



EPIDEMIOLOGICAL CHARACTERISTIC AND CLINICAL PROFILE IN HYPERTENSIVE EMERGENCIES

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ABSTRACT

Objective: Hypertension affects individuals of all classes and across all age groups. Unfortunately, hypertensive emergencies are among the most misunderstood and mismanaged of acute medical problems seen today. Over the last decade increasing numbers of patients with different forms of hypertensive emergencies have been observed in emergency departments. The objective of this study was to ascertain the clinical and epidemiological characteristics, modes of presentation and the affect on Target organs in patients of hypertensive emergencies.

Methods: In this prospective study 50 patients above 20 years of age with severely elevated blood pressure with clinical or laboratory evidence of acute target organ damage attending MGM Hospital Emergency Department for treatment from December 2014 to June 2016 were included.

Results: Majority of patients were males. Hypertension 76% was a major risk factor with majority of hypertensives were on Irregular treatment. The lethal outcome was significantly associated with age, male sex, SBP > 180, DBP > 110. Commonest presenting symptoms were Headache, neurological deficit, dyspnoea, chest pain. Acute intracerebral hemorrhage was the commonest mode of target organ damage detected radiologically. An in-hospital mortality of 34% was observed in the present study.

KEYWORDS : Arterial Hypertension, Target Organ damage, Hypertensive emergencies.

INTRODUCTION

Hypertension is an extremely common clinical problem, affects individuals of all classes and across all age groups affecting approximately 1 billion individuals worldwide. Approximately 1% of these patients will develop acute elevations in blood pressure at some point in their lifetime.¹

Hypertensive crisis includes both hypertensive urgencies and emergencies.

A hypertensive emergency is defined as a situation that requires immediate blood-pressure reduction (not necessarily to normal values) to prevent or limit target organ damage, and a hypertensive urgency is defined as a situation in which blood pressure should be lowered within a few hours.² The distinction between emergencies and urgencies is important because it dictates management.

Target organ damage resulting from hypertension includes those affecting the brain, heart, kidneys and the eyes. A number of cardiovascular, pulmonary and neurological symptoms are found to be associated with patients in hypertensive emergency with target organ involvement.³

Even though the condition is clearly defined, as above, diagnosis and treatment of hypertensive emergencies are the subject of disagreement, but are of the utmost importance in order to prevent the serious damage that can result from the condition.⁴

A given level of blood pressure is not necessarily diagnostic of hypertensive emergency by itself, and clinical decompensation rather than blood pressure level alone should define the situation as emergent (target organ damage present) or urgent, (target organ damage absent)⁵.

It is a major contributor to cardiovascular morbidity and mortality in India and worldwide. In India, one of every five has hypertension and 50% people above 50 yrs have hypertension. Hypertension is directly responsible for 57% of all stroke deaths and 24% of all

coronary heart disease death in India. Epidemiological studies show that hypertension is present in 25% urban and 10% of rural subjects in India.⁶

The lack of a primary care physician and failure to adhere to prescribed antihypertensive regimens are major risk factors for hypertensive emergencies.⁷

In light of the above, we set out to ascertain the prevalence and clinical profile of hypertensive emergencies patients attending our hospital.

METHODS

Study design and patient population:

In this prospective study 50 patients above 20 years of age including both sexes with severely elevated blood pressure with clinical or laboratory evidence of acute target organ damage attending MGM Hospital Emergency Department for treatment from December 2014 to June 2016 were included.

Inclusion Criteria: 1. Patients equal to or above 20 years age of both sexes 2. Systolic blood pressure of 180mm Hg or diastolic blood pressure of 110 mm Hg 3. Evidence of target organ damage, either clinically, laboratory findings or Radiological findings.

Exclusion Criteria: 1. Patients less than 20 yrs of age.

2. Chronic renal failure, valvular heart diseases, pregnancy induced hypertension (PIH).

DATA COLLECTION:

Data regarding different risk factors in detail has been collected by interviewing patient's attendants/ relatives or the patient himself. A detailed history was taken with which included presenting symptomatology, hypertension related history with emphasis on drug compliance.

Blood pressure was recorded in these patients at the time of

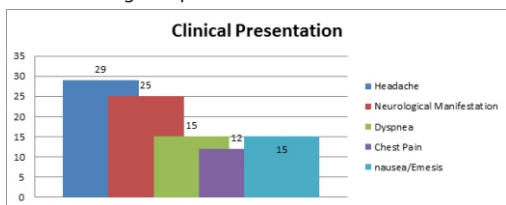
admission, after one hour, after 24 hours and at the time of discharge. Detailed clinical examination was done which also included Fundoscopic examination in all the patients. Patients with clinical suspicion of neurological deficits were evaluated with computed tomography of the brain. Patients with cardiovascular dysfunction clinically were evaluated with echocardiography and patient with renal dysfunction underwent renal sonography. Blood samples of these patients were evaluated for biochemical abnormalities.

RESULTS:

Among the 50 subjects in the present study, 37 (74%) were males and 13(26%) Females. The male:female ratio was 2.84:1

37(74%) of the study group belonged to 50 years of age and above, with maximum 19(34%) were in 50-59 years age group. The youngest patient was 38 years old and the oldest patient was 80 years old. Overall Mean Age of the study group was 56.62±12.46 years.

Figure: 1 Presenting Complaints



The commonest presenting complaints were Headache 29(58%) neurological deficits in 25 patients (50 %) followed by dyspnea in 15 (30 %) and chest pain in 12 patients (24 %) and Nausea & Emesis 15(30%).

Hypertension: 38(76%) cases were known hypertensives, and 12(24%) had no known history of Hypertension. Among 38 known hypertensives, most of them 78.94% were on irregular treatment. Only 21.05% were taking regular treatment. Among hypertensives irregular treatment / non-compliance was a major problem found in our study which was responsible for fluctuations in blood pressure which could have been the cause for intracerebral haemorrhage.

