International Journal of Advances in Medicine
Varun MS et al. Int J Adv Med. 2018 Oct;5(5):1168-1171
http://www.ijmedicine.com
pISSN 2349-3925 | eISSN 2349-3933
DOI: http://dx.doi.org/10.18203/2349-3933.ijam20183831

Original Research Article

Clinical study of hypertensive crisis at a tertiary care hospital of South India

M. Sai Varun, Usham Gangaram*, M. V. Nagabushana, H. G. Revana Siddappa, Bhimasen Soren

Department of Medicine, Narayana Medical College and Hospital, Nellore, Andhra Pradesh, India

Received: 17 August 2018
Accepted: 23 August 2018

***Correspondence:**
Dr. Usham Gangaram,
E-mail: drganges@gmail.com

ABSTRACT

Background: Hypertensive crisis is a severe clinical condition in which sudden increase in arterial blood pressure can lead to acute vascular damage of vital organs. So timely detection, evaluation and adequate treatment are crucial to prevent permanent damage to vital organs. The aim of the present study is to evaluate incidence and clinical presentation of hypertensive crisis in relation to age, sex, severity of hypertension, accompanying symptoms and clinical manifestations.
Methods: It is a clinical prospective study done during the period between January to June 2018 at Narayana Medical College, Nellore. All patients who were more than 18 years with blood pressure>180/120 mmHg to the emergency, outpatients, and inpatients were included. A thorough History and clinical examination was done and necessary investigation was sent to the laboratory.
Results: The study results indicate that males (64%) were significantly over represented compared to females (36%). Out of 50 patients majority of the subjects belonged to age group of 50-59 years. Out of 50 Patients most common symptom is Headache (48%), Vomiting (48%), Giddiness (38%), Dyspnoea (22%), Loss of consciousness (22%) followed by chest pain (20%), Blurring of vision (20%) and weakness of limbs (14%). Most of the individuals are in the hypertensive emergency (66%) followed by Hypertensive urgency (34%). Out of 50 patients 56% had neurological involvement and 44% had cardiological involvement. Our study states that most of cases were in grade 1retinopathy (8%) followed in order by grade 4 retinopathy (8%), grade 2 retinopathy (6%) and grade 3 retinopathy (6%).
Conclusions: The present study concludes that majority of patients present presenting in hypertensive emergency belonged to fifth and sixth decades of age. So, treating physician should rapidly assess the differentiation of hypertensive emergency and hypertensive urgency in order to prevent end organ damage and to prevent further morbidity and mortality.

Keywords: Arterial hypertension, Hypertensive urgency, Hypertensive emergency

INTRODUCTION

Hypertension affects individuals of all classes and across all age groups. HTN has been affected more the 1 billion which is about 26% worldwide, out of which 1-2% will ultimately develop Hypertensive crisis in the life time.[1]

The relationship between blood pressure and risk of cardiovascular disease events is continuous, consistent and Independent of other risk factors. Target organ damage resulting from hypertension includes those affecting the brain, Heart, kidneys and the eyes.[2] Hypertensive crises are acute, severe elevations in blood

pressure that may or may not be associated with target-organ dysfunction. Hypertensive emergencies, a subset of hypertensive crises, are characterized by acute, severe elevations in blood pressure, often greater than 180/110mm Hg (typically with systolic blood pressure [SBP] greater than 200mm Hg and/or diastolic blood pressure [DBP] greater than 120mm Hg) associated with the presence or impendence of target-organ dysfunction. Hypertensive urgencies are characterized by a similar acute elevation in blood pressure but are not associated with target-organ dysfunction. A number of cardiovascular, pulmonary and neurological symptoms are found to be associated with patients in hypertensive emergency with target organ involvement. Focal neurological deficits, dyspnoea, chest pain, headache, loss of vision, are considered as the commonest symptoms with which patients in hypertension related to acute organ damage present.[3]

The physician should perform an extensive evaluation in a patient who presents with any of these symptoms and with an elevated blood pressure to exclude a hypertensive emergency.

Although great strides have been made in the treatment of hypertension, patients still present in hypertensive crises and emergencies. This account for more than one fourth of all medical urgencies and emergencies.[4] Hypertensive Emergency can be an end result of chronic hypertension, non compliance of Drugs, or new presentation of unrecognized essential

Hypertension. It can also be a result of physiological variables that can rapidly increase blood pressure. A hypertensive emergency is characterized by rapid deterioration of target-organs

and poses an immediate threat to life. These conditions were invariable fatal before the advent of anti hypertensive drugs.[5] It is also seen that the incidence of hypertensive emergencies is increasing.[6] Due to the association of hypertensive emergencies with various cerebral, cardiac and renal complications, there is an urgent need to recognize this condition so as to reduce the burden associated with it in terms of increased morbidity and mortality in the society.

