

A Prospective Study on Prescribing Pattern and Utilization of Anti-Hypertensive Drugs in A Tertiary Care Teaching Hospital

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ABSTRACT

Background: Hypertension is the increasing, leading health problem in both developing and developed countries and has been the major concern of morbidity and mortality. The choice of the drug is the important factor in accessing the effectiveness of the therapy. Drug utilizing pattern is the tool to analyse the rationality in the therapy. **Aim:** Our present study aims in accessing the prescribing pattern and utilization of antihypertensive drugs. **Materials & method:** A prospective observational study was conducted for a period of 3 months from March 2015 to May 2015 in Medicine department of Viswabarathi Hospital, Kurnool, AP. **Results:** A total of 125 prescriptions were analysed. 60 (48%) were male patients and 65(52%) were female. Maximum hypertensives were seen in the age group of 50-59 in males and 60-69 in females and the least were seen in the age group of 30-39 and 20-29 respectively. Our result has shown that there was increased usage of calcium channel blockers (46.4%), diuretics (41.6%), and angiotensin receptor blockers 39.2% followed by beta blockers 17.6%. **Conclusion:** The present study showed that calcium channel blockers are the most prescribed ones in hypertension. Also it was found that combinational therapy is frequently prescribed rather than mono therapy.

Keywords: Calcium channel blocker, hypertension, therapy, utilization

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INTRODUCTION

Increase in the blood pressure which is termed as hypertension, is one of the leading health problems in the present trends [1]. Joint national committee 8 defines hypertension as a clinical state where the systolic blood pressure is above 139 mmHg and the diastolic blood pressure is above 89 mmHg persistently [2]. It is generally of two types- Primary hypertension and secondary hypertension. Primary hypertension is of idiopathic meaning (Unknown origin) cause. If the hypertension is due to the underlying cause, it is termed as the secondary hypertension. Its complications are the major predictor for the prognosis of the disorder. Morbidity and mortality tends to increase gradually with hypertension. By 2025, the epidemiological data estimates to an increase to 29.2% worldwide [3]. There are growing numbers of treatment options for

the patient diagnosed with hypertension. The choice of the drug depends on the patient age, underlying etiology and comorbid conditions [4].

Several anti-hypertensive drugs have been published in the health care system to promote the rational usage of the drugs globally. Drug utilization pattern provides us insight in the rationality of prescribing. Irrationality in the prescription is the primary reason for the complications of the disorder. To promote rationality- methods for adherence improvement, minimising the errors, complete history taking, assessing the comorbid conditions are the important tools [5].

Therefore our present prospective study aims in developing the significance and rationality of drug utilization in preventing the complications and promoting the public health.

MATERIALS & METHODS

Study site:

This study was conducted in Medicine department of Viswabarathi Hospital, a 250 bedded tertiary care teaching hospital providing health care services.

Study design:

The research approach adopted in this study was prospective study in Medicine Department of a tertiary care teaching hospital.

Study period:

This study was conducted for a period of three months from March 2015 to May 2015.

Study subjects:

This study includes hospital In-patients treated for hypertension in Medicine department.

Study criteria:

Patient who meets the following criteria was enrolled where, Inclusion criteria was patients aged ≥ 18 years of both genders and age group of 18-90 years. Exclusion

criteria were patients with diseases like psychiatry, cancer, Pregnant and nursing mothers.

Study procedure:

The cases which had found in Medicine department, details of cases including patient name, age, sex, and other relevant information was collected. The collected prescriptions were entered into Microsoft Office Excel sheet according to their age, gender, therapeutic category and prescription

Study approval:

The study protocol was approved by the Institutional Human Ethics Committee and Informed consent from patients was taken.

RESULTS

A total of 125 prescriptions were analysed. 60 (48%) were male patients and 65(52%) were female. Maximum hypertensives were seen in the age group of 50-59 in males and 60-69 in females and the least were seen in the age group of 30-39 and 20-29 respectively.

Table 1: Demographic Characteristics of Hypertensive Patients undergoing Monotherapy and Combination Therapy

Age group (in years)	Males N=60	Females N=65	Total N=125
20-29	-	2	2
30-39	4	3	7
40-49	7	6	13
50-59	14	18	32
60-69	12	24	36
70-79	15	8	23
80-89	8	5	12

