Original Research Article

Study of clinical profile and risk factors in acute cardiac complications in non-diabetic young hypertensive patients

Ajinkya Nashte[1*], Jayshree Awalekar[2], Chidanand Awalekar[3], Harshad Adhav[3]
M S Chavan[4]

[1,4]Junior Resident, [2,4]Professor, [5]Associate Professor, Senior Resident[6], Department of Medicine, Bharati Vidyapeeth Deemed University Medical College And Hospital Sangli, Maharashtra, INDIA.
Email: ajinkyanashte55@gmail.com

Abstract

Background: WHO and ISH both define hypertension as, a persistent elevation of blood pressure greater than 130/90 mm Hg. Hypertension doubles the risk of cardiovascular disease, including coronary heart disease, congestive heart failure. **Aims and Objectives:** To study clinical profile and risk factors of acute cardiac complications in nondiabetic young hypertensive patients. **Methods:** Descriptive Study done at tertiary care centre, sangli. We have examined 48 cases. **Observations and Results:** Chest pain, Giddiness, dyspnoea, Palpitations, blurring of vision, headache, vomiting and oliguria were common presenting complaints. Obesity, addictions, male sex, dyslipidemia are common risk factors for cardiac complications in young HTN. Left Unstable Angina, Accelerated Hypertension, Myocardial Infarction, and Acute LVF were the cardiac complications. **Conclusions:** Hypertension in the young patients has been found with increasing frequency and is increasingly recognised as having significant short and long-term health consequences..
Key Words: Young HTN, cardiac complications, LVF.

[*]**Address for Correspondence:**
Dr. Ajinkya Nashte, Junior Resident, Bharati Vidyapeeth Deemed University Medical College And Hospital Sangli, Maharashtra, INDIA.
Email: ajinkyanashte55@gmail.com
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INTRODUCTION

Hypertension is one of the leading causes of the global burden of disease. WHO and ISH both define hypertension as, a persistent elevation of blood pressure greater than 130/90 mm Hg. Hypertension doubles the risk of cardiovascular disease, including coronary heart disease, congestive heart failure.[1,14] Epidemiological studies shows that hypertension is present in 24% in urban and 10% in rural subject in India. Prevalence of hypertensive emergencies in young patients appears to be increasing in India. High blood pressure is a silent killer, often with no obvious symptoms. These complications arising from years of long term untreated hypertension. It is the most important modifiable risk factor for end organ damage. The relationship between blood pressure and risk of cardiovascular disease events is continuous, consistent and independent of other risk factors[6]. The syndrome of hypertensive emergency was first described by Volhard and Fahr in 1913 and was characterized by severe accelerated hypertension, accompanied by evidence of renal disease and by signs of vascular injury to the heart, brain, retina and kidney, and by a rapidly fatal course ending in heart attack, renal failure, or stroke.[34] Many previous studies showing increasing evidence of acute coronary syndromes amongst young population. This implies secondary to behaviour and lifestyle factors like sedentary life, diet, obesity and tobacco.

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Table 1: Inc 7 classification of hypertension[3]

Blood pressure	Systolic, mmHg	Diastolic, mmHg
Normal	<120	<80
Pre-hypertension	120-139	80-89
Stage 1 hypertension	140-159	90-99

MATERIAL AND METHODS

Study design: Descriptive Study carried out at Department of Medicine, Bharati Vidyapeeth Deemed University, Medical College and Hospital, Sangli over period of 1 year. (June 2016-June 2017) after ethical clearance from college and university committee.

Inclusion Criteria

- Young non-diabetic patients admitted in Medicine Department with cardiac emergencies who have increased systolic and diastolic blood pressure.
- Patients of age 18-42 yrs.

Exclusion Criteria

- Patients having other diseases causing HTN.
- Patients with Diabetes.
- Secondary hypertension Example-secondary to chronic kidney disease, hyperthyroidism.
- Hypertension patient above 42.

