



"CLINICAL PRESENTATION OF HYPERTENSIVE EMERGENCY AND URGENCY PATIENTS"

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ABSTRACT

Arterial hypertension affects approximately a billion people worldwide and approximately 30 % of them remain undiagnosed. 1% - 2% of known hypertensive patients will have hypertensive emergency at some time in their life Though hypertensive crisis contributes one fourth of all emergency visits and trend is increasing in last few years still there is lack of data over the actual incidence of hypertensive crisis The present study aims to know the incidence and clinical presentation of the hypertensive crisis (hypertensive emergency and urgency) in a tertiary hospital and will help us to know the incidence and pattern of clinical presentation with respect to different aspects. **Methods;** This is a prospective observational study of 100 cases of hypertensive crisis (hypertensive emergency and hypertensive urgency) presenting to the emergency department. Study conduct during 2016 to 2018. **Results;** The incidence of hypertensive crisis was found to be 20%. Most of the patients were belonged to the 5th and 6th decades of life and Male patients were more than female patients Majority of the patients were known hypertensives for 6 to 10 years and 22% of the known hypertensive patients has discontinued their anti hypertensive medications Cardiovascular symptoms in the form of dyspnoea & chest pain were the most common accompanying symptoms Acute coronary syndrome was the most common clinical manifestation followed by neurological deficit. **Conclusion;** As the trend of hypertensive crisis is increasing efforts should be made to reduce the occurrence of hypertension Preventive measures should be taken in the form of community education for dietary modification and routine exercise Routine blood pressure check ups compliance to the anti hypertensive treatment and control of associated comorbidities is essential to reduce the risk of hypertensive crisis.

KEYWORDS : Blood pressure, Hypertensive Emergency, Hypertensive urgency.

INTRODUCTION

Normal blood pressure is defined as a systolic blood pressure of less than 120 mm Hg and diastolic blood pressure of less than 80 mm Hg. Hypertension is defined as a systolic blood pressure of 140 mm Hg or higher or a diastolic blood pressure of 90 mm Hg or higher. A systolic blood pressure of 120 to 139 mm Hg or a diastolic blood pressure of 80 to 89 mm Hg is considered prehypertension because people in this range of blood pressure have higher chances to develop hypertension over the time. Patients with previously untreated or inadequately treated high blood pressures are most prone to acute rises in their blood pressure. These acute rises in blood pressure and resulting end-organ damage has been variously described as "malignant hypertension," "hypertensive emergency," and "hypertensive urgency"[1] Hypertensive crises are traditionally subdivided in hypertensive emergencies and urgencies.[2] Hypertensive emergency is an acute elevation of blood pressure ($\geq 180/120$ mm Hg) associated with end organ damage; the targeted end organs include the brain heart aorta kidneys or eyes[3].The pathophysiology of the hypertensive crisis has not been entirely elucidated in terms of pathophysiology, a disruption in the autoregulation of systemic circulation at the level of arterioles is considered to be the cause of both forms of hypertensive crisis[4]. Various manifestations of end-organ damage in hypertension include Acute neurologic syndromes Hypertensive encephalopathy, Cerebral infarction, Subarachnoid hemorrhage Intracranial hemorrhage, Myocardial infarction, Acute left ventricular dysfunction, Acute pulmonary edema, Aortic dissection Retinopathy Renal insufficiency, Eclampsia[1]. An hypertensive urgency is an hypertensive crises without acute or progressive organ damage. HTN is nearly responsible for 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths in India.[5] Despite the development of increasingly effective antihypertensive treatments over the past 4 decades, the incidence of hypertensive crisis has increased.[6] nearly 1%

to 2% of patients with hypertension will have a hypertensive emergency at some time in their life. But there are, there are no proper data on hospitalization of hypertensive patients and no proper advice detection, prevention on blood pressure [7]. One of the study found that hypertension-related hospitalizations increased by more than 27% in the period from 2000 to 2011. Hypertension related ED visits increased in the period from 2006 to 2012 by an estimated 5.2% per year, from 20.5% to 25.7%. From both epidemiological and clinical perspectives, more information on the ED burden of hypertensive emergencies would be of great value[9]

AIMS AND OBJECTIVE

- 1) To study incidence of hypertensive emergencies and urgencies in Emergency Department
- 2) To study age, sex, duration and severity HTN and clinical presentation of hypertensive crisis.

Inclusion criteria.

