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Prescription pattern of anti-hypertensive drugs among hypertensive patients at district hospital

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ABSTRACT

Background: To conduct a prospective observational study on prescribing pattern of anti-hypertensive drug in the department of general medicine in Government District hospital, Gulbarga. In this study it was aimed to evaluate the current practice of anti-hypertensive drug by comparing with JNC-8 guidelines in population. **Objectives:** The objective of our study is to determine the prescription pattern of antihypertensive drugs and adherence to JNC8 guidelines and to find out the most prescribed anti-hypertensive drugs. **Methods:** A Prospective Observational Study of 06 months was conducted. Undertaken 174 patients data collection form of all the patients of inpatient department of age 18 ≥ years of hypertensive with or without co-morbidities. **Result:** The results of this analysis suggests that out of the total 174 hypertensive patients included in the study, 92 patients were males while 82 patients were females, indicating the higher prevalence of hypertension in male population than in female population, that is 10% higher prevalence in males than in females. Out of the total study subjects, 169 hypertensive patients were found to have other co morbid conditions. Considering out of the total 174 patients, majority of the patients received monotherapy (129) while remaining patients receiving the Combinational therapy are 45. However in the case of overall utilization pattern of antihypertensive agents, CCBs are the most frequently prescribed class of drugs, followed by ARBs, BBs and finally ACEIs.

Keywords: ACEI, ARB, BB, CCB, DM, HTN.

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INTRODUCTION

Hypertension is the major health problem and the expenses of its treatment are high. In the united states, approximately 50 million people have been diagnosed with hypertension, and half of them are treated with anti-hypertensive medication. In the

early 1980's calcium antagonist and angiotensin converting enzyme inhibitors gained ground as the first line anti-hypertensive drugs. [1]

Antihypertensive pharmacotherapy effectively reduces hypertension-related morbidity and mortality. Appropriate pharmacotherapy for uncomplicated hypertension assumes paramount importance to public health because 70% of US hypertensive adults lack co-morbidities that compel the use of certain antihypertensive drug. [2]

Most patients with hypertension require two or more antihypertensive medications. Thiazide diuretics, β -blockers, angiotensin converting enzyme inhibitors (ACEIs), angiotensin receptor blockers and calcium channel blockers have all been shown to reduce complications of hypertension and may be used for initial drug therapy. In 2002, a clinical trial comparing different classes of antihypertensive medications for initial therapy found that chlorthalidone, a thiazide diuretic, was as effective as other agents in reducing coronary heart disease, death and non fatal myocardial infarction. The drug was superior to amlodipine in preventing heart failure and to lisinopril in preventing stroke. Selection of antihypertensive agents should therefore

be based primarily on the comparative ability to prevent these complications. [3]

More than 50% of treated hypertensive patients have a blood pressure level greater than 140/90 mm Hg (uncontrolled hypertension). Several factors including, among others, poor adherence to therapeutic regimen, ignorance, and poverty have been adduced for the high prevalence of uncontrolled hypertension. Recent reports have however focused on the role of health care provider to poor adherence to antihypertensive drugs. Consequently, compliance with standard guidelines aiding physicians in effective prescription of antihypertensive drugs have been emphasized. This study is aimed at determining the physician's prescription pattern of antihypertensive medications in a tertiary health institution in north western Nigeria. Physician's compliance with the existing guidelines is described. [4]

The Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT) is the largest randomized trial ever conducted to compare antihypertensive medications. Sponsored by the US National, Heart, Lung, and Blood Institute in conjunction with the US Department of Veteran's Affairs, ALLHAT was designed to compare the efficacy of 4 types of antihypertensive medications – chlorthalidone (a thiazide-type diuretic), amlodipine (a calcium channel blocker [CCB]), lisinopril (an angiotensin-converting enzyme [ACE] inhibitor) and doxazosin (an α -adrenergic blocker) – for reduction of risk of coronary heart disease (CHD) or other cardiovascular events. [5]

The seventh report of the joint national committee on the detection evaluation and treatment of high blood pressure (JNC 7) is the most prominent evidence based clinical guideline for the management of the hypertension. [6]

JNC 8 Guidelines [7]:

Hypertension is one of the most important preventable contributors to disease and death in the United States, leading to myocardial infarction, stroke, and renal failure when it is not detected early and treated appropriately. The Eighth Joint National Committee (JNC 8) recently released evidence-based recommendations on treatment thresholds, goals, and medications in the management of hypertension in adults. In the general population of adults 60 years and older, pharmacologic treatment should be initiated when the systolic pressure is 150 mm Hg or higher, or when the diastolic pressure is 90 mm Hg or higher. Patients should be treated to a target systolic pressure of less than 150 mm Hg and a target diastolic pressure of less than 90 mm Hg. Treatment does not need to be adjusted if it results in a systolic pressure lower than 140 mm Hg, as long as it is not associated with adverse effects on health or quality of

life. In the general population younger than 60 years, pharmacologic treatment should be initiated when the systolic pressure is 140 mm Hg or higher, or when the diastolic pressure is 90 mm Hg or higher. The target systolic pressure in this population is less than 140 mm Hg, and the target diastolic pressure is less than 90 mm Hg.

