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HYPERTENSIVE MEDICATIONS ON QUALITY OF LIFE IN HYPERTENSIVE PATIENTS A COMPARATIVE ASSESSMENT

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ABSTRACT

The key impartial to survey the quality of life in Hypertension patients and its associated factors among hypertensive patients. A cross-sectional education was carried out from September 2024 to March 2025 to investigate hypertensive patients' treatment who are visiting Hospital with an antihypertensive prescription were enrolled for the study. A total of 500 patients were included in this education, among which 273 were male 54.6% & 227, 45.4% were female. In 500 patients, 121 patients were treated with monotherapy. In that 45.82% of patients were treated with Atenolol, 61.11% of patients were treated with losartan. In combination therapy most commonly used was double therapy 43.20% followed by triple therapy 15.80%. The first choice is Beta blocker 69.40% followed by Calcium Channel Blockers 59.60% was most prescribed class of drug followed by Angiotensin Receptor Blockers. In our study the final conclusion of the study reveals that Beta blocker as most prescribed class of antihypertensive and Atenolol was the most prescribed antihypertensive. In our study, most of the patients were treated with combination therapy in that double drug therapy was most common. There is a chance of various medication errors, development of adverse drug reaction as the 138 of patients belong to age above 60 years and chances of getting error also increases as combination therapy is most used. Therefore, close monitoring is required for such patients. During our discussion with patients we suggested for Lifestyle changes, it can help lower high blood pressure. Include, eating a healthy, low-salt diet, losing weight, being physically active and quitting tobacco & Alcohol.

KEYWORDS: Angiotensin Receptor Blockers, Calcium Channel Blockers, Drug Utilization Study, Hypertension & Hospital.

INTRODUCTION

Nearly half of U.S. grown-ups have high blood pressure. numerous do not indeed know they've it. The only way to know you have high blood pressure is to have your blood pressure checked. An opinion of high blood pressure will need to be made by a health care professional.[1]

In India, hypertension, or high blood pressure, is a major public health concern affecting a large portion of the adult population. Estimates suggest that around 220 million adults in India are living with hypertension.[2]

Table No. 1. Blood Pressure readings.

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120-129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130-139	or	80-89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/ or	HIGHER THAN 120

Blood pressure and the circulatory system

Human tissues and organs need the blood for circulatory system carries through the body. Human body makes this be by pushing blood through the blood vessels. These vessels include arteries, veins and capillaries.[1]

Blood pressure is the result of two forces. The first force (systolic pressure) happens as blood pumps out of the heart and into the highways. The alternate force (diastolic pressure) is created as the heart rests between heart beats. These two forces are each represented by figures in a blood pressure reading.[1]

The damage starts in human bodies' arteries and heart

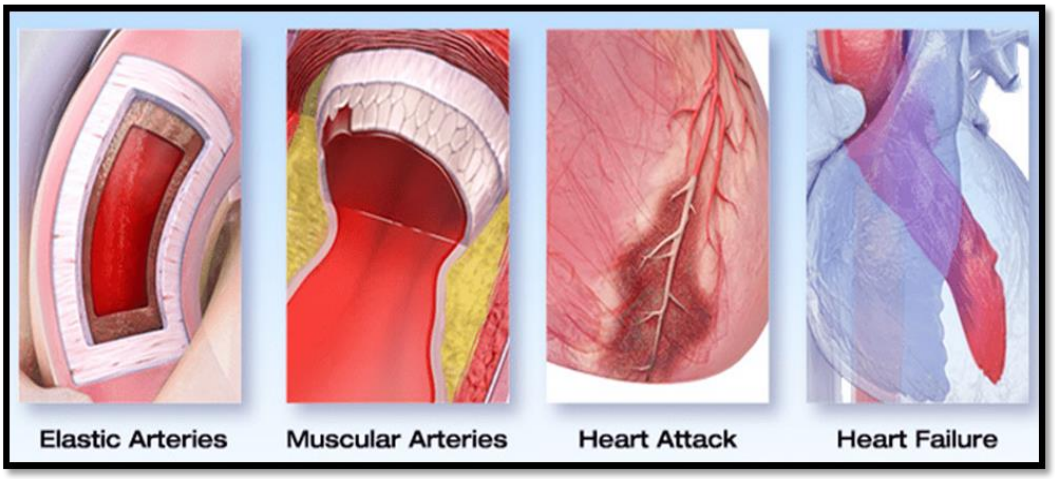

Fig. No. 2: High blood pressure affects arteries and heart.