Patient with or without history of hypertension With Blood Pressure of Systolic ≥ 180 and/or Diastolic ≥ 120 mm of Hg Age above 18 years

Exclusion criteria:

Already treated patients in different hospital and admitted for further treatment in our hospital.
Chronic dialysis patients
Patients not giving consents
Chronic Corticosteroid therapy, Endocrinal disorders like pheochromocytoma, Cocaine, Amphetamine Overdose.

METHODOLOGY:

It is prospective observational study of 100 patients conducted from 2016 to 2018, with a sample size of 100 which has been calculated using the- Kish Leslie formula
$$Z^2 \times p(1-p) / d^2$$

Where , Z = standard normal variable of the confidence interval (1.96 confidence level 95%)

p = prevalence of High Blood Pressure in India. (Based on previous data) = 33% [5]

d = precision (level of error) = 0.1

Using this formula, the required sample size was found to be 84. We have opted to do the study in 100 patients. patients were selected after seeing the inclusion and exclusion criteria. Approval for study from ethical committee taken. Written consent from the patient or patient's attender taken if patient is not able to give consent All patients of Hypertensive crisis presenting to emergency department will be followed, Blood pressure of all patients measured in supine position and in both arms ECG and necessary Investigations done as per the clinical presentation. Data will be entered as per data collection form and analysed statistically. Incidence of hypertensive urgencies and emergencies in ED studied. clinical presentation of hypertensive crisis (hypertensive urgencies and hypertensive emergencies) in relation to (Age, sex, Duration and severity of HTN, Accompanying symptoms like headache, chest pain, vertigo, Shortness of breath, nausea, vomiting, epistaxis, anxiety, neurodeficits etc and Clinical manifestations (ACS, Pulmonary edema, stroke ,SAH, ARF, Aortic dissection etc studied.

Statistical Methods;

Qualitative data represented in the form of percentages. Quantitative data calculated using mean +/- SD and or median with range. Data presented in the form of frequency distribution. For the statistical analysis of results use methods of descriptive statistics (measures of central tendency, measures of dispersion). For comparison of proportions and mean values between the groups will use the χ^2 -test,the Student's t-test. Statistical hypotheses at the significance level of $\alpha = 0.05$, i.e. the difference between the groups will be considered statistically significant if $p < 0.05$. Results will be represented graphically. Results will be compared with previous studies. MS office 2013 and SPSS version 20 will be used for most analysis.

ETHICAL COMMITTEE CLEARANCE obtained from the hospital institute.

RESULT AND DISCUSSION

In the present study the Incidence of Hypertensive crisis (i e Hypertensive Emergency and Urgency) was found out to be 20 (20 %). Among them 15 were males and 5 were females. According to Pinna et al the incidence is 23 % [11]

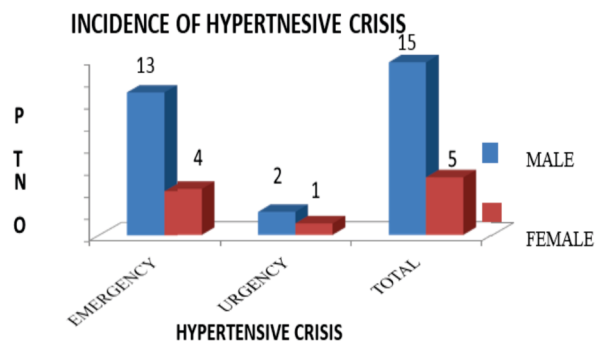


Chart 1 Total And Sex Wise Distribution Of Incidence Of Hypertensive Crisis

Table 1 Age Wise Distribution Of Study Population

AGE GROUPS((YEARS)	FREQUENCY (MALE & FEMALE)	PERCENTAGE
20 -30	3	3 %
30 – 40	6	6 %
40 – 50	16	16 %

50 – 60	32	32 %
60 – 70	25	25 %
70 -80	14	14 %
80 – 90	4	4 %
TOTAL	100	100 %

The mean age of the presentation was 57.27 ± 13.53 in males and 61.07 ± 13.54 year. According to Salkic et al ,the mean age of presentation was 55.83 ± 11.06 in males and 59.41 ± 11.97 in females [8].