Aim & objective: To determine the prescribing pattern of anti-hypertensive drugs in the department of general medicine & to find out the most prescribed anti-hypertensive drugs.

METHODOLOGY

A prospective observational study involving 174 patients carried out at Department of GENERAL MEDICINE, Gulbarga dist hospital, for the period of 6 Months (October 2016 to March 2017) Patients The data is collected from all the patients of either sex with primary and secondary hypertension in medicine inpatient department and who are willing to participate in the study, & not from the Patient below the age of 18 years, pregnant women and patients who are not willing to participate in the study. Patient data relevant to the study will be obtained from Case-sheets, medication chart & laboratory reports.

RESULT

In our study Involving 174 patients in total, 92 patients are male and 82 patients are female (Table 1)

Table 1: Demographic profile of patients

Sl.no	Gender	Number
1	Males	92
2	Females	82

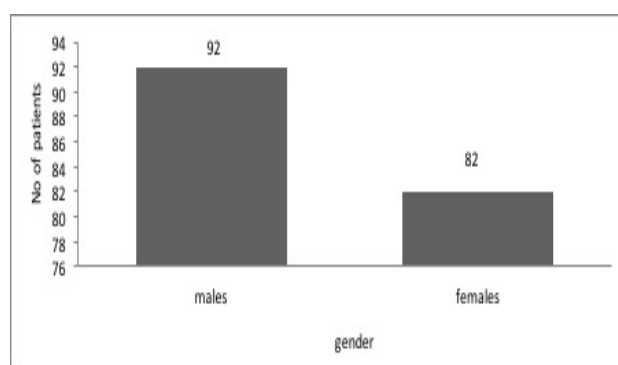


Figure 1: Demographic profile of patients

Table 2: Age in years collected

Sl.no	Age in years	No. of patients
1	40-50 YEARS	13
2	50-60 YEARS	65
3	60-70 YEARS	70
4	70-80 YEARS	21
5	80-90 YEARS	05

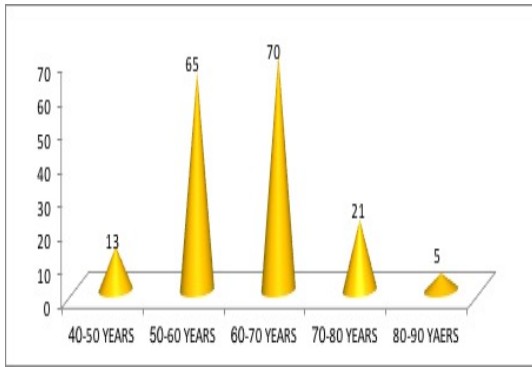


Figure 2: age in years collected

Table 3: Social history factor in males

Sl.no	1
No of patients	92
Smoker	11
Alcoholic	09
Smoker & alcoholic	53
Non smoker & alcoholic	19

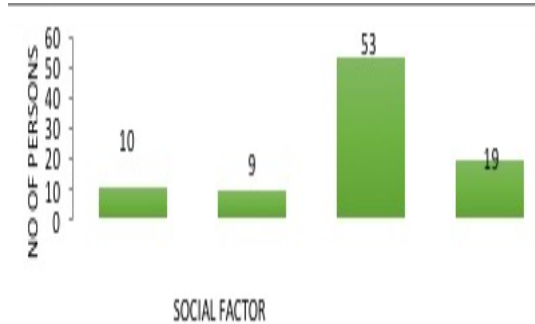


Figure 3: social history in males

Table 4: Monotherapy used in hypertensive patients

Sl.no	Drugs prescribed	No of patients
1	Amlodipine	81
2	Atenolol	11
3	Telmisartan	17
4	Ramipril	11
5	Losartan	03
6	Nicradipine	01
7	Enalapril	01
8	Nefidipine	04

