



A Prospective Observational Study On Antihypertensive Agents In A Tertiary Care Corporate Hospital

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ABSTRACT

Background: Hypertension represents the major health problem primarily because of its role in contributing to the initiation and progression of major cardiovascular diseases. The aim of the present study was to determine the existing practice of prescribing pattern of Anti Hypertensive medication in tertiary care hospital in prospective of standard treatment of guidelines.

Methods and materials: A hospital based prospective observational study on Anti Hypertensive agent prescriptions was carried out among patients who were above 20 years of age and Inpatients in the tertiary care corporate hospital. The total of 270 prescriptions of patients suffering from hypertension were included. The collected data were sorted and analyzed on the basis of demographic characteristics and co-morbidities.

Results: It was a prospective observational study in which 270 patients were selected. The most commonly prescribed Antihypertensive drugs in our study was telmisartan and least prescribed was spironolactone, diltiazem and indapamide. The drugs were prescribed as mono therapy, dual therapy, triple therapy and poly therapy. Mono therapy of about (51%) was most frequently prescribed and Poly therapy was least prescribed of about (7%).

Conclusion: The study revealed that the prevalence of hypertension was predominantly more in male patients than in female patients. Present study represents the current prescribing trend of antihypertensive agents. Angiotensin receptor blockers were the most frequently prescribed class of drug in monotherapy.

Index Terms: ACE inhibitors, Beta blockers, Calcium channel blockers, Diuretics, Hypertension.

I.INTRODUCTION

Hypertension is currently the leading risk resulting in considerable death and disability worldwide and accounted for 9.4 million deaths and 7% of disability adjusted life years in 2010. In India, the situation is more alarming as hypertension attributes for nearly 10% of all deaths. Prevalence of hypertension in India is reported to vary from 4-15% in urban and 2-8% in rural population. It is estimated that the world wide prevalence of hypertension would increase from 26.4% in 2000 to 29.2% in 2025. Epidemiological studies also demonstrate that prevalence of hypertension is increasing rapidly among Indian urban and rural population. Hypertension is an established risk factor for cardiovascular diseases such as myocardial infarction, arrhythmias, angina pectoris, cardiac failure and for renal complications with shortened expectancy of life. In this context, the use of established antihypertensive assumes paramount importance. Accordingly, the general principles of antihypertensive therapy conforming to the guidelines of JNC VIII, WHO &ISH and ACC/AHA are considered [JNC VIII – On Prevention, Detection, Evaluation and Treatment of High Blood Pressure; WHO & ISH; ACC/AHA]. The guidelines of hypertension such as Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure in 2003 (JNC 7) and the currently released, Eighth Joint National Committee (JNC8) report on Evidence Based Guideline for the management of high blood Pressure in adults are recognized as gold standards for hypertension management (James et al., 2014). The aim of this study is to observe the pattern of utilization of Antihypertensive in a tertiary care corporate hospital and relate the findings to current standard treatment guidelines

II.SUBJECT AND METHODS

The study was a hospital based prospective observational study which was conducted in all departments (Cardiology, Gastroenterology, Neurology, General medicine, Pulmonology, Orthopedics, Nephrology, Urology and Endocrinology) especially focusing to the cardiology department cases, Sunshine hospitals, Paradise, Hyderabad during the period of 6 months from November 2018 to April 2019.

STUDY DESIGN:

The present study includes prescriptive patterns of Anti Hypertensive Drugs which was approved by Institutional Review Board (IRB). At study center, Patient details were collected according to patient profile form which includes details like: Patient demographic details, Past Medical history, Past Medication history, Social history, BMI, Lab investigations, Drug therapy (Name of the drug, Route, Frequency, category of antihypertensive medication). The study includes only in patients and age greater than 18 years were included and who are willing to participate only are enrolled in the study. Those who are below 18 years of age, not willing to participate, pregnancy, lactating women, psychiatric patients are excluded from the study.