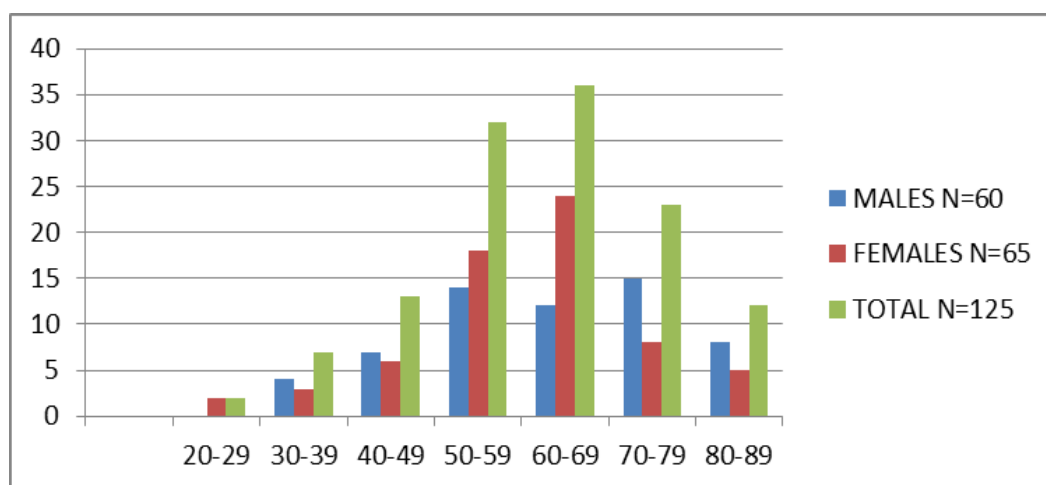


Figure 1: Demographic Characteristics of Hypertensive Patients undergoing Monotherapy and Combination Therapy

Among those 76 are under monotherapy i.e.60.8% are treated with single antihypertensive and 40 were under two drug regimen i.e. 32% are treated with two antihypertensive drugs and 8 are under three drug regimen i.e. 6.4% are treated with three antihypertensive drugs and 1 patient was under four drug regimen i.e. 0.8% who is treated with four antihypertensive drugs.

In monotherapy, calcium channel blockers (amlodipine) were most commonly prescribed. In combination therapy, a two drug combination consisting of calcium channel blockers (amlodipine) and diuretics

(hydrochlorothiazide) were given to the majority of patients and a three drug combination of angiotensin converting enzyme inhibitor (enalapril), calcium channel blockers (amlodipine) and diuretics (hydrochlorothiazide) were given to the majority of patients and in four drug regimen, calcium channel blockers, diuretic's, beta blockers and angiotensin receptor blockers are given.

The percentage and number of patients under monotherapy and combination therapy are represented in the following table.

Table 2: Drug Therapy in Hypertensive Patients:

Drug therapy	Monotherapy vs. combination therapy (%)	Combination therapy (%)
Monotherapy (n=76)	60.80%	--
Two drug regimen (n=40)	32%	81.63%
Three drug regimen (n=8)	6.40%	16.32%
Four drug regimen (n=1)	0.80%	2.04%

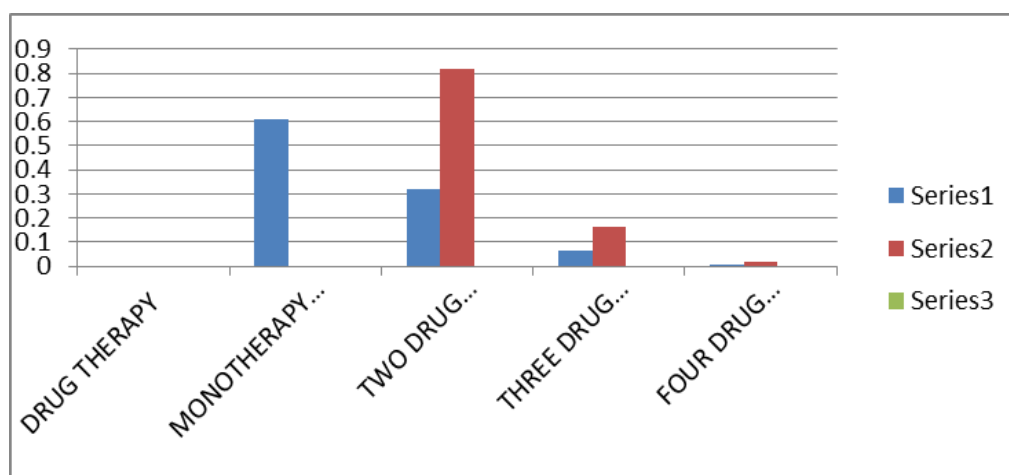


Figure 2: Drug Therapy in Hypertensive Patients

Table 3: Age wise Prescribing Frequency of Antihypertensive Drugs

Combination therapy	No. of Patients		Total 48
	Male (28)	Female (21)	
2 Drug Combination			
CCB+ DIU	6	3	9
CCB+ BB	5	2	7
CCB+ ARB	2	5	7
DIU+ BB	0	2	2
DIU+ ARB	9	6	15
3 Drug Combination			
ARB + CCB + BB	1	1	2
CCB+DIU+BB	-1		1
CCB+DIU+ARB	4	1	5
4 Drug Regimen			
BB+CCB+DIU+ARB	1		1

