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Research Article

**A PROSPECTIVE OBSERVATIONAL STUDY ON
MANAGEMENT OF HYPERTENSION AND ITS
COMPLICATIONS AT A TERTIARY CARE TEACHING
HOSPITAL****¹Mahe Naaz Sultana, ²Syed Atef Qadri, ²Waqura Sameen, ²Uzma Nishat,
²Mohd. Abdul Khader**¹M.Pharm, Assistant Professor, MESCO College Of Pharmacy, Affiliated to Osmania University, Telangana, Hyderabad, India, 500006, Email Id: mahenaaz99@gmail.com, Contact

NO:7680810890

² Pharm D V Year, MESCO College Of Pharmacy, Affiliated to Osmania University, Telangana, Hyderabad, India, 500006**Abstract:**

Aims And Objectives: The study aims to study about hypertension its management and its associated complications at tertiary care teaching hospital To evaluate the reasons of non- adherence for anti-hypertensive drugs, To observe management of hypertension and its complications

Methodology: It is a prospective observational study which was conducted for 6 month at the general medicine department of the tertiary care Osmania General Hospital. The study covered all in patients hypertension and associated consequences, regardless of their sex or presence of co-morbid conditions and . Patients above the age of 18 were enrolled in this study. Pregnant or nursing women, patients who refused to participate in the trial, and patients under the age of 18 were excluded from the study.

Results: During the study period, a total 100 Patients were enrolled. Out of which 58% were males and common age group was ≥ 48 years. Up to 34% were alcoholic, 32% were smokers. Majority of the subjects developed co morbidities like Endocrinological disorders which is 30%. It was found that 74% have HTN for a duration of > 2 years, 66% were taking medication for HTN, 31% had no knowledge about their medications. Diuretics were the most commonly prescribed class . It was reported that 55% were adherent to HTN medication, 34% were not following low salt diet, non-adherence to physical activity was 46%, adherence to non-smoking was 61% and 53% of the patients were not adhered to alcohol abstinence.

Conclusion: HTN is high among old aged (> 48 yrs) diabetic males with High risk of cardiovascular disease and kidney disease with stage II hypertension, Defined as systolic blood pressure of ≥ 160 mmHg and diastolic blood pressure of ≥ 100 mmHg. Our study revealed that the majority of patients experienced HTN for $> two$ years. Diuretics were prescribed frequently, followed by other anti-hypertensives. Poor understanding of consequences with uncontrolled hypertension, non-adherence to medication and low salt diet , alcohol abstinence, , increased stress, decreased physical activity, and advanced age were the causes of uncontrolled BP. Early blood pressure monitoring by a clinical pharmacist can improve patient's quality of life . To prevent problems, ongoing patient counselling, health education, and information about patients' adherence and satisfaction in each follow-up are crucial.

KEYWORDS: Hypertension, Diabetes, Coronary artery disease, Diuretics, Clinical pharmacist

Corresponding author:**Mahe Naaz Sultana,***M.Pharm, Assistant Professor,**MESCO College Of Pharmacy, Affiliated to Osmania University,**Telangana, Hyderabad, India, 500006,**Email Id: mahenaaz99@gmail.com.**Contact NO: 7680810890*

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INTRODUCTION:**DEFINITION AND CLASSIFICATION**

A chronic medical illness which is called Hypertension (HTN), commonly referred to as high blood pressure, is characterized by a consistently high blood pressure in the arteries.[1]. But long-term high blood pressure is significant risk factor for dementia, Atrial fibrillation, peripheral vascular disease, vision loss chronic renal disease, and coronary artery disease.[2]. A person with high blood pressure is more likely to experience a heart attack or stroke. According to JNC [3] recommendations, the BP range (given in mmHg) for persons aged .A blood pressure reading of more than 140/90 requires monitoring, especially if diabetes is present

TABLE NO. 1: CLASSIFICATION OF BLOOD PRESSURE IN ADULTS BASED ON JNC GUIDELINES [7]

CLASSIFICATION	SYSTOLIC (mm Hg)	DIASTOLIC (mm Hg)
NORMAL	<120	<180
Prehypertension	120-139	80-89
Stage 1 hypertension	140-159	90-99
Stage 2 hypertension	>=160	>=100

- ESSENTIAL HYPERTENSION**

The majority of people Who have high blood pressure have essential hypertension. Essential hypertension may result from either monogenic or polygenic BP dysregulation. However, genetic mutations affecting urine kallikrein excretion, nitric oxide release, and the excretion of aldosterone, other adrenal steroids, and angiotensinogen are Essential hypertension may be influenced in a significant way by genetic factors. [4]

SECONDARY HYPERTENSION

Fewer than 10% of patients will suffer from secondary hypertension, where the cause of the elevated BP is either due to concomitant condition or a medicine. Most frequent secondary cause in

majority of these cases is renal failure brought on by severe chronic kidney disease (CKD) or reno vascular disease.[4]

