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CLINICAL PROFILE OF HYPERTENSIVE CRISIS

Cardiology

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ABSTRACT

Introduction/ Background: Hypertension (HTN) has emerged as a modern epidemic and is at raising trend globally and will continue to be in future . Hypertensive crisis is an urgent situation in the emergency department and presents with various clinical patterns. Hence, present study was an attempt to create awareness regarding various risk factors leading to hypertensive crisis along with their timely prevention and to subsequently reduce mortality and morbidity associated with it.

Objective: To create awareness regarding various risk factors leading to hypertensive crisis along with their timely prevention and to subsequently reduce mortality and morbidity associated with it.

Material and Method: Prospective observational study was undertaken in Rohilkhand Medical College and Hospital, Bareilly including 100 patients admitted in the ICU from 1st Jan 2018 to 31st Dec 2018. Detailed clinical examination including measurement of blood pressure and routine investigations were done. The data was expressed as means ± SEM and was statistically analyzed.

Results: Total 100 cases were enrolled in the study, of which 72 were of HTN –Emergency (HTN-E) and 28 were HTN- Urgency (HTN-U) with mortality of 6%. Breathlessness was most common presentation followed by stroke ,chest pain, headache , dizziness , nasal bleed, vomiting , palpitation, decreased urine output , psychomotor agitation. In HTN- U most common presentation was dizziness followed by headache and nasal bleed whereas in HTN– E breathlessness followed by stroke and chest pain was observed in our study. The most common target organ which was affected was retina followed intracranial haemorrhage and heart failure.

Conclusion: The prevalence of hypertensive crisis is 1.86% in our study with mortality of 6%. In HTN- U most common presentation was dizziness followed by headache and nasal bleed whereas in HTN – E, breathlessness followed by stroke and chest pain was observed in our study. Management of hypertensive crisis can be challenging and requires intensive care. Early detection and timely intervention subsequently reduces mortality and morbidity associated with it.

KEYWORDS

INTRODUCTION

Hypertension has emerged as a modern epidemic. As of 2014, approximately one billion adults or ~22% of the population of the world have hypertension.[1]A recent report on the global burden of hypertension indicates that approximately 1 billion adults (more than a quarter of the world's population) had hypertension in 2000 and this is predicted to increase to 1.56 billion by 2025.[2] The prevalence of hypertension is increased in India, from 5% to more than 30% from the 1960s to 2008.[1]Hypertension is the leading cause of cardiovascular disease worldwide.

Hypertensive crisis is classified as a hypertensive emergency (HTN-E) or hypertensive urgency (HTN-U). HTN-E is characterized by a severe elevation of blood pressure (BP : ≥180/120 mm Hg) with evidence of progressive organ damage or target organ failure. HTN-U is defined as uncontrolled BP without failure or damage to the target organ.[4]

Hypertensive crisis is an urgent situation in the emergency department and presents various clinical patterns. Hence, the present study was an attempt to create awareness regarding various risk factors leading to hypertensive crisis along with their timely prevention and subsequently reducing mortality and morbidity associated with it.

MATERIALAND METHOD

In this cross-sectional observational study 100 patients admitted to ROHILKHAND MEDICAL COLLEGE AND HOSPITAL between 1st Jan 2018 to 31st Dec, 2018 were included.

Inclusion Criteria:

1. Above 18 years of age
2. Systolic blood pressure > 180 mmHg.
3. Diastolic blood pressure > 120mm Hg.
4. With or Without a history of hypertension.

These cases were divided into hypertensive emergency (HTN-E) or hypertensive urgency (HTN-U) depending on whether presented with target organ damage (TOD) i.e. HTN –E or without TOD i.e. HTN –U. Target organ damage (TOD) includes hypertensive encephalopathy; stroke or intracerebral or subarachnoid hemorrhage; pulmonary edema, congestive heart failure; myocardial infarction, renal failure, retinopathy.

A detailed history and clinical examination were performed and laboratory investigations were done after explaining the nature of the study and informed written consent taken from the patients. The following investigations were done:

- Blood glucose on admission: FBS, PPBS,
- Renal function tests, including electrolytes,
- Glycosylated hemoglobin (HbA1c),
- Fasting Lipid profile,
- Ultrasonography,
- Urine routine and microscopy,
- ECG,
- Fundoscopy,
- Chest X-ray,

Note: Specific test were performed whenever indicated, for example, CT scan in suspected case Cerebro-Vascular Accidents; cardiac enzyme like Troponin in suspected cases of the acute coronary syndrome.

The obtained quantitative results were expressed as mean ± standard deviation, while qualitative variables were expressed as numbers and percentages. Comparisons between patient's characteristics were done by unpaired t-test for quantitative variables and chi-square test was used for qualitative variables.

RESULTS

Total 100 cases were enrolled in the study, of which 72 were of HTN –E and 28 were HTN-U. Clinical characteristics of patients are shown in table 1. Weight, height, and body mass index (BMI), Blood Pressure level, sex and past and family history of hypertension were similar in

groups. Patients with HTN-E were older, more sedentary, more smoker and had more non adherent to antihypertensive medication and had a known history of hypertension than those with HTN-U.