The precise pathophysiology of a hypertensive crisis is not well known. It is recognized that an individual is able to maintain organ perfusion with varying degrees of BP by autoregulatory mechanisms. Two general theories, the pressure hypothesis and the humoral hypothesis, suggest that when a critical imbalance of pressure and/or humoral factors occurs a series of pathologic events lead to myointimal proliferation and fibrinoid necrosis.[7]

The aim of the present study is to evaluate incidence and clinical presentation of hypertensive crisis in relation to age, sex, severity of hypertension, accompanying symptoms and clinical manifestations.

METHODS

A clinical prospective study was conducted in Narayana medical college and hospital a tertiary care hospital from January 2018 to June 2018 for a period of 6 months. All patients who were more than 18 years who presented to the hospital with blood pressure >180/120mmHg to the emergency, outpatients, and inpatients were included. A thorough history was taken and clinical examination was commenced at the time of admission and all these conditions were diagnosed clinically by the appropriate diagnostic tests (Complete blood picture and complete urine examination, lipid profile, fundus examination, ECG, chest X ray PA view). Troponin was performed when acute coronary syndrome was suspected, and computed tomography was done when brain damage was suspected in view of stroke. Blood pressure was measured by using mercury sphygmomanometer in both supine as well as in standing position.

Inclusion criteria

- Patients greater than 18 years of age.
- Patients with Blood pressure greater than 180/120mmHg

Exclusion criteria

- Patients who are pregnant.
- Patients less than 18 years of age

RESULTS

In this prospective study Out of 50 patient's majority of the subjects in the experimental group belonged to age group of 50-59 years of age followed by 60-69 years, 40-49 years, 80-89 years, 30-39 years, 70-79 years, 20-29 years of age (Table 1).

Table 1: Age distribution of cases in the study.

Age	No. of patients
20-29	2
30-39	4
40-49	10
50-59	15
60-69	13
70-79	2
80-89	4

In this prospective study, out of 50 cases most of the cases were males (64%) followed by females (36%) which indicates males have higher incidence of developing hypertensive emergencies compared to females (Figure 1).

According to Figure 2 of symptomatology of hypertensive crisis, out of 50 Patients most common symptom is Headache (48%), Vomiting (48%), Giddiness

(38%), Dyspnoea (22%), loss of consciousness (22%) Followed by chest pain (20%), Blurring of vision (20%) and weakness of limbs (14%) (Figure 2).

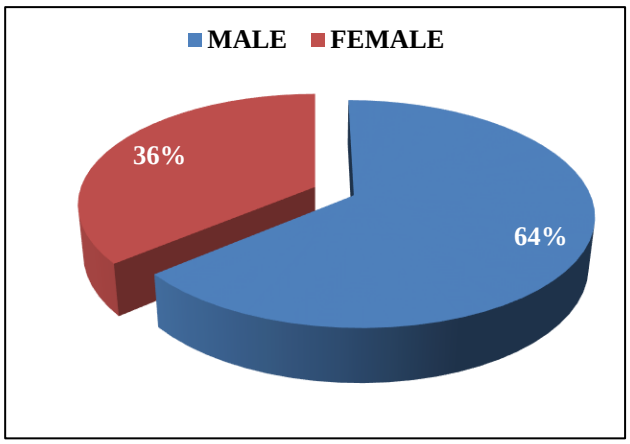

Figure 1: Sex wise distribution of cases in study.

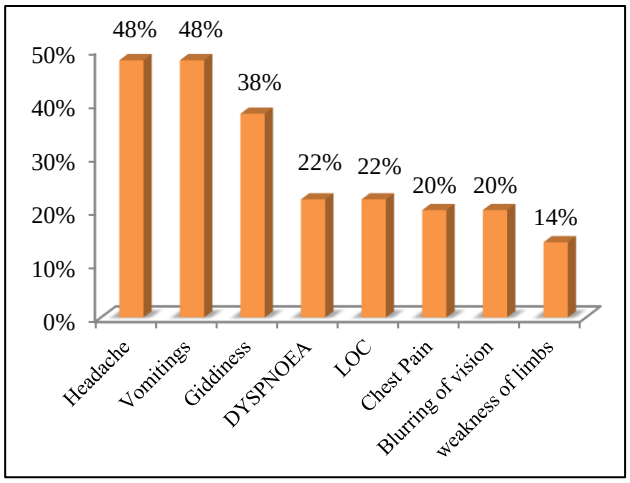

Figure 2: Symptom distribution of cases among study.