- SIGNS AND SYMPTOMS:**

General: The patient may appear healthy or may have the presence of additional Cardiovascular risk factor Age (≥ 55 years for men, ≥ 65 years for women), diabetes mellitus, Albuminuria, dyslipidaemia, family history of premature cardiovascular disease, obesity, physical inactivity

COMPLICATION OF HYPERTENSION

The structural and functional changes that will cause left ventricular hypertrophy, diastolic dysfunction, CHF (congestive heart failure), irregularities in the blood flow brought by atherosclerotic coronary artery disease, micro vascular disease, and cardiac arrhythmias are causes of hypertensive heart disease

Complications affecting the Brain: A key risk factor for brain haemorrhage and infarction is hypertension. Strokes are primarily caused by infarction, accounting with rising blood pressure, especially systolic blood pressure in people over 65, the risk of stroke increases with time. The incidence of both ischemic and hemorrhagic strokes is significantly reduced by bleeding treatment.

Complications affecting the Kidneys: Chronic renal disease, end-stage kidney disease are both at risk due to the hypertension.

Complications associated to diabetes and Hypertension:

High blood pressure, one of the problems associated with the diabetes, is hypertension. According to data, between 60 and 80 percent of those who are affected with diabetes will also acquire high blood pressure. Early stages of the high blood pressure are slow, and it can take at least about 10 to 15 years for it to fully diagnose. Along with diabetes, other conditions including are obesity,

insulin resistance, high cholesterol can also worsen high blood pressure[3]

Complications affecting the Eye: persons with high blood pressure, variety of retinal vascular symptoms are indicative of hypertensive retinopathy

MATERIAL AND METHODS:

Prospective observational study was conducted in the department of General Medicine at Tertiary Care Teaching Hospital

LOCATION OF THE STUDY: The study was carried out at Department of General Medicine, Osmania General Hospital, a Tertiary Care Teaching Hospital.

SAMPLE SIZE: Expected sample size 100 patients

STUDY POPULATION: All the patients satisfied the inclusion criteria were selected from Inpatient departments.

STUDY PERIOD: The study was carried out for a period of Six (6) months

STUDY CRITERIA

INCLUSION CRITERIA:

- Patient 18 yrs. of age and above.
- Patients with either sex are included.
- Patient with diagnosed with hypertension and

its associated complications.

EXCLUSION CRITERIA

Pregnancy and lactating women

- Patients who are not willing to participate
- Patients with conditions such as poisoning cases, COVID19, AIDS were excluded from the study.

STUDY ANALYSIS: • Descriptive statistics will be done by measuring different proportions using SPSS Version 24.and Microsoft Excel 2019

RESULTS:

A total of 100 Patients were included during the duration of the trial. 58% of the population was male, and the average age was 48 years. Up to 34% and 32%, respectively, were drinkers and smokers. It was discovered that the majority of the participants had comorbidities, such as endocrinological illnesses, which account for 30% of them. It was discovered that 74% of people had HTN for more than two years, 66% were taking drugs for it, 31% were unaware of what the prescriptions were for, and 78% had complicated treatment plans. The therapy's most often administered class of medications was diuretics. 55 % were said to be adhering to their HTN medicine, 34% were not adhering to a low salt diet, % were not adhering to physical exercise, 61% were not adhering to not smoking, and % were not adhering to alcohol.

TABLE NO. 2: DISTRIBUTION BASED ON AGE

AGEGROUPS	NO.OF PATIENTS(100)	PERCENTAGE
18-27	3	3%
28-37	12	12%
38-47	17	17%
48-57	26	26%
58-67	25	25%
68-77	12	12%
78-87	5	5%

TABLE NO.3: DISTRIBUTION OF PATIENT POPULATION BASED ON GENDER

GENDER	TOTAL(100)	PERCENTAGE
Male	58	58%
Female	42	42%

TABLE NO.4: DISTRIBUTION OF SUBJECTS BASED ON ADDICTION

ADDICTION	NO.OF PATIENTS(100)	PERCENTAGE
ALCOHOL	14	14%
SMOKING	10	10%
TOBACCO	5	5%
ALCOHOL+SMOKING	16	16%
SMOKING+TOBACCO	6	6%
ALCOHOL+TOBACCO	4	4%
ALLOFTHEM	2	2%
NON-ADDICT	43	43%

TABLE NO.5: DISTRIBUTION BASED ON THE STAGES OF HYPERTENSION

STAGES	NO. OF PATIENTS	PERCENTAGE
PRE-HYPERTENSION	28	28%
STAGE I	30	30%
STAGE II	42	42%

TABLE NO.6: DISTRIBUTION OF SUBJECTS BASED ON COMORBIDITY

DISEASE	TOTAL(100)	PERCENTAGE
Endocrinology Disorders	20	20%
CV Disorders	22	22%
Renal Disorders	21	21%
Blood Disorders	15	15%
GIDisorders	8	8%
CNSDisorders	8	8%
OtherInfections	6	6%

TABLENO.7: DISTRIBUTION BASED ON PATTERN PRESCRIPTION IN HYPERTENSIVE PATIENTS

CLASS OF DRUGS	PRESCRIBED TO No .OF Patients
Diuretics	41
Calciumchannel blockers	23
ACE inhibitors	20
Others	13
AR blockers	3