III.METHODOLOGY

STATISTICAL ANALYSIS:

The data obtained throughout the study were analyzed by unpaired t test wherever applicable and also data was analyzed by using mean, standard deviation, percentage in the study.

IV.RESULTS

TABLE 1: GENDER WISE DISTRIBUTION

GENDER	NO. OF PATIENTS	*n(%)
MALES	180	67
FEMALES	90	33
Total	270	100

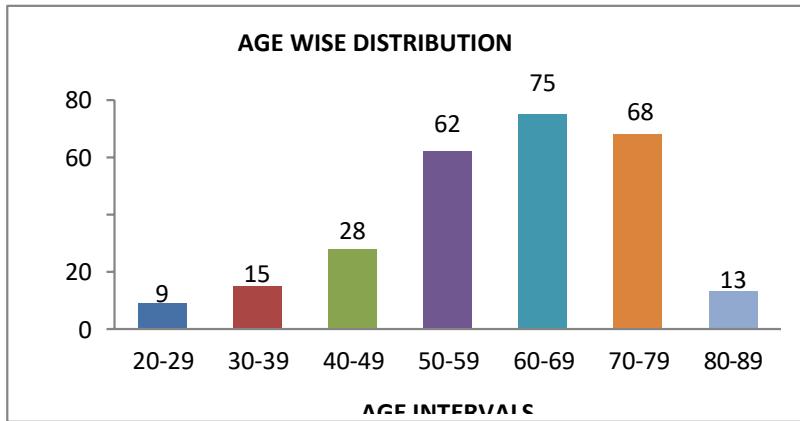
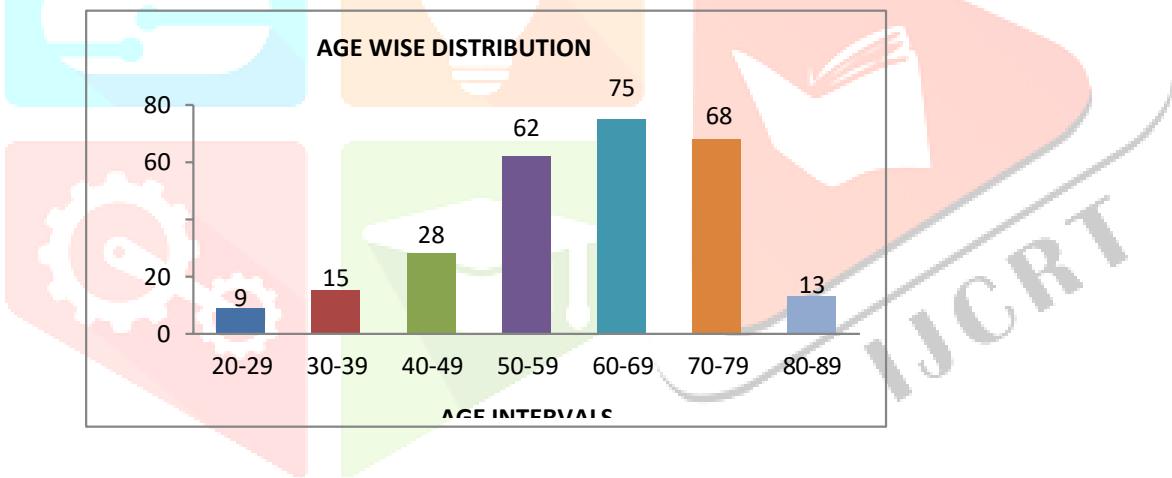
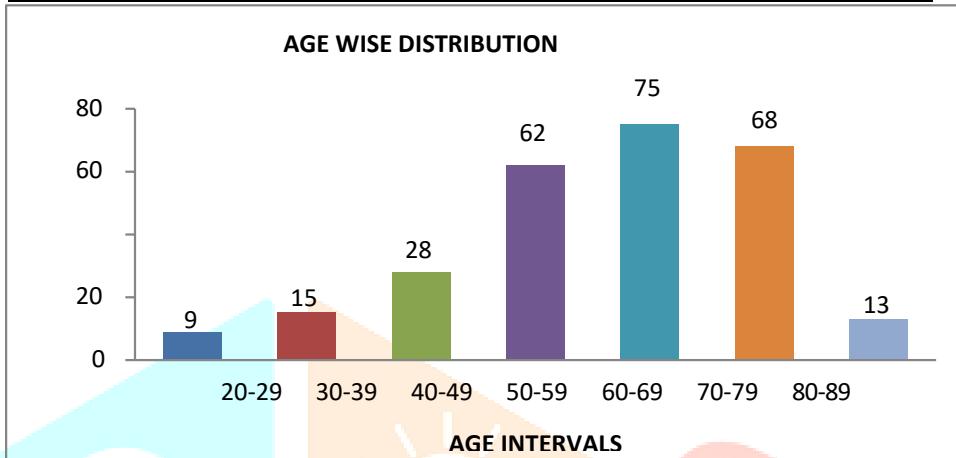