As per the pie diagram, out of 50 patients 34% belong to hypertensive urgency and 66% belong to Hypertensive emergency. Most of the individuals in the experimental group presented with hypertensive emergency (Figure 3).

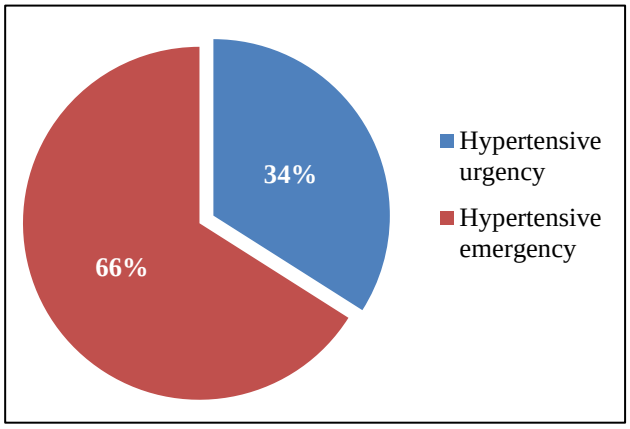

Figure 3: Distribution of hypertensive crisis.

Among hypertensive emergency 44% had cardiological involvement in the form of [Acute MI (38%), Left ventricular failure (6%)] and 56% had neurological involvement in the form of (Intracerebral haemorrhage (23%), Subarachnoid haemorrhage (22%), Malignant hypertension (9%) and hypertensive encephalopathy (2%). According to the study Most of the individuals had neurological deficit rather than cardiological involvement (Figure 4).

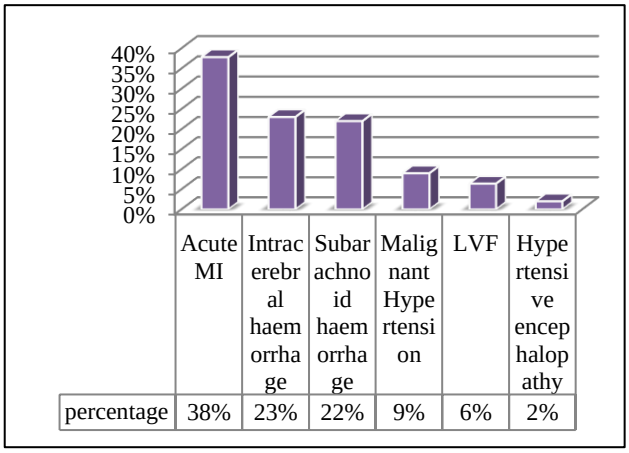

Figure 4: Target organ damage.

According to pie diagram most of them were in grade 1retinopathy (8%) and grade 4 retinopathy (8%) followed by grade 2 retinopathy (6%) and grade 3 retinopathy (6%). Among those with hypertensive emergencies 8% had papilledema (Figure 5).

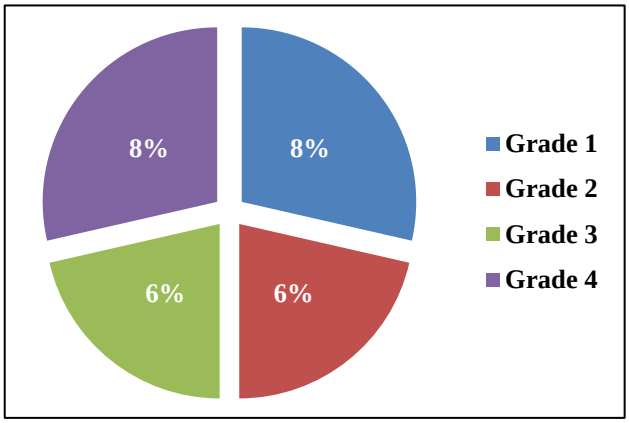

Figure 5: Fundus changes among cases.

