by the square of the height (in m²). According to the definitions of the World Health Organization for obesity, the patients were classified as follows: normal weight (BMI < 25 kg/m²), overweight (BMI 25kg/m² and <30kg/m²) and obese (BMI > 30 kg/m²).
- Electrocardiographically, LVH was diagnosed on the basis of increased voltage (LVH alone) and repolarization abnormality (LVH and Strain). Sokolow-Lyon criteria were used to diagnose LVH electrocardiographically. Measurement of left ventricular wall thickness e.g. interventricular septal thickness (IVST) and left ventricular posterior wall thickness in diastole (PWTd) by Mmode echocardiography was done. LVH was considered to be present if the IVST and PWTd are above their normal limits (> 12 mm in diastole).

STATISTICAL ANALYSIS

Observations were analyzed using the SPSS software version 21.

RESULTS

In our study there were 100 adults patients were there. Results were as follows.

Table-I shows that highest number of (37%) patients were in 61-70 age group and lowest (1%) in 18-30 age group. Patient of 30 yrs was youngest and 79 yrs was the eldest. In our study 62 (62%) patients were Male. Remaining 38 (38%) were Female. In present study as per (Table-II), The most common symptom was headache 25 (25%) patients followed by Chest in 21 (21%). The least common symptoms were epistaxis and altered sensorium seen in 2 (2%) each. In our study 56 (56%) patients had normal BMI, 28 (28%) were overweight and 16 (16%) were obese. Table III shows, risk factors like addiction in form tobacco consumption in any form and alcohol were present in 44 (44%) patients. Family history of Hypertension, Cardiovascular disease and Diabetes mellitus were present in 30 (30%) patients, Dyslipidemia was present in 44 (44%) patients. 44% patients had high BMI (overweight/obese). It was observed that 9 (9%) of patients had more than one risk factor. Overall Mean Blood Pressure is 175/100. In our study, retinopathy was present in 14 (14%) patients at the time of diagnosis of hypertension.

It has also observed that 27 (27%) patients had impaired glucose tolerance, 11 (11%) patients were diagnosed having diabetes mellitus. In our study, LV Strain was the most common finding seen in ECG (42%). Other findings

like LVH, ST-T changes, T wave changes and normal electrocardiogram were present in 30 (30%); 14 (14%); 9 (9%) and 5 (5%) patients respectively. In our study, 2D-Echocardiography showed Concentric LVH in 64 (64%) patients, RWMA in 24 (24%) patients and No Significant abnormality in 21 (21%) patients. Maximum (41%) were having accelerated hypertension. Whereas from remaining patients, (27%) patients were found to have IGT, (24%) presented with Cardiovascular disease; (20%) presented with CV stroke; (5%) with renal pathology. There was no mortality in this study. All the patients clinically improved after treatment.

DISCUSSION

In our study maximum were elderly (61-70 years) In study done by Reis et al¹⁶ highest incidence was present in 51-60 age group. One of the explanation tot this finding is increased risk of developing hypertension the sixth decade of life is approximately 90%.¹³ Majority (62% males vs. 38% females) were Males. Study done by C. Cuspidi et al¹⁷, similar results were observed (52.4% vs 47.6%). Sex difference in incidence is due to biological factors like sex hormones, chromosomal differences, and other biological sex differences that are protective for females. Till menopausal age these difference is effective that sex difference will be non effective. Renin activity in male is more than female of same age.¹⁸ In study of Gus et al,¹⁹ headache was the most common symptom(33%). Anxiety neurosis and sleep apnea depict possible correlation between headache and hypertension.²⁰ In the study of Reis et al¹⁶, (17.4%) patients were obese which is comparable to this study. Some studies showed link between weight and hypertension.²¹

In risk factors addiction like tobacco/ bidi/ chikani/ alcohol was most common followed by Family history of HTN, CVD, DM, Dyslipidemia and high BMI (overweight/ obese), in study by Reis et al¹⁶, (30.4%) patients were smokers, (17.4%) patients were obese (p=0.0006), (35.4%) patients were having dyslipidemia. In the study of Seham et al²², (75%) patients had positive family history of cardiovascular diseases. Chemical compounds in tobacco mixtures are responsible for development of hypertension.²³

Association of alcohol and blood pressure is also explained by few studies.²⁴ Family history of cardiovascular disease also contribute to development of hypertension due to sharing of genes, behaviors, lifestyles and environments in them. Dyslipidemia causes endothelial damage leading to increased blood pressure.²⁵ There is direct association between obesity and hypertension.²¹ Average Blood Pressure was 175/100, consistent with study by Cuspidi et al¹⁷ where it was was 168/103 (SBP/DBP).

In our study, retinopathy was present in (14%) patients at the time of diagnosis of hypertension. In a study done by Meenakshisundaram R,²⁶ retinopathy was seen in 69% patients in newly detected hypertensive patients. Increased blood pressure will damage retinal vessels leading to bleeding and complete blindness.

In our study majority pts were having dyslipidemia which was compatible with study of Reis et al¹⁶, (35.4%) patients were having dyslipidemia.

In the present study, LV Strain was the most common finding seen in ECG (42%). These results were comparable to a study done by Razzak et al.²⁷ LVH is due to increased pressure overload.²⁸

In the present study, 2D- Echocardiography finding shows Concentric LVH in (64%) patients which was consistent with study by Razzak et al²⁷ Concentric LVH was seen in (66%) patients.

Maximum (41%) had accelerated hypertension, (27%) patients were found to have impaired glucose tolerance and (24%) presented with CVD. As per Ayodele OE et al,²⁹ (14.9%) had associated diabetes and 19.7% had associated cardiovascular disease. It is studied that hypertension rarely presents in isolation, and it is usually associated with CVD comorbidities, such as CHD, stroke, heart failure, chronic kidney disease, diabetes mellitus, the metabolic syndrome, and dyslipidemia.³⁰

CONCLUSION

Elderly (61-70 years age group) had high prevalence of hypertension with higher incidence in male (62%). Risk factors like tobacco/ bidi/ chhikani/ alcohol, dyslipidemia, positive history of CVD were highest with equal incidence of (44%). Commonest symptom was Headache (25%). Among all newly diagnosed hypertensive patients, maximum had dyslipidemia (44%). In ECG commonest finding was LV Strain (42%). Maximum pts (41%) had essential hypertension. Many pts were having co morbidities like impaired glucose tolerance, CVD, Stroke, DM and (5%) had kidney pathology at the time of diagnosis. There was no mortality in this study.

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