Statistical Analysis: Frequency and Percentage**.**

OBSERVATIONS

The incidence and percentage of various factors in cardiac complications is as follows:

Table 1: Sex Distribution

Sex	No. of Patients (N=40)	Percentage
Male	22	55.00%
Female	18	45.00%

Table 2: BMI

BMI	No. of Patients (N= 40)	Percentage
Normal (18.5 - 22.9)	8	20%
Overweight (23 - 24.9)	14	35%
Obesity (above 25)	18	45%

Table 3: Presenting symptoms

Presenting Complaints	No. Of Patients (n=40)	Percentage
Chest pain	24	60%
Giddiness	22	55%
Dyspnoea	18	45%
Palpitation	11	27.5%
Headache	2	5.0%
Blurring of vision	4	10%
Vomitting	1	2.5%
Oliguria	1	2.5%

Table 4: Hypertension

Hypertension	No. of Patients (N= 40)	Percentage
newly detected htn	31	77.5%
known htn	9	22.5%

Table 5: Blood Pressure

Blood pressure (systolic)	percentage (n=40)
170 – 200 mm Hg	100%
Above 200 mm Hg	0%

Table 6: Addiction

Addiction	No. Of Patients (N=40)	Percentage
Tobacco/ Mishri	7	17.50%
Smoking	11	27.50%
Alcohol	18	45%
No Addiction	13	35%

Table 7: ECG

ECG	No. Of Patients (N=40)	Percentage
Myocardial Infraction (ST Elevation)	12	30%
LVH	9	22.5%
IHD	18	45%
Normal	1	2.5%

Table 8: CXR

CXR	No Of Patients(n=40)	PERCENTAGE
Normal	29	74%
Cardiomegaly	11	26%

Table 9: Dyslipidemia

Dyslipidemia	No. of Patients	Percentage
Present	25	62.5%
Absent	15	37.5%

Family History: 12(30%) patients in our study has positive family history. It is an important predisposing factor.

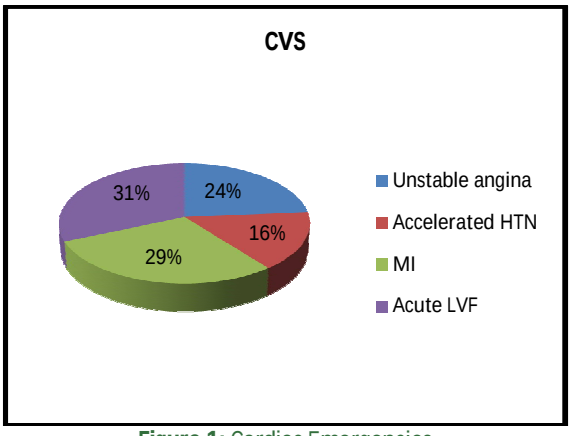

Figure 1: Cardiac Emergencies

DISCUSSION

With increasingly sedentary lifestyle, smoking and changing dietary pattern, the prevalence of hypertension in the young generation is increasing. In India, the awareness of hypertension, its risk factors and

complications is very poor so scanty information is available regarding the prevalence of hypertension and its complications in younger Indians.

Age: In our study, 10% were below or of the age 18- 26 years. 90% patients were between the age of 27- 32 years. Majority of complications of HTN are observed in second group i.e. 27-32yrs.In a study by Patne *et al*[3], the mean age in patient was 32 years. The age varied from 18 to 30 years in males and 18 to 30 years in females and majority of patients presenting with hypertensive emergencies belonged to the 20-34 years of age group. In a study by Grindal *et al*[7], fifty-five percent of the hypertensive patients were between 31 and 30 years of age.

Sex: In our study, 44% of the subjects were Male and 34% were Female. Srinivas *et al*[2], in their study on hypertensive crises observed that 44% of patients were male.

