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Management of Hypertensive Urgency in Outpatient Department with Oral Medications

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ABSTRACT

Background: Hypertensive urgency is severe elevation of blood pressure without ongoing target organ damage. In our country there is tendency to admit patient and give injectable medications for the control of blood pressure. We wanted to know the feasibility and effectiveness of oral medications in outpatient basis.

Methods: This is a cross-sectional observational study conducted at Gautam Buddha Community Heart Hospital. One hundred and twenty-eight patients with blood pressure more than or equal to 180 mmHg Systolic and/or 110 mmHg Diastolic attending outpatient department were evaluated in this study.

Results: Distribution of patients was males 56.2 % and females 43.8 %. Most patients (48.4%) were in the age group 45 to 65 years. Headache (35.9%) and dizziness (25.7%) were common symptoms at presentation. Majority of hypertensive patients had blood pressure range 180 to 220 SBP (88.3%) and 110 to 130 DBP (78.9%). Reduction of mean arterial pressure by 20 % reached within 6 hours in 82.8%.

Conclusion: Management of severe elevation of blood pressure in outpatient basis with oral medications is feasible option. This helps to build the confidence of treating physicians at rural part working under limited resources.

Keywords: hypertensive urgency; outpatient; oral; Lumbini province; Nepal.

INTRODUCTION

Various terminologies are used to describe clinical situations associated with increased BP such as hypertensive emergency, hypertensive urgency, hypertensive crises, or uncontrolled hypertension. The current terminology, however, has retained only the terms hypertensive emergency and severe uncontrolled hypertension, which can now describe the whole clinical spectrum of acutely elevated BP.[1] Hypertensive emergencies are defined as situations where a severely elevated BP, usually a systolic value higher than 180 mmHg and/or a diastolic value higher than 120 mmHg, is associated with acute, life-threatening organ damage in any of the following key organs: brain, arteries, retina, kidney, and/or heart.[2-5] The remaining situations with elevated BP but without acute hypertension mediated organ damage are named severe uncontrolled hypertension which were previously known as hypertensive urgency.[1] The distinction between these two clinical entities is essential because of the major differences in management and treatment.[6]

Hypertensive urgency does not usually generate symptoms of acute organ damage, does not require admission in the hospital and generally can be managed by simply reinstituting or intensifying previously prescribed antihypertensive drug therapy.[7] Whatever the cause or clinical presentation may be,

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two statements are to be remembered. First, there is a lack of evidence from randomized controlled trials to establish the best therapeutic approach or the optimal drug in specific situations. Secondly, BP reductions should be obtained gradually, in a controlled manner, without compromising organ perfusion.[5]

Several clinical studies have been carried out to identify the most common predisposing factors leading to hypertensive urgencies and emergencies. These studies indicate that the most relevant factors responsible for the rapid elevation of BP are low adherence to antihypertensive drug therapy, discontinuation of BP-lowering drugs, abuse of illicit substances and recreational drugs, and poor control of common risk factors (smoking, obesity, hypercholesterolemia, diabetes mellitus).[5,8] In a prospective study that included patients with hypertension, nonadherence to medication was the most powerful predictor of hypertensive urgency and emergency.[9]

Lifestyle measures that have been shown to reduce BP are salt restriction, moderation of alcohol consumption, high consumption of vegetables and fruits, weight reduction and maintaining an ideal body weight, and regular physical activity.[10,11] A major drawback of lifestyle modification is the poor persistence over time and effects are not immediate.[12,13] Worldwide only 40% of patients with hypertension are treated; of these, only 35% are controlled to a BP of less than 140/90 mm Hg.[14] One study from central Nepal showed even in well-educated professional group awareness of hypertension was found to be as low as 30%. Despite knowing to be hypertensive 36% were not taking medications. Among persons on antihypertensive medicines 55% had target blood pressure control.[15] Hypertensive urgency or severe uncontrolled hypertension is important entity in the management of hypertension. In our country health care professionals usually admit patients with hypertensive urgency and they receive intravenous medications. It is usual trend to give potent intravenous diuretic immediately. This sometimes is troublesome in elderly patients specially those who have prostate related problem. We wanted to know the response of oral medications to treat these sub-group of patients on outpatient basis in Nepalese population. Outpatient treatment with oral medication reduces anxiety of patient and also economic burden to patients. Also, to note is usually our patient do not prefer admission.