TABLENO.8: DISTRIBUTION OF SUBJECTS BASED ON ANTIHYPERTENSIVE DRUGS PRESCRIBED

DRUGS	RESPONDENTS	PERCENTAGE
FUROSEMIDE	23	23%
AMLODIPINE	22	22%
ENALAPRIL	20	20%
MANNITOL	9	9%
ALDACTONE	9	9%
METOPROLOL	6	6%
TELMISARTAN	3	3%
ATENOLOL	3	3%
CLONIDINE	2	2%
CARVEDILOL	2	2%
NIFEDIPINE	1	1%

TABLENO.9: DISTRIBUTION BASED ON INFORMATION, MEDICATION AND CLINICAL CHARACTERISTICS OF RESPONDENTS

VARIABLE	RESPONSE	RESPONDENTS	PERCENTAGE
Duration with hypertension	<2years	26	26%
	>2years	74	74%
Taking medication for hypertension	YES	66	66%
	NO	34	34%
Knows about hypertension	YES	69	69%
	NO	31	31%
Presence of co morbidity	YES	100	100%
	NO	0	0
Treatment complexity	YES	78	78%
	NO	22	22%

TABLENO.10:PARTICIPANTS ADHERENCE STATUS ON SELF CARE BEHAVIOUR AMONG ADULT PATEINTS

VARIABLES	CATEGORY	RESPONDENTS	PERCENTAGE
Medication adherence	Adherence	55	55%
	Non-adherence	45	45%
Low salt diet	Yes	66	66%
	No	34	34%
Physical activity	Yes	54	54%
	No	46	46%
Non smoking adherence	Yes	61	61%
	No	39	39%
Alcohol Abstinence Adherence	Yes	47	47%
	No	53	53%

DISCUSSION:

According to our study, out of 100 patients, 3% were between the ages of 18 and 27; 12% were between the ages of 28 and 37; 17% were between the ages of 38 and 47; 26% were between the ages of 48 and 57; 25% were between the ages of 58 and 67; and 3% were between the ages of 78 and 87. 42% of the significant of hypertensive patients were under 48 years old with stage II hypertension. This is comparable to the study by Shikh Singh et al., (2017) [7]

Males are more likely to have HTN (hypertension) (58%) than females. When research on the gender distribution of patients based on systolic and diastolic blood pressure was undertaken it was discovered that 58% of patients were men with stage II hypertension with systolic and diastolic blood pressure readings of >100mmHg and >160mmHg, respectively. This is akin to Bethany Everett et al., (2015) [8]

In our study, we assessed that majority subjects had comorbidities like CVDs (cardio vascular disease) (22%), Renal disorders (21%), Endocrinological Disorders (20%), Blood disorders (15%), CNS Disorders like stroke (8%), GI disorders (8%) and others (6%). These results were similar to a report published to AHA by Benjamin E.J. et al., (2017) [6]

We found that overall risk satisfaction revealed that all diabetics with SBP (systolic blood pressure) ≥ 140 have a typical 10 years high risk of stroke or MI (myocardial infarction). This trend was similar to

study by Madhu et al., (2014) [1]

Moreover, half of the patients, or 55%, were reported to be taking their medicine for high blood pressure, 34% to eating less salt, and 46% to doing minimal exercise. 61 percent, or more than two thirds, of the population did not smoke. 53% of the patients were not abstaining from alcohol as required by their treatment plans. The adherence seen in the current study is lower than that which was reported in a study of a similar kind by Saman et al. and Mweene et al (2007) [5]

CONCLUSION:

Among elderly patients, the severity of HTN is high. Majority of the patients were found to be in the age 48 years and above, stage II patients with systolic BP as >160mmHg and diastolic BP as >100mmHg. Along with being mostly alcoholics, diabetic individuals had a significant frequency of macrovascular problems.

Many participants had co morbidities, with cardiovascular disease (CVD) being the most common, followed by renal diseases, Endocrinological disorders, blood disorders, CNS disorders like stroke, gastrointestinal disorders, and others. The total risk satisfaction resulted in a 10-year high risk of stroke or MI for all diabetics with SBP 140.

Many of the participants had their HTN identified for longer than two years and were taking medication, but some patients were not aware of the medications

prescribed. Most of the patients had co morbid diseases, extensive treatment requirements, and chronic illnesses. Most of the antihypertensive drugs were administered orally. Diuretics were the most often prescribed, followed by calcium channel blockers, ACE inhibitors, ARBs, and others.

Poor understanding of difficulties associated with hypertension, medication, non-compliance with alcohol abstinence and low salt diet, increased stress, decreased physical activity, and advanced age were the causes of the uncontrolled BP. Early intervention by clinical pharmacist can monitor blood pressure and risk factors for diabetes, prolonging the patient's quality of life and easing the financial burden of expensive medications. To prevent the issue, it is crucial to provide ongoing patient counselling, health education, and information about patient satisfaction and adherence at every follow-up.

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