The proportions of males in hypertensive emergencies were also higher in the study by Zampaglione *et al*[38]. This is probably related target organ damage. This possibility is revealed in the Framinham study which showed that the incidence of coronary arterial disease in men increased in an almost linear mode as age is increased. These findings were also supported by the findings of Awada. A(1993) number being 76% of males. The incidence of Male patients in young hypertension has proved to significantly more in comparison with female population.

BMI: In our study, 34% subjects were obese, 34% were overweight and 20% were normal. P Mangena[39]*et al*, stated that a large part of the increased prevalence can be attributed to lifestyle factors such as diet and physical inactivity, which lead to overweight and obesity. Using the NHANES databases for the periods 1988–1993 vs. 1999–2000, the age-adjusted prevalence of obesity among U.S. adults increased from 22.9% to 30.4%, while the prevalence of overweight increased from 44.9% to 63.4%. Obese subjects, especially men, with no other risk factors, have increased relative risk for CVD.[3]

Presenting Complaints: In our study, the most common complaint was Chest pain in 23 patients (60%).Giddiness was observed in 22(44%) while dyspnoea was in 18(34%)cases. Palpitations in 11 cases (7.4%),blurring of vision (10%),headache (4%),vomiting (2.4%) and oliguria (2.4%).In a study by Srinivas K[2], analysing the presenting symptoms, dyspnoea (18%) and chest pain (22%).This was similar to the study by Martin *et al*[37], who in their study found dyspnoea 38% in and chest pain in 18% and of their patients. Zampaglione *et al*[38], in their study had more patients presenting with chest pain (27%), followed by dyspnoea (22%) and neurological deficits (21%).

Hypertension: In our study**,** 77.4% of the patients were newly detected hypertensives and only 22.4 % were known cases of Hypertension. This is probably due to lack of knowledge in young population. Majority of patients in the study by Srinivas *et al*[2] were previously known hypertensive (70 %). Martin *et al*[37] noticed a large number of patients, (83%) in their study to be previously diagnosed hypertensive. Zampaglione *et al*[38] reports a larger number, with (92%) of known hypertensive among their patients. Garcia GM noticed a large number of patients, (64.9%), in their study to be previously diagnosed hypertensive.

Blood Pressure Levels: All 40 patients in our study i.e 100% cases had blood pressure between 170-200mmhg.Highest recorded systolic blood pressure in a study by Srinivas K[2], was 280 mm Hg with mean systolic blood pressure of 216 ± 24 mm Hg. Martin *et al*[37] in their study reports a mean systolic blood pressure of 193± 26 mm Hg in their patients

Family History: 12(30%) patients in our study has positive family history. It is an important predisposing factor

Addiction: In our study patients 34% of cases were alcoholic. Smoking in 27.40% and Tobacco/ Mishri in 17.40% while 34% were non-addict. Choudhary L *et al*[43] concluded that between 76% and 91% of young patients with MI are smokers.

All types of addictions are seen to be associated with young hypertension proving to be significant predisposing factors acute coronary syndromes.

ECG: 26% of the cases in our study group presented with LVH (Voltage criteria), 19% with IHD changes and 33% of them were normal. In study by Srinivas *et al*[2], in their study 12 (26%) had LVH and 12% ST-T changes. In a study by Patne *et al*[3], out of 40 patients 23 (36%) had ST segment or T wave abnormalities, 12(23%) had LVH and 8 patients had both the changes.

CXR: In our study, 26% had cardiomegaly on chest X ray and 74% had normal. Srinivas K. *et al*[2] in his study study showed 60% of normal whereas 30% showed cardiomegaly. Patne *et al*[3], Chest radiography was suggestive of cardiomegaly in 18 patients and 3 patients had of pulmonary oedema. Chest radiography was normal in 29 patients.

Dyslipidemia: Among the cardiac emergencies, 62.4% cardiac patients had dyslipidemia. Tsong-Hai Lee observed that most common risk factors were hyperlipidemia (43.1%).[63] The prevalence of hyperlipidemia in young patients with MI ranges from 12% to 89%[43]Jamshed J. Dalal, said that the prevalence of the co-existence of hypertension and dyslipidemia, in the range of 14 to 31%.[64] These risk factors would have added to premature atherosclerosis and coronary artery disease in these patients predisposing them to acute target organ damage.