METHODS

This study was conducted at Gautam Buddha Community Heart Hospital, Rupandehi, Lumbini province, Nepal from August 2024 to July 2025. Patients presenting at outpatient department with multiple readings of blood pressure SBP more than or equal to 180 mmHg and/or DBP more than or equal to 110 mmHg were evaluated. Those giving consent for the study were further evaluated. Total 128 patients giving consent were included in study and evaluation. Demographic data and blood pressure measurement were recorded. Both arm blood pressure measurement taken after 10 minutes rest in outpatient clinic in sitting position. Average of more than one blood pressure measurements taken as recorded blood pressure. 2024 ESC Guidelines for the management of elevated blood pressure and hypertension[16] used to define hypertensive urgency. Evaluated with renal function test, lipid profile, uric acid, hemoglobin level, random blood sugar, electrocardiography, echocardiography and ultrasonography of abdomen. Findings on investigations recorded in proforma. After giving medications to the patients repeat blood pressure measurements done at 1 hour, 2 hours, 4 hours, 6 hours and 48 hours. Based on blood pressure findings drug added at 2 hours and 4 hours as per need. Observed findings tabulated and percentage calculation done. SPSS 22 software used for calculation and analysis of data.

RESULTS

Out of total 128 patients 72(56.2%) were male and 56(43.8%) were female. Most patients were of age group 45 to 65 years (Table 1). Mean age was 58.1 years. Headache and Dizziness were common symptoms at presentation. Large number of patients 68(53.1%) were asymptomatic.

In our study 46(35.9%) patients had history of

Table 1. Age distribution	
Age in years	**Frequency (%)**
< 45	30(23.4)
45-65	62(48.4)
> 65	36(28.2)

alcohol intake, 29(22.6%) were current smokers and 42(32.8%) used chewable tobacco or gutkha. Among the patients 58(45.3%) were known hypertensives. Out of 58 known hypertensive patients 22(37.9 %) were not on medication despite knowledge to have hypertension and 34(58.6%) were taking medications irregularly. Majority of patients had blood pressure in the range of SBP 180 to 220 and DBP 110 to 130 (Table 2).

Table 2. Blood pressure range at presentation.			
SBP	**n(%)**	**DBP**	**n(%)**
180 to 220	113(88.3)	110-130	101(78.9)
> 220	15(11.7)	> 130	27(21.1)

Out of total patients receiving treatment 65.6 % achieved reduction in mean arterial pressure by 20% within 2 hours and 82.8% by 6 hours. Even after 48 hours 11.7% patients did not reach 20 percent reduction in mean arterial pressure.

Table 3. Mean Arterial Pressure reduction by 20 percent.	
Time	**Frequency (%)**
2 hours	84(65.6)
6 hours	106(82.8)
48 hours	113(88.3)

Electrocardiographic finding of left ventricular hypertrophy was most frequent 16.4% followed be left axis deviation 9.4%%. Other electrocardiographic finding included ST depression in V5-6 7%, RBBB 6.2%, LBBB 5.4%, sinus bradycardia 6.2% and atrial fibrillation in 5.4%. Diastolic dysfunction was most common finding on echocardiography 61.7 % (Figure 1).

At the initiation of treatment four drug combination was given to the patients. Another group of drug added at 2 hours and 4 hours as per need (Table 4).

Dyslipidemia was found in 40.6% patients. Out of total dyslipidemia patients increased triglyceride was

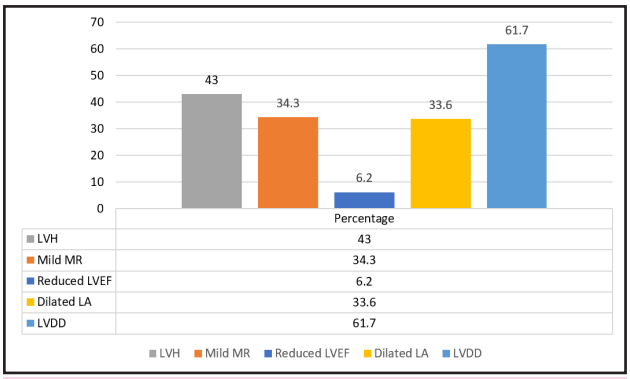

Figure 1. Echocardiographic findings.