Among the 100 subjects in the present study, 73 were males and 27 were females. Male to female ratio was 2.70:1. In the present study the number of males presenting with hypertensive crisis were more than number of females, 73 % of them were males out of which 53 presented with hypertensive emergency, 20 were presented with Urgency. Among the 27 females 17 were presented with Emergency and 10 were presented with Urgency. In a recent large multicenter Italian study (n = 1,546). Out of 1,546 hypertensive cases, 25.3% of them (n = 391) being reported as hypertensive emergencies. Interestingly, 23% of the emergencies occurred in patients with unknown HTN (27.9% among men and 18.5% among women)[10]. The proportion of males in hypertensive emergency were also higher in the study by Zampaglione et al [12]. Majority of the female patients belonged to the postmenopausal group. In the present study, the duration of hypertension were taken from Denovo to > 10 years and Severity was taken in the form of compliance to the anti hypertensive therapy (on Regular treatment Vs on Irregular treatment). Among the study population, Denovo Hypertensive crisis was detected in 20 subjects (17 were Emergency and 3 were Urgency) and most of the subjects were known case of hypertension for 6 to 10 year.

Table 2 Duration Wise Distribution of Study Population

DURATION OF HTN YEARS	HTN EMERGENCY	HTN URGENCY
Denovo	17	03
0 – 2	00	00
2 – 4	06	06
4 – 6	07	04
6 – 8	08	08
8 – 10	13	07
>10	19	02
TOTAL	70	30

In the present study, apart from denovo hypertensive patients, the severity i e compliance to the antihypertensive medications (on regular treatment and on irregular treatment) found out to be 58 % and 22 % respectively. It means 22 % of known hypertensive patients discontinued their antihypertensive medications.

The number of known hypertensives who discontinued their antihypertensive medications were 25 % in study conducted by Zampaglione et al [12].

Table 3: Severity Wise Distribution Of Study Population

SEVERITY	HTN EMERGENCY	HTN URGENCY	TOTAL
Denovo	17	03	20
On Regular Treatment	34	24	58
On Irregular Treatment	19	03	22
TOTAL	70	30	100

Accompanying Symptoms

In the present study the commonest symptoms were Cardiovascular (54%) i.e Breathlessness, Dyspnea (30%) and Chest pain (24%) followed by Neurological (37%) including Neurodeficit (22%), Altered mental status (10%), Headache (3%) and Seizures(2%).

Less common symptoms were Epistaxis (6%) and Dizziness (3%)

Table 4: Accompanying Symptoms In Study Population

ACCOMPANYING SYMPTOMS	FREQUENCY	PERCENTAGE
CARDIOVASCULAR	54	54 %
NEUROLOGICAL	37	37 %
LESS COMMON	09	09 %

Clinical Manifestations

In the present study, the commonest clinical manifestation was Acute Coronary Syndrome (38%) Stroke (33%) Acute Left Ventricular Failure with Pulmonary Edema (16 %). Less common manifestations were Subarachnoid haemorrhage (6%) and Others(6%). Only 1 subject (1%) presented with Acute Kidney Injury. Varounis et al in his study results are (30.9%) patients had a acute pulmonary edema, 22% shows stroke, and 17.9% patients were having myocardial infarction. Few of them had acute aortic dissection 7.9%, acute renal failure, and hypertensive encephalopathy 4.9%[7]

In our study 38% presented with ACS.in that 13% presented with STEMI, 3% NSTEMI, 22% Unstable angina.33% presented with stroke. 26% with haemorrhagic stroke, 7% with ischemic stroke. Pinna et al observed in their study that Myocardial infarction was present in 17.9% cases.22 % patients presented with stroke [11].

CONCLUSION

The incidence of hypertensive crisis was found out to be 20 %Majority of the patient were males compared to females in new onset hypertensive crisis. Majority of the patients presenting belonged to fifth and sixth decades of age. Mean age of presentation was 57.27 ± 13.53 years in males and 61.07,13.54 in females. Males (73 %) had more hypertensive crisis than females.Females after post menopausal are equally susceptible for developing hypertensive crisis. Duration and Compliance to the antihypertensive therapy has pivotal role in hypertensive crisis.The majority of patients with hypertensive crisis was known hypertensive for 6 to 10 years but patients who were known hypertensive for > 10 years are also presented with hypertensive crisis with significant number. Known hypertensives are at increased risk of developing hypertensive crisis.The commonest accompanying symptoms were Dyspnoea followed by chest pain and neurological deficit. The p value for it was 0.004. Cardiovascular manifestations were the most common mode of presentation followed by Neurological deficit.

Conflict Of Interest; NIL

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