When blood pressure is high for too long, it can damage the walls of blood vessels, causing them to develop minute tears. To fix these damaged areas, the body sends special cells that stick to the point. Over time, substances similar as cholesterol and fats may also make up at these damaged spots, forming plaque.

As shrine sluggishly builds, a process called atherosclerosis, it can make the inside of the arteries narrower. This narrowing can block the inflow of blood, further adding blood pressure.[1]

High blood pressure is a' silent killer

1. Utmost of the time there are no understandable symptoms.
2. Certain physical traits and life choices can raise your threat of high blood pressure.
3. Untreated high blood pressure can create heart attack, stroke and other health difficulties.[1]

Preventing and managing high blood pressure

It's stylish to avoid high blood pressure altogether. Healthy life choices similar as not smoking, eating a healthy diet and being physically active can help. still, work with your health care professional to control it. If you have high blood pressure. This may mean taking specifics in addition to making healthy life changes. Controlling your blood pressure will help you live a longer, healthier life. Controlling our blood pressure will help us to live a longer and healthier life.[1]

Treatment of Hypertension patients

The operation of hypertension subdivides into pharmacological and non-pharmacological operation.[2]

Non-pharmacological and life operation are recommended for all individualities with raised BPs anyhow of age, gender, comorbidities, or cardiovascular threat status.

Case education is consummate to effective operation and should always include detailed instructions regarding weight operation, swab restriction, smoking operation, acceptable operation of obstructive sleep apnea, and exercise. Cases need to be informed and revised at every hassle that these changes are to be continued lifelong for effective complaint treatment.

Weight reduction is judicious if rotundity is present, although optimum BMI and optimal weight range are still unknown. Weight reduction alone can affect in diminishments of over to 5 to 20 mm Hg in systolic blood pressure.

Smoking may not have a direct effect on blood pressure but will help in reducing long- term sequelae if the case quits smoking.

Life changes alone can regard for over to a 15% reduction in all cardiovascular-affiliated events.

Pharmacological therapy for Hypertension patients consists of angiotensin-converting enzyme inhibitors (ACEi), angiotensin receptor blockers (ARBs), diuretics (usually thiazides), calcium channel blockers (CCBs), and beta-blockers (BBs), which are instituted taking into account age, race and comorbidities such as the presence of renal dysfunction, LV dysfunction, heart failure, and cerebrovascular disease. JNC-8, ACC, and ESC/ ESH

have their separate recommendations for pharmacological management.[2]

Deterrence and Patient Education

Hypertension is a habitual complaint and requires long-term care and operation. Detailed education regarding life revision and pharmacological remedy is the key to success for better control of blood pressure and to help complications. Weight operation, physical exertion, limiting alcohol/ tobacco/ smoking is a critical strategy to drop cardiovascular threat.[2]

Enhancing Healthcare Team Outcomes

Often hypertension is picked up by nurses charting the cases in ERs and inpatient settings, where prompt recognition and referral to a croaker is essential as utmost of these hypertensive cases might be ignorant of their complaint, hence the name" silent killer."[2]

Inter-professional communication is of high significance, especially in picking up cases of resistant or delicate- to-treat hypertension where referral and inter-specialty approach will profit a case the most. Effective communication in an inter professional platoon approach, including nursing staff and nanny interpreters, primary pertaining croaker, cardiologist, nephrologist, and druggists, is essential for icing blood pressure control. This team can also cover for acceptable case compliance as well as implicit venom and adverse goods, all of which will affect in minimizing unborn complications and reducing health care costs as well as perfecting patient issues.[2]

METHODS

Drug utilization research can increase our understanding of how drugs are being used. It can determine the pattern or profile of drug use and the extent to which alternative drugs are being used to treat hypertension conditions. It can be used to match the experimental patterns of drug use for the management of a certain disease with current references or guidelines of Joint National Committee Hypertension in Adults guideline (JNC-8). The aim of this study was to perceive the drug utilization design of antihypertensive patient's prescription.[3,4]

I. Study design

Prospective cross sectional study.

II. Study site

Tertiary care hospital.

III. Study period

8 months (June 2024 to January 2025).

IV. Study place

Patients visiting Hospital with an antihypertensive prescription.

V. Sample size

500 patients prescribed with antihypertensive medications.[5]

VI. Inclusion criteria[5,6]

a) Patients of both genders above 18 years of age.
b) Patients diagnosed with Hypertension or high blood pressure Patients with or without co-morbidities.
c) Patients who are willing to participate in the study are included in the study

VII. Exclusion criteria[5,6]

a) Patients below 18 years of age
b) Pregnant and lactating women
c) Patients aged above 80 years old are excluded from the study

VIII. Data collection technique

a) Details will be obtained from the patients through structured questionnaire by direct interview.
b) Drugs use pattern assessed from individual prescription.