Cardiac Emergencies: The common Cardiac emergencies presented by the patients were Unstable Angina (18.74%), Accelerated Hypertension (12.40%), Myocardial Infarction (22.92%), and Acute LVF (24%). In a study by Srinivas *et al*[2] showed acute left ventricular failure in 28%, and unstable angina in 13%. Study by Martin *et al*[37] left ventricular failure (24 %), and acute myocardial infarction in (8%) their patients. Zampaglione *et al*[38].in their study observed target organ damage in the form of left ventricular failure (23%) in their patients.

CONCLUSION

Hypertension in the young patients has been found with increasing frequency and is increasingly recognised as having significant short and long-term health consequences. Identifying such patients is of great importance as this can prevent the cardiac disease and its complications, obviating the need for long-term medical therapy with its attendant risks, and substantial reduction in the economic health expenditure.

REFERENCES

1. Harrisons principles of internal medicine,18;2:237
2. Srinivas k, praveen n. Clinical study of hypertensive emergencies in rural hospital. Journal of evolution of medical and dental sciences. 2013 jun 2;3(22):4979-93.
3. Patne sv, chintale kn, tungikar s et al. Clinical study of hypertensive emergencies in young patients in tertiary health care centre.
4. 4. Raven pb, fadel pj, ogoh s (2006) arterial baroreflex resetting during exercise: a current perspective. Exp physiol 91: 37-39.
5. Grindal ab, cohen rj, saul rf et al. Cerebral infarction in young adults. Stroke. 1978 jan 1;9(1):39-32..
6. Yang wc, lin mj, chen cy et al. Clinical overview of hypertensive crisis in children. World journal of clinical cases: wjcc. 2014 jun 16;3(6):410.
7. Adult mj, ellrodt ag. Pathophysiological events leading to the end-organ effects of acute hypertension. The american journal of emergency medicine. 1984 dec 1;3(6):10-
8. Sukor n. Clinical approach to young hypertension. Brunei int med j. 2013 apr; 9(2):82.
9. Lagi a, cencetti s. Hypertensive emergencies: a new clinical approach. Clinical hypertension. 2014 aug 13; 21(1):20.
10. Guyton ac. The body's approach to arterial pressure regulation. In: guyton ac, ed. Arterial pressure and hypertension. Philadelphia, pa: wb saunders co; 1980:1–9 (chapter 1).
11. Brunner hr, laragh jh, baer l et al. Essential hypertension: renin and aldosterone, heart attack and stroke. N eng j med. 1972; 286:331–339
12. Chiu s, bergeron n, williams pt et al. Comparison of the dash (dietary approaches to stop hypertension) diet and a higher-fat dash diet on blood pressure and lipids and lipoproteins: a randomized controlled trial. The american journal of clinical nutrition. 2016 feb 1; 103(2):331-7.
13. Zampaglione b, pascale c, marchisio m et al. Hypertensive urgencies and emergencies. Hypertension. 1996 jan 1; 27(1):133-7.
14. Mangena p, saban s, hlabyago ke et al. An approach to the young hypertensive patient. Samj: south african medical journal. 2016 jan; 106(1):36-8.
15. Vaughan cj, delanty n. Hypertensive emergencies. The lancet. 2000 jul 29; 346(9227):311-7.
16. Salagre sb, itolikar sm, gedam k. A prospective observational study to determine the prevalence and clinical profile of patients of hypertensive crisis in a tertiary care hospital. J assoc physicians india. 2017 jun;64:13-21.
17. Khan na, daskalopoulou ss, karp i et al. Sex differences in acute coronary syndrome symptom presentation in young patients. Jama internal medicine. 2013 nov 11;173(20):1863-71.

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