TABLE 2: RISK FACTORS OF HYPERTENSION

RISK FACTORS	MALES	*n(%)	FEMALES	*n(%)	T VALUE	*P VALUE
OBESITY	22	9.1	9	9.8		
DM	90	37.3	44	48		
CAD	44	18.3	20	22		
CKD	7	3	13	14	3.4449	0.013
CVA	16	6.6	2	2		
ALCOHOLIC	30	12.4	1	1		
SMOKER	32	13.3	3	3.2		
TOTAL	241	100	92	100	333	
MEAN	34.42		13.14		(%)* Percentage from 333 patients, ** T test	
STD. DEV	27.23		15.22			

THERAPY WISE DISTRIBUTION

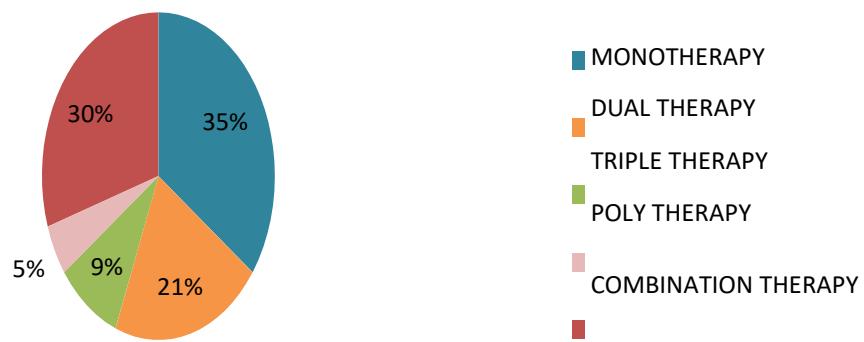


FIGURE 2

MONO THERAPY DRUG DISTRIBUTION

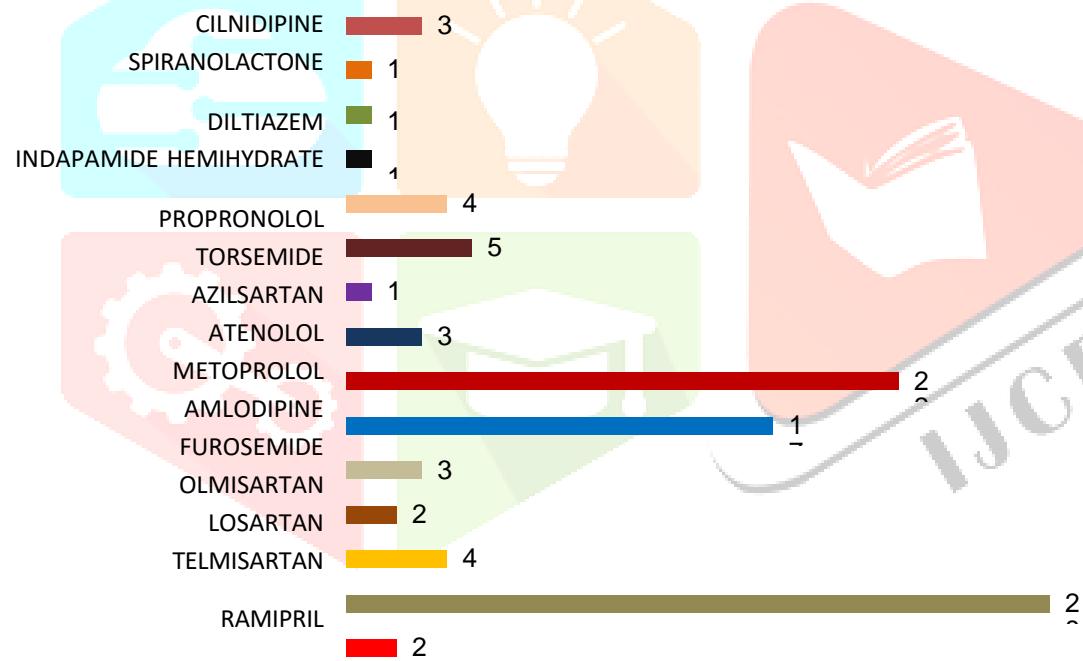


FIGURE 3

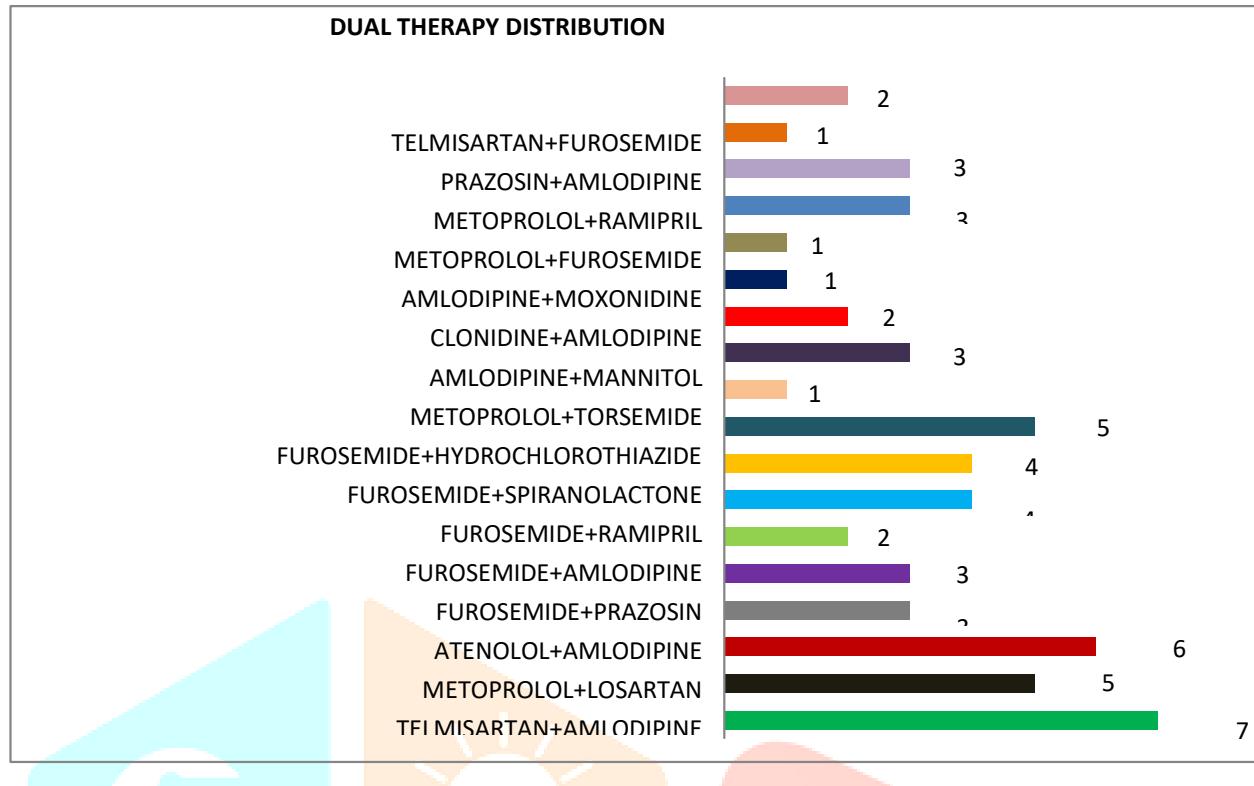
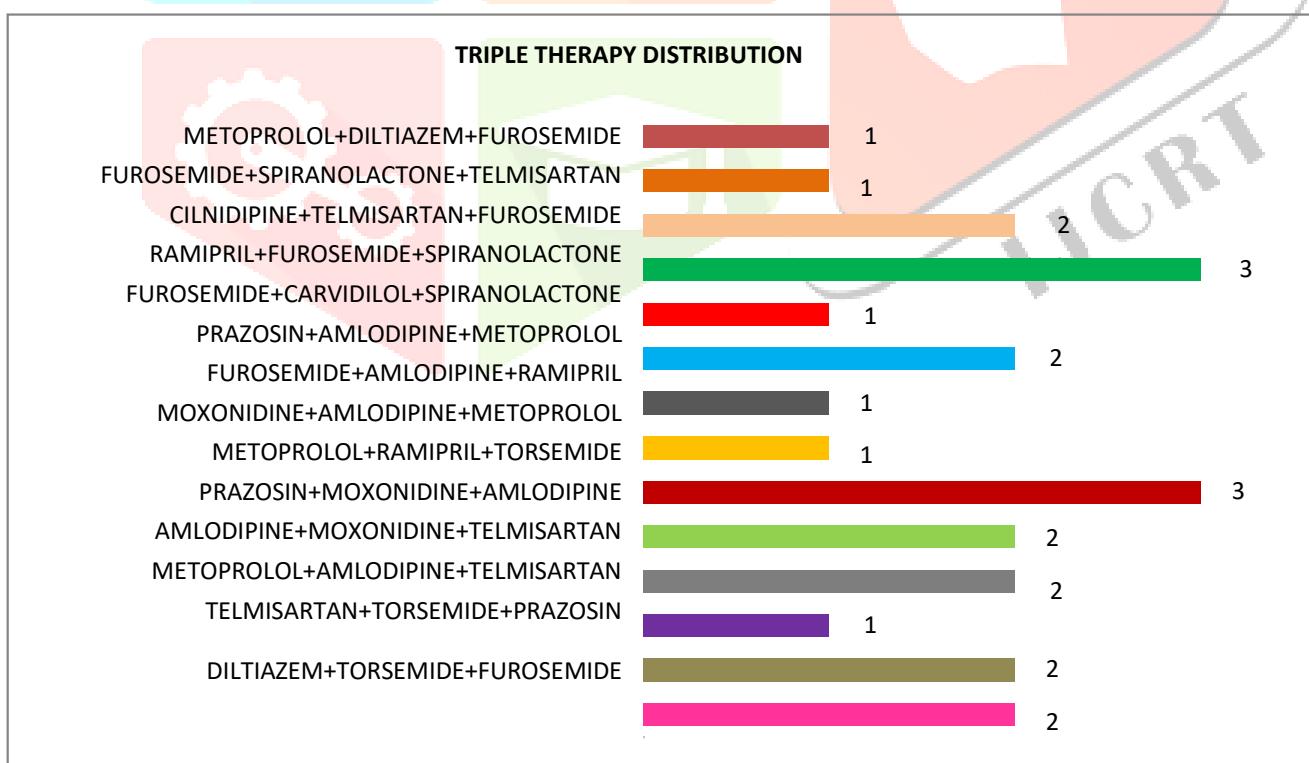