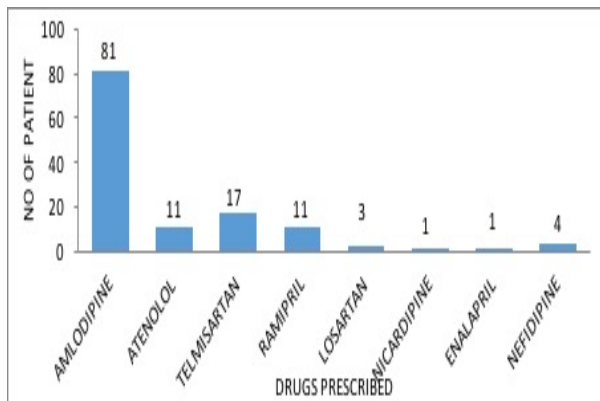


Figure 4: Monotherapy used in hypertensive patients

Table 5: Combinational therapy used in hypertensive patients

Sl.no	Drugs prescribed	No of patients
1	Nefidipin + Amlodipine	06
2	Amlodipine + Telmisartan	14
3	Amlodipine + Atenolol	10
4	Amlodipine + Nitroglycerine	05
5	Amlodipine + Ramipril	01
6	Amlodipine + Losartan	01
7	Atenolol + Nitroglycerine	01
8	Losartan + Telmisartan	01
9	Telmisartan + Nitroglycerine	01

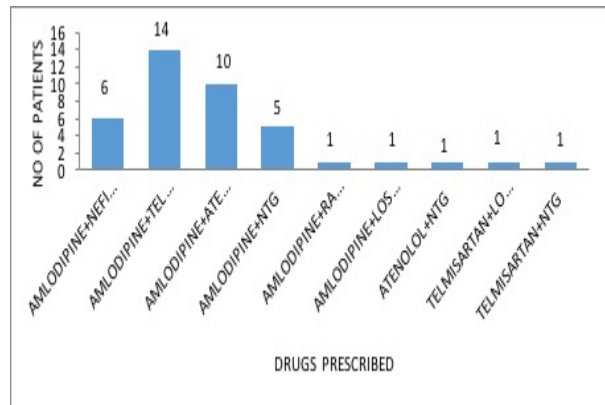


Figure 5: combinational therapy used in hypertensive patients

Table 6: Combinational therapy prescribed for hypertensive patients

Slno	Drugs Prescribed	No Of Patients
1	Amlodipine + Atenolol+ Telmisartan + Nitroglycerine	01
2	Losratan + Amlodipine + Nitroglycerin	01
3	Telma + Nitroglycerin + Amlodipine	01
4	Nitroglycerine + Nefidipin + Amlodipine	01

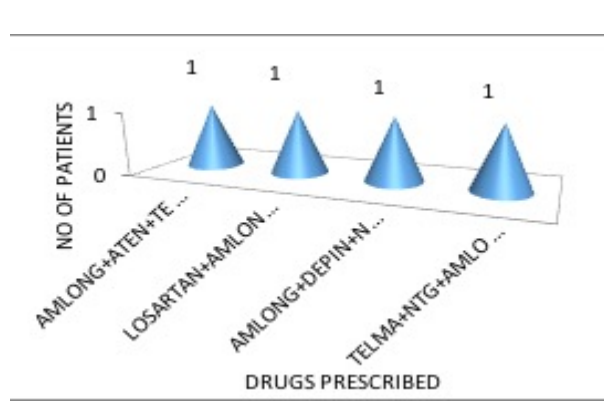


Figure 6: combinational therapy used in hypertensive patients

Table 7: Hypertension with other comorbid diseases

Sl.no	HTN with other comorbid diseases	No of patients
1	DM ,HTN & CVA	02
2	CVA , HTN	10
3	HTN ,DM & LVF	03
4	AGN ,ASTHMA ,HTN	01
5	BRONCHIAL ASTHMA, HTN	12
6	CVA &ASPIRATION PNEUMONIA & HTN	01
7	ACCELERATED HTN	11
8	HTN WITH ACUTE GE	01
9	ACCELERATED HTN & CCF	02
10	HTN WITH ANEMIA	07
11	DM WITH HTN	20
12	ACUTE GE & HTN & DM & MILD DEHYDRATION	01
13	COPD WITH HTN	06
14	ACUTE BRONCHITIS, HYPOTHYROIDISM&HTN	02