DISCUSSION

In the present clinical study of hypertensive crisis in Narayana Medical College, Nellore out of 50 patients most of subjects in experimental group belonged to age group of 50-59 years followed by 60-69 years. According to study by Sabina salkic et al, most of the subjects belonged to age group of 60-69 years.[8]

In this prospective study the number of males presenting with hypertensive crisis are more (64%) when compared to females (34%). Martin et al, in their study on hypertensive crisis observed that 55% of patients were males among hypertensive emergencies. The proportion of males in hypertensive emergencies were also higher in the study by Zampaglione et al. This is probably due to increased susceptibility of males compared with females to hypertension related target organ damage. According to the study by Pacheco et al, prevalence of hypertensive emergencies was reported to be 3.75%.[9]

Analysing the present symptoms larger group of population presented with Headache (48%), Vomiting (48%), Giddiness (38%), Dyspnoea (22%), Loss of consciousness (22%) Followed by chest pain (20%), Blurring of vision (20%) and weakness of limbs (14%). Zampglione et al, in their study had more patients presenting with chest pain (27%) followed by dyspnoea (22%) and neurological deficits (21%).

Evaluation for target organ damage in patients in the present study showed Acute MI as the commonest cause (38%) followed by Intracerbral haemorrhage (23%), subarachnoid haemorrhage (22%) followed by malignant hypertension (9%) left ventricular failure (6%) and hypertensive enecephalopathy (2%). Zampglione et al, in their study observed target organ damage in the form of Intracerebral haemorrhage (4.5%) left ventricular failure (23%), Acute ischaemic stroke (24 %) in their patients.[4] Study by Martin et al, shows Intracerebral haemorrhage (17%) left ventricular failure (25%), Acute ischaemic stroke (39%) and acute myocardial infarction in (8%) their patients.[10]

Evaluation of fundus revealed changes ranging ftomto papilloedema (8%). According grade 1 retinopathy (8%) and grade 4 retinoapthy (8%) and grade 2 retinopathy (6%) and grade 3 retinopathy (6%). According to Singh et al, in their study of 200 patients of hypertensive retinopathy, Grade II retinopathy was present in maximum number of cases (50%) followed by Grade I (24%), Grade III (15%) and Grade IV (11%).[11]

CONCLUSION

The present study concludes that majority of patients present presenting in hypertensive emergency belonged to fifth and sixth decades of age and males have higher incidence of developing hypertensive emergencies compared to females. The early detection of target organ damage and appropriate treatment are key factors for reducing morbidity and mortality among patients of hypertensive crisis.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Hypertensive emergencies Epidemiology - Epocrates Online. [Online]. Available at: //online.epocrates.com/diseases/2723/Hyperten sive-emergencies/Epidemiology. [Accessed: 19-May-2017].
2. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo Jr JL, et al. The seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure: the JNC 7 report. JAMA. 2003 May 21;289(19):2560-71.
3. Karras DJ, Ufberg JW, Harrigan RA, Wald DA, Botros MS, McNamara RM. Lack of relationship between hypertension-associated symptoms and blood pressure in hypertensive ED patients. The Ame J Emerge Med. 2005 Mar 1;23(2):106-10.
4. Zamapaglione. Hypertensive urgencies and emergencies. Hypertension.1996;27:144-7.
5. Ventura HO, Mehra MR, Messerli FH. Desperate diseases, desperate measures: tackling malignant hypertension in the 1950s. Ame Heart J. 2001 Aug 1;142(2):197-203.
6. Elliot WJ. Hypertensive emergencies. In Critical Care Clinics, W.B. Saunders company; April 2001;17(2).
7. Ault MJ, Ellrodt AG. Pathophysiological events leading to the end-organ effects of acute hypertension. Am J Emerg Med. 1985;3(suppl 6):10-5.
8. Salkic S, Batic-Mujanovic O, Ljuca F, Brkic S. Clinical Presentation of Hypertensive Crises in Emergency Medical Services. Materia Socio-Medica. 2014;26:12-6.
9. Pacheco HG, Victorino NM, Urquiza JP, Castillo AA, Herrera UJ, Mendoza AA, et al. Patients with hypertensive crises who are admitted to a coronary care unit: clinical characteristics and outcomes. The J Clin Hypertens. 2013 Mar;15(3):210-4.
10. Martin JF, Higashiama E, Garcia E, Luizon MR, Cipullo JP. Hypertensive crisis profile. Prevalence and clinical presentation. Arq Bras Cardiol. 2004;83(2):131-6. (PubMed).
11. Singh J, Tewari MK, Khosla PK, Azad R. Hypertensive retinopathy. Indian J Ophthalmol. 1983;31:971-4.

Cite this article as: Varun MS, Gangaram U, Nagabushana MV, Siddappa HG, Soren B. Clinical study of hypertensive crisis at a tertiary care hospital of South India. Int J Adv Med 2018;5:1168-71.