Table 4. Drug groups used in treatment.	
Time	**Drug Group**
Start	ACE/ARB + BB + CCB +Thiazide diuretic
2 hours	Alpha blocker
4 hours	Loop diuretic plus Aldosterone antagonist

present in (80.7%), reduced HDL (50%), increased LDL (44.2%), increased total cholesterol (36.5%) and increased VLDL (25%). Diabetes mellitus was present in 21.8%. Thyroid disorder was present in 17.1%. Hyperuricemia noted in 12.5% patients. Raised creatinine level found in 8.5%. Fatty change in liver was noted in 10.1% patients.

DISCUSSION

In this study hypertensive urgency was found more commonly in male patients. This might be related to male dominance in the society and female population getting less attention for medical opportunities. Presentation at middle age (45 to 65 years) was more common. This may be related to patients getting attention for their health after 30-40 years. Trend of getting evaluated for presence of any abnormalities is more prevalent nowadays in our country due to access to internet and medical awareness in the community.

In our study 53.1% patients were asymptomatic. Hypertension is known as silent killer due to its behavior of organ damage without significant symptoms. Patients neglect minor symptoms and have organ damage evidence at presentation. To prevent end organ complications routine evaluation of seemingly healthy people is important. This might help to reduce hypertension mediated organ damage. This gives an opportunity to advice persons

to lifestyle changes so that hypertension and even other risk factors can be modified. In this study echocardiographic left ventricular hypertrophy was found in 43% and diastolic dysfunction in 61.7%. LVH in echocardiography is a predictor of mortality in both hypertensive patients and the general population, [17,18] and regression of echocardiographic LVH due to treatment of hypertension predicts an improved prognosis.[19] Studies indicate ECG LVH provides independent prognostic information, even after adjusting for other CV risk factors and echocardiographic LV mass.[20] LVH was noted in 16.4% of our patients. The prevalence of ECG LVH increases with the severity of hypertension.[21]

We found that in patients with hypertensive urgency blood pressure reduction by 20% is achieved in more than two third of patients with multiple oral drug combination in outpatient basis. In our country it is usual to admit patients with hypertensive urgency and give intravenous medications. These intravenous medications usually include potent diuretics. Most of our patients do not want hospital admission so far feasible. Giving potent intravenous diuretics creates trouble to elderly patients especially with prostate related problem. So this study supports management of hypertensive urgency with oral medication in outpatient basis. This will help to boost confidence to physicians working at rural and remote areas to treat hypertensive urgency with ease. Our approach of medication was convenient way to deal with such patients based on availability of medications in rural areas of our country.

Most important part of management is early diagnosis and prevention of hypertension mediated organ damage. Long-term adherence of medications and control of blood pressure is equally important to prevent long-term complications. Public awareness programs at outreach as well as using media is important to achieve this goal. Encouragement for follow up and monitoring of blood pressure and evidence of new organ damage is also important. Combined effort of different sectors of hospital and health workers to reach the target of proper blood pressure control and monitoring is needed.

In this study dyslipidemia noted in 40.6% and Diabetes mellitus 21.8%. This shows lifestyle change is very important to not only control of blood pressure but also other risk factors for atherosclerotic cardiovascular disease. Healthy lifestyle adaption of dietary approach, physical activity and avoidance of tobacco use in any form is very important aspect of holistic approach to manage hypertensive patients.

Limitations

This study was conducted in a cardiac hospital outpatient setting. This does not give idea of long-term complications associated with high blood pressure. The availability of drugs used in this study may not be there in remote hilly areas of Nepal. Follow up study to evaluate further blood pressure control, new hypertension mediated organ damage, risk of atherosclerotic cardiovascular disease and mortality will further add to the available knowledge about hypertension control in Nepal.

CONCLUSIONS

In this hospital-based outpatient study we found that hypertensive urgency can be managed at outpatient basis with use of combination oral drugs. Study with long term follow up is recommended to know about long-term complications and better representative status of hypertension control in Nepalese population.

Conflict of interest: None

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