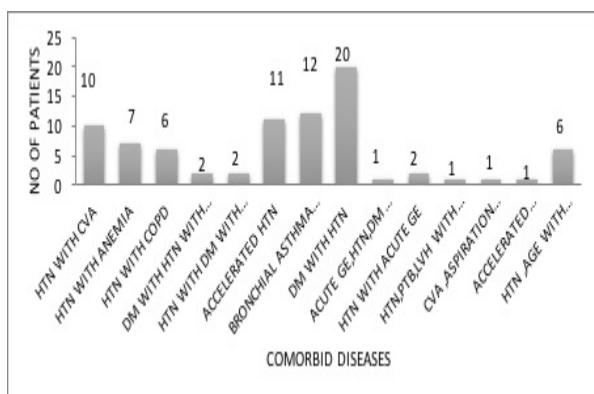


Figure 7: HTN with other comorbid diseases

Table 8: HTN with other comorbid diseases

Sl.no	HTN with other comorbid diseases	No of patients
1	HTN, LRTI	02
2	HTN, CKD, ANEMIA	03
3	HTN, DM, CKD	01
4	HTN, COPD, CORPULMONALE	04
5	HTN, COPD, CORPULMONALE, PTB	03
6	HTN,COPD, HEMOPTYSIS	04
7	ACCELERATED HTN, ANEMIA	02
8	HTN, ANEMIA, PNEUMONIA	02
9	HTN, CVA, DM, ANGINA	03
10	HTN, CVA, HEMIPARESIS,LRTI	01
11	HTN, CVA, ASTMA	01
12	HTN, CVA, SEIZURE DISORDER	03
13	HTN, SEIZURE DISORDER	01

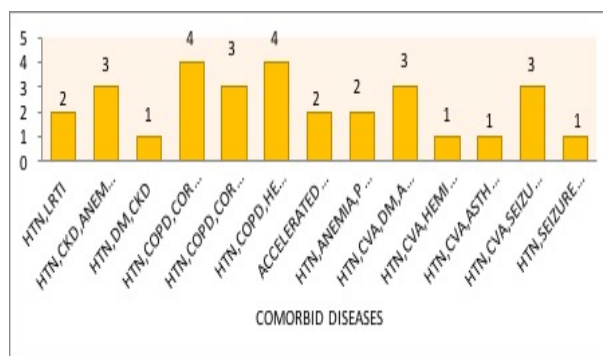


Figure 8: HTN with other comorbid diseases

DISCUSSION

The results of this analysis suggests that out of the total 174 hypertensive patients included in the study, 92 patients were males while 82 patients were females, indicating the higher prevalence of hypertension in male population than in female population, that is 10% higher prevalence in males than in females. The highest number of hypertensive patients 70 belonged to the age group of 60-70 years and then belonged to the age group of 50-60 years 65 patients, 70-80 age group 21 patients then 13 patients were belonging to the age group of 40-50 years, then 5 members were belonging to the age group of 80-90 years. Out of the total study subjects 174, 11 hypertensive patients were not found to have other co morbid conditions, Remaining 163 Patients were found to be comorbid like DM (20), Bronchial asthma(12), CVA(10), Anemia (7), COPD (6), corpulmonale (4) etc. Considering out of the total 174 patients, majority of patients received monotherapy (129) while combinational therapy were received by the patients(45). Among the monotherapy category the various hypertensive classes prescribed were ranked as follows CCB's (81) followed by ARB's like telmisartan (17) and ACE inhibitors like Ramipril (11) etc. As a monotherapy Amlodipine (15%) was the most frequently prescribed drug as monotherapy along with telmisartan and losartan and ramipril. In the overall utilization pattern of antihypertensive agents, CCB's and Diuretics ARBS were the most frequently prescribed class of drugs, followed by ACEI's, and finally BB blockers.

CONCLUSION

Hypertension is more seen in male patients compared to female patients. Most of the patients were in the age group of 60-70 years and above constituting 96.7% of total patients. Prescription Pattern Varies with age, gender and other complications associated with hypertension. Physician need to maintain a vital therapy for the successful treatment of hypertensive patients. A Pharmacist job is to monitor all the interventions like physician analysis, Drug interactions etc. Prescription pattern of the present study concluded amlodipine was the most commonly

prescribed anti-hypertensive drug in the monotherapy followed by Telmisartan. Most of the combinational therapy prescribed in hypertensive patients were amlodipine + telmisartan. Anti-Anginal drug like Nitroglycerine are also used for complicated hypertension. Drug used in hypertensive patients such as CCBs like amlodipine, Nifedipine, Nicardipine & ARBs like Telmisartan. Losartan & β Adrenergic blockers like Atenolol & ACE inhibitors like Ramipril were the most common drugs used for uncomplicated patients. Therapeutic Regimen depends on age, young hypertensive were compared with older age groups were substantially were less aggressively treated mostly with monotherapy. Treatment was increased when concomitant comorbid disease were present.

Finally the overall findings of the study show that there is a further improvement in the prescription pattern of anti-hypertensives.

CONFLICTS OF INTEREST: None

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