Table-1: Clinical and epidemiological profile of patients admitted with HTN-C, HTN-E.

Sign and Symptoms	HTN –C (100)	HTN –E (72)	HTN –U (28)	P Value
Breathlessness (%)	30	44	12	<0.0001
Stroke (%)	28	36	0	<0.05
Chest Pain (%)	25	15	8	<0.05
Headache (%)	23	13	36	<0.05
Dizziness (%)	20	10	39	<0.05
Nasal Bleed (%)	17	3	33	<0.05
Vomiting (%)	13	4	29	<0.05
Palpitation (%)	11	5	21	<0.05
Decreased urine output (%)	7	9	0	<0.05
Psychomotor agitation (%)	6	5	7	>0.05
Other (%)	7	9	0	<0.05
Asymptomatic (%)	5	0	16	<0.05

Breathlessness was the most common presentation followed by stroke, chest pain, headache, dizziness, nasal bleed, vomiting, palpitation, decreased urine output, psychomotor agitation as shown in table 2.

Table-2: Signs and symptoms of patients with HTN-C, HTN-E and HTN-U

Sign and Symptoms	HTN –C (100)	HTN –E (72)	HTN –U (28)	P Value
Breathlessness (%)	30	44	12	<0.0001
Stroke (%)	28	36	0	<0.05
Chest Pain (%)	25	15	8	<0.05
Headache (%)	23	13	36	<0.05
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Other (%)	7	9	0	<0.05
Asymptomatic (%)	5	0	16	<0.05

In HTN- U most common presentation was dizziness followed by headache and nasal bleed whereas in HTN– E breathlessness followed by stroke and chest pain was observed in our study.

The most common target organ which was affected was retina followed intracranial hemorrhage and heart failure as shown in table 3.

6 cases of hypertensive crisis expired in our study sothe mortality rate was 6%.

Table-3:Target Organ Damage in hypertensive Crisis

Target Organ Damage Type	No. of Cases (%) (n=200)
Retinopathy	58
Intracerebral hemorrhage	17
Acute heart failure	16
Acute coronary syndrome	14
Cerebral infarction	11
Hypertensive encephalopathy	1

DISCUSSION

The worldwide prevalence of hypertension in 2016 has exceeded over 1.3 billion and is increasing linearly and is predicted to increase to 1.56 billion by 2025.[2] 5360 patients were admitted into ICU of Rohilkhand Medical College and Hospital between 1st Jan 2018 to 31st Dec 2018 and 100 cases of the hypertensive crisis were encountered, thus the prevalence is 1.86% in our study. In the study by Pacheco et al(2013),the prevalence of hypertensive emergencies was reported to be3.75%.[4] Zampaglione et al (1996) reported a prevalence of 2.29% in the ICU.[2] JF Martin et al (2010) reported a prevalence of 0.68% of hypertensive emergencies.[5]

Hypertension is responsible for an average of 7. 1 million deaths annually.[6] In our study, 6 cases of hypertensive crises expired so the mortality rate was 6%.

Hypertensive pseudo-crisis can mimic hypertensive urgency and hence it can distort the final results. This fact was observed by Noble et al [7] who reported that 64.5% of the hypertensive patients, characterized as having a hypertensive pseudocrisis, were not appropriately treated in the emergency unit as having a hypertensive crisis. In patients had a pseudocrisis, independent of blood pressure levels, neither had evidence of acute target-organ lesions nor an immediate life threat exits, when the patient is assessed by use of usual means(physical examination, fundoscopy, biochemical tests, ECG, chest X-ray and computerized tomography of the brain). These are usually hypertensive patients, who, although were under treatment, are not controlled, being, therefore, referred to the emergency unit of the hospital. These patients are asymptomatic, but their blood pressure levels are very elevated. It is worth noting that, in these cases, new medical counseling and reassessment are required. Another group of hypertensive patients may have a transient blood pressure rise caused by any emotional, painful or uncomfortable event, such as migraine, vertigo, vascular headaches of muscle-skeletal origin, and manifestations of panic disorder, also characterizing a hypertensive pseudocrisis.[8]

In our study total 100 cases were enrolled, of which 72 were of HTN –E and 28 were HTN- U. The signs and symptoms presented on admission to the hospital vary according to the clinical presentation of hypertensive crisis, depending on which target organs were affected most severely. In our study, in HTN- U most common presentation was dizziness followed by headache and nasal bleed whereas in HTN – E breathlessness followed by stroke and chest pain was observed in our study. The most common target organ which was affected was retina followed intracranial hemorrhage and heart failure.

CONCLUSION

The prevalence of hypertensive crisis is 1.86% in our study with a mortality of 11%. In HTN- U most common presentation was dizziness followed by headache and nasal bleed whereas in HTN– E breathlessness followed by stroke and chest pain was observed in our study. Management of hypertensive crisis can be challenging and requires intensive care. Early detection and timely intervention subsequently reduce mortality and morbidity associated with it.

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