DIU (Diuretics); ARBs (Angiotensin receptor blocker); CCB (Calcium channel blocker); BB (Beta blocker)

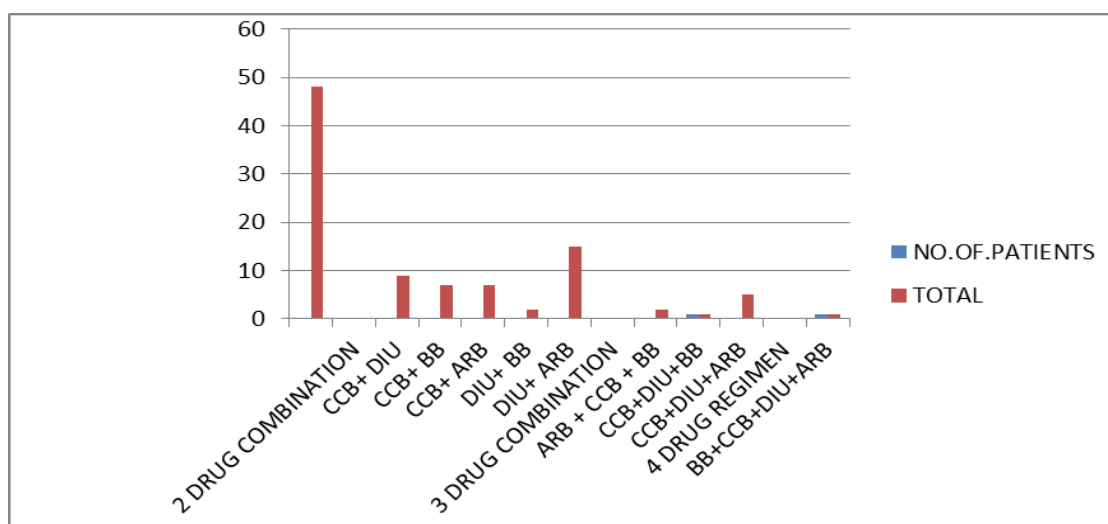


Figure 3: Age wise Prescribing Frequency of Antihypertensive Drugs

In the present study calcium channel blockers (46.4%) were prescribed majorly followed by diuretics (41.6%), followed by angiotensin receptor blockers (39.2%) and least used by beta blockers (17.6%).

In the present study two drug combination(81.63%) was majorly prescribed than three drug combination(16.32%) than four drug combination(2.04%).in two drug combination administration of calcium channel blockers along with diuretics are observed.in three drug combination therapy administration of angiotensin receptor blockers along with calcium channel blockers and diuretics are observed. In four drug combination therapy administration of calcium channel blockers along with beta blockers, angiotensin receptor blockers and beta blockers are observed.

DISCUSSION

In recent decades, the world has undergone a demographic transformation with a rapid growth of the elderly population, resulting in an increased demand for funds to maintain their health and drug consumption. As a result of which drug utilization studies are conducted in a ladder like fashion. Majority of the population are prone to hypertension in the present trends due to the factors like sedentary life style, habits like alcohol and smoking, mental stress etc [6].

Our present study on drug utilization pattern in hypertensive patients was higher in females (52%) than in males (48%). This

was strongly in liaison with the study conducted by Shri Sathya Sai Medical College & Research Institute where females were 61% and males are 39% [7].

Further our study shown that maximum hypertensives were seen in the age group of 50-59 in males and 60-69 in females. It was supported from the study conducted by Sharminder Kauret, al in which the highest age group of 50-59 in males and 60-64 in females [8].

Anti-hypertensive therapy shown that monotherapy (60.8%) was more common than combinational therapy. This was in correlation with the study conducted by Waleed M. SWEILEH et, al which shown a more than half population (55%) were on monotherapy [4]. In patients treated with monotherapy, Calcium channel blocker are top most prescribed followed by angiotensin receptor blocker and beta blockers are the least prescribed. Study conducted by Anand Kale et, al shown calcium channel blockers the most prescribed [2] and the least prescribed are beta blockers [9].

This study can be extended further by increasing the sample size and time period of data collection.

CONCLUSION

Present study represents the current prescribing trend for antihypertensive agents. It implies that calciumchannel blockers are the leading group of antihypertensive agents followed by diuretics.

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