IX. Ethical consideration

❖ Ethical clearance was obtained from University Research/Human Ethics Committee of the University. Informed consent was obtained from the patient and caregiver before commencing the study. Permission for checking case sheets of patients was obtained from the hospital authorities. All data will be kept confidential and was used for the purpose of this study only.[6,7]

X. Statistical analysis

❖ Data obtained was entered into Microsoft Excel Sheet and analyzed using Statistical Package for the Social Sciences trial version 18.0. Qualitative variables will be expressed in percentages. Quantitative variables will be expressed in mean and standard deviation (SD) and its confidence interval.[7,8]

RESULTS AND DISCUSSION

In this probable study, a total of 500 patients were registered and among these patients, 273 (54.60%) patient were Males and 227 (45.40%) patients were females. Mean age in the study population from the Table No. 2.

Results from the table showed that among 500 patients 69.80% were in the age group of below 60 years and 30.20% were of age group of above 60 years.

Table No. 2: Basic characteristics of all hypertensive patients.

Characteristics	Frequency (n)	Percentage
Gender		
Males	273	54.60
Females	227	45.40
Age Group		
<60	349	69.80
60>	151	30.20
Family History		
Yes	147	29.40
No	353	70.60
Social Habits		
Alcoholic	18	03.60
Non-alcoholic	392	78.40
Ex-alcoholic	65	13.00
Occasional alcoholic	25	05.00
Smoking	24	04.80
Non- Smoking	377	75.40
Ex- Smoking	82	16.40
Occasional Smoking	17	03.40

This study also showed that 29.40% of patients have a family history of Hypertension and 70.60% does not have any family history of hypertension. In case of social habits, 4.80% patients were smokers, 3.60% patients were alcoholic, 13.00% were ex-alcoholic, and 16.40% were ex-smokers.

Table No.3: Age- and sex-wise distribution of illness.

Age	Sex		Number	Percentage
	Male	Female		
18-30	11	10	21	4.20
31-40	57	51	105	21.00
41-50	74	72	143	28.60
51-60	43	38	80	16.00
61-70	78	41	126	25.80
71-80	10	15	25	5.00

The enrolled patients were categorized, based on blood pressure level as per the Joint National Committee Hypertension in Adults guideline (JNC-8). Among 500 patients, most of the patients belong to stage 1 hypertension 35.60% having systolic blood pressure and 36.80% having diastolic blood pressure. In stage 2 hypertension 24.60% have systolic blood pressure and 17.80% have diastolic blood pressure shown in Table No.44.

Table No. 4. Distribution of Patients according to their blood pressure.

Blood Pressure Types of Prescription	Systolic Blood Pressure (mmHg)	Diastolic Blood Pressure (mmHg)	Systolic Blood Pressure		Diastolic Blood Pressure	
			Frequency	Percentage	Frequency	Percentage
Normal	< 120	< 80	65	13.00	98	19.60
Pre Hypertension	120-139	80-89	134	26.80	129	25.80
Stage 1 Hypertension	140-159	90-99	178	35.60	184	36.80
Stage 2 Hypertension	≥160	≥ 100	123	24.60	89	17.80
Total			500	100	500	100

In this study, 237 patients were treated with monotherapy in that 80.61% patients were treated with amlodipine, followed by Enalapril (65.73%), Losartan (61.11%), Metoprolol (36.59%), Telmisartan (31.99%) and Ramipril (28.67%) and were used less frequently shown in the Table No. 5.

Among angiotensin-converting enzyme inhibitors most prescribed was Enalapril 61.43%, followed by Ramipril 26.97%) and Captopril 4.60%.

Beta-blockers are now considered as first-line drug when having compelling indications like coronary disease risk

and myocardial infraction. It was seen that 36.59% were treated with Metoprolol, 45.82% patients were treated with atenolol, 8.35% patients were treated with Nebivolol, 5.75% were treated Propranolol and 5.18% were treated with Bisoprolol. Are shown in Table No. 5.

Table No.5: Distribution of prescription according to various class of antihypertensive drug prescribed.