TABLE 1: Measurement of Blood Pressure at Different Intervals

BP at Interval (mmHg)	N	MEAN Deviation SBP/DBP
At Admission	50	224/121
At 1 Hour	50	184/106
At 24 Hours	50	154/94
AT Discharge	40	132/84

The mean blood pressure readings in patients who were discharged from the hospital were systolic blood pressure of 202 mm Hg and diastolic blood pressure of 122 mm Hg. Similar readings in patients who expired were systolic blood pressure of 226 mm Hg and diastolic blood pressure of 136 mm Hg respectively.

FUNDOSCOPIC EXAMINATION: Fundoscopic examination was done in every patient and the results are as given below. Fundoscopic evaluation was normal in 16 patients (32 %),13(26%) had grade I changes , 9 had grade II changes (18 %), Grade III retinopathy was seen in 5 (10%), 2 of the patients had evidence of papilledema (4 %). Fundus could not be visualized due to cataract in 5 patients (6%).

ECG CHANGES: Out of 50 patients 19(38 %) had ST segment or T wave abnormalities, 16 (32 %) had ECG with voltage criteria suggestive of LVH and 12 patients had both the changes.

ECHOCARDIOGRAPHY: Echocardiography done in 38 patients with evidence of cardiac dysfunction showed left ventricular dysfunction in 10(26.31%), regional wall motion abnormality in 7 patients (18.4%), left ventricular hypertrophy in 12(31.5%) patients

and normal echocardiographic study in 9 patients (23.6%).

CHEST RADIOGRAPHY: Chest radiography was suggestive of cardiomegaly in 22 patients and 7 patients had of pulmonary oedema. Chest radiography was normal in 21 patients.

RENAL FUNCTION TESTS & RENAL SONOGRAM: Serum urea was considered abnormal with levels above 50mg/dl and Serum creatinine level above 1.50 mg/dl. Serum urea was abnormal in 14(28%) of patients. Serum creatinine level were abnormal in 8(16%) of patients. Both Serum urea and creatinine were elevated in 3 patients.

14 Patients with laboratory evidence of renal dysfunction were subjected to renal sonogram,5 patients had some form of renal parenchymal disease.

Brain computed tomography: Computed tomography of the brain showed intracerebral haemorrhage as the commonest cause for the neurological target organ damage followed by cerebral infarct and subarachnoid haemorrhage.

Mean hospital stay was 6.12±4.2 days, the highest proportion being hospitalized for about 2 days. In-hospital mortality was 34% (17 patients), all with a diagnosis of hemorrhagic stroke. There was a significant association (p=0.003) between form of presentation of hypertensive emergency and outcome. Finally, a significant association was observed between older age and in-hospital mortality (p=0.034).

DISCUSSION:

Patients with hypertensive emergency represent 4.3% of all cases seen in the emergency department.

With regard to gender distribution, there was predominance of male patients, but without statistical significance. This is in agreement with the results of the SUHCRIHTA⁸ which may be related to their greater access to health care services. In our study most of the patients belonged to the fifth and the sixth decades, which is comparable to Vilela et al⁹ Comparison of these studies with ours reveals a similar pattern, that the older the patient the greater the risk of target-organ damage to the vascular system.

Among 38 known hypertensives, most of them 78.94% were on irregular treatment. Only 21.05% were taking regular treatment. Among hypertensives irregular treatment / non-compliance was a major problem found in our study. This is comparable to similar study done by Qureshi et al.¹⁰

It is evident in our study that patients who had systolic BP > 180 mm Hg and diastolic BP >110 mm Hg had mortality of 57.7% and 59.3% respectively. So the initial blood pressure plays a major role in the outcome. Both increase in systolic and diastolic blood pressure had poor prognostic outcome. In Shanmugam et al.,¹¹ the patients who had BP > 180/110 mm Hg had mortality of 60%.

We would highlight the low rate of compliance with antihypertensive therapy in our sample (21.05%), while in the SUHCRIHTA⁸ had abandoned treatment.

Cerebral bleeding was the most common form of presentation in our population, in agreement with various studies, including the SUHCRIHTA⁸ study and those of Vilela et al⁹

Most of the studies reviewed did not include among their objectives analysis of the diagnostic exams performed during hypertensive emergencies, and so any comparison is difficult. In our study, brain computed tomography was performed in most patients with suspected stroke or hypertensive encephalopathy, essentially to exclude both diagnoses. Mortality in our study was 34% and showed a significant association with both form of presentation and

age.

The main limitation of our study is that it was performed in a single hospital, and so its results are only applicable to a selected proportion of the population. However, the study period was longer than in the similar studies mentioned above.

CONCLUSION:

- Majority of patients presenting in hypertensive emergency belonged to the fifth and sixth decades of age.
- In India, the awareness of hypertension, its risk factors and complications is very poor.
- Known hypertensives are at a higher risk of presenting with acute target organ damage associated with hypertensive emergency.
- Patients with poor compliance of Anti Hypertensive Drugs have increased risk of Hypertensive damage.
- Commonest mode of presentation is were Headache and neurological deficit
- Males have higher chances of developing hypertensive emergencies and higher mortality compared to females.
- Higher levels of blood pressure at presentation points towards a more adverse outcome.
- Hyponatremia and hypokalemia were common in patients with hypertensive emergencies.
- Acute intracerebral hemorrhage was the commonest form of target organ damage encountered in the present study.
- The in-hospital mortality among these patients with hypertensive emergency were 34 percent.
- A larger study is needed to comment on the clinical profile of patients with hypertensive emergencies.

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