Antihypertensive class	Name of the drug	Prescriptions	Percentage
Angiotensin receptor blocker (n=288)	Losartan	176	61.11
	Telmisartan	93	31.99
	Olmesartan	7	2.43
	Candesartan	21	7.29
Angiotensin converting enzyme inhibitor (N=143)	Enalapril	94	65.73
	Ramipril	41	28.67
	Captopril	7	4.89
	Lisinopril	11	7.69
Beta blocker (N=347)	Metoprolol	127	36.59
	Nebivolol	29	8.35
	Atenolol	159	45.82
	Bisoprolol	14	4.03
	Propranolol	18	5.18
Calcium channel blocker (N=298)	Amlodipine	235	78.85
	Clinidipine	37	12.41
	Diltiazem	15	5.03
	Nifedipine	11	3.69
Diuretics (N=135)	Furosemide	63	46.66
	Hydrochlorothiazide	29	21.48
	Spironolactone	16	11.85
	Chlorthalidone	17	12.59
	Triamterene	10	7.40
Centrally acting drugs (N=41)	Clonidine	41	100
Alpha blocker (N=26)	Prazosin	26	100
Alpha and beta blocker (N=15)	Carvedilol	15	100

Table No. 4. showed that Calcium Channel Blockers for 298 patients either alone or in combination were the most commonly prescribed antihypertensive class of drug and in this class Amlodipine 82.55% was frequently prescribed followed by Clinidipine 12.41%, Diltazem 5.03% and Nifedipine 3.69%. Around 288 patients were prescribed with Angiotensin Receptor Blockers as antihypertensive drug; In that Losartan 61.11% was commonly prescribed and which is followed by Telmisartan 31.99%, Candesartan 7.29% and Olmesartan 2.43%.

The Diuretics prescribed preferably Thiazides are first-line agents for most patients with hypertension, especially in combination therapy. The result showed that Furosemide 46.66% was the most prescribed Diuretic, followed by Hydrochlorothiazide 21.48%, Spironolactone, 11.85%, Chlorthalidone 12.59%, last Triamterene 7.40%.

In combination therapy most commonly used was double therapy (43.20%) followed by triple therapy (15.80%), four-drug therapy (6.60%), and five drug therapy (2.80%) shown in the Table No. 6.

Table No. 6. Distribution of patients according to comorbidities drug therapy.

Combination therapy	Prescriptions	Percentage
Single Drug Therapy	158	31.60
Double Drug Therapy	216	43.20
Triple Drug Therapy	79	15.80
Four Drug Therapy	33	6.60
Five Drug Therapy	14	2.80

Hypertension is usually associated with co-morbidities such as heart diseases, diabetes, stroke, and kidney failure. In 500 patients about 342 patients 68.40% where with comorbidity. The Table showed that 52.80% of patients had Coronary artery disease (CAD), followed by diabetes 53.20%, Urinary tract infection 12.80%, hypothyroidism 12.20%, chronic kidney disease (CKD) 6.60%, Bronchiectasis 10.00%and Stroke 3.20%.

Table No. 7: Distribution of patients according to comorbidities.

Illness	Number	Percentage
Alcoholic liver disease	59	11.80
Bronchiectasis	50	10.00
Chronic obstructive pulmonary disease	39	7.80

Chronic renal failure	33	6.60
Coronary artery disease	264	52.80
Diabetes mellitus	266	53.20
Gastritis	103	20.60
Hypothyroid disease	61	12.20
Ischemic heart disease	81	16.20
Pneumonia	45	9.00
Stroke	16	3.20
Urinary tract infection	64	12.80
No co-morbidities	86	17.2

CONCLUSION

This education was conducted in the Tertiary care hospital., and a total of 500 patients were enrolled. The study duration was a period for more than six months. In the study, among the 500 patients, 273 (54.60%) patients were males and 227 (45.40%) patients were females. The enrolled patients were categorized based on blood pressure level in adults as per Joint National Committee Hypertension in Adults guideline.

In most cases, hypertension will lead to several other diseases including cardiovascular and renal diseases. In our study people most frequently observed comorbidity was CAD and Diabetes Mellitus. Majority were having stage 1 hypertension and 29.40% had family history of hypertension. Most of the patients were treated with combination therapy in that double drug therapy 43.20% was most common. Combination therapy was preferred as majority of patients were having comorbidities. On analysis of drug use pattern Beta blocker 347 patients was most prescribed class of antihypertensive and drug was Atenolol.

Most geriatric patients were on combination therapy so avoiding polypharmacy and promoting rational use of drug should be considered while prescribing. Fixed-dose combinations can be preferred for geriatric patients with proper monitoring.

In our study, for the treatment of hypertension Beta blocker then Calcium channel blocker were commonly prescribed medicines followed by Angiotensin receptor blocker. The most commonly used Beta blocker was Atenolol. In majority of times, generic medicines were prescribed, which are welcoming and prescribing by generic names.

Limitations of the study include single centered and limited time period for follow-up. If the study was conducted in larger sample size for long duration more significant results would have been obtained.

AUTHOR CONTRIBUTION

All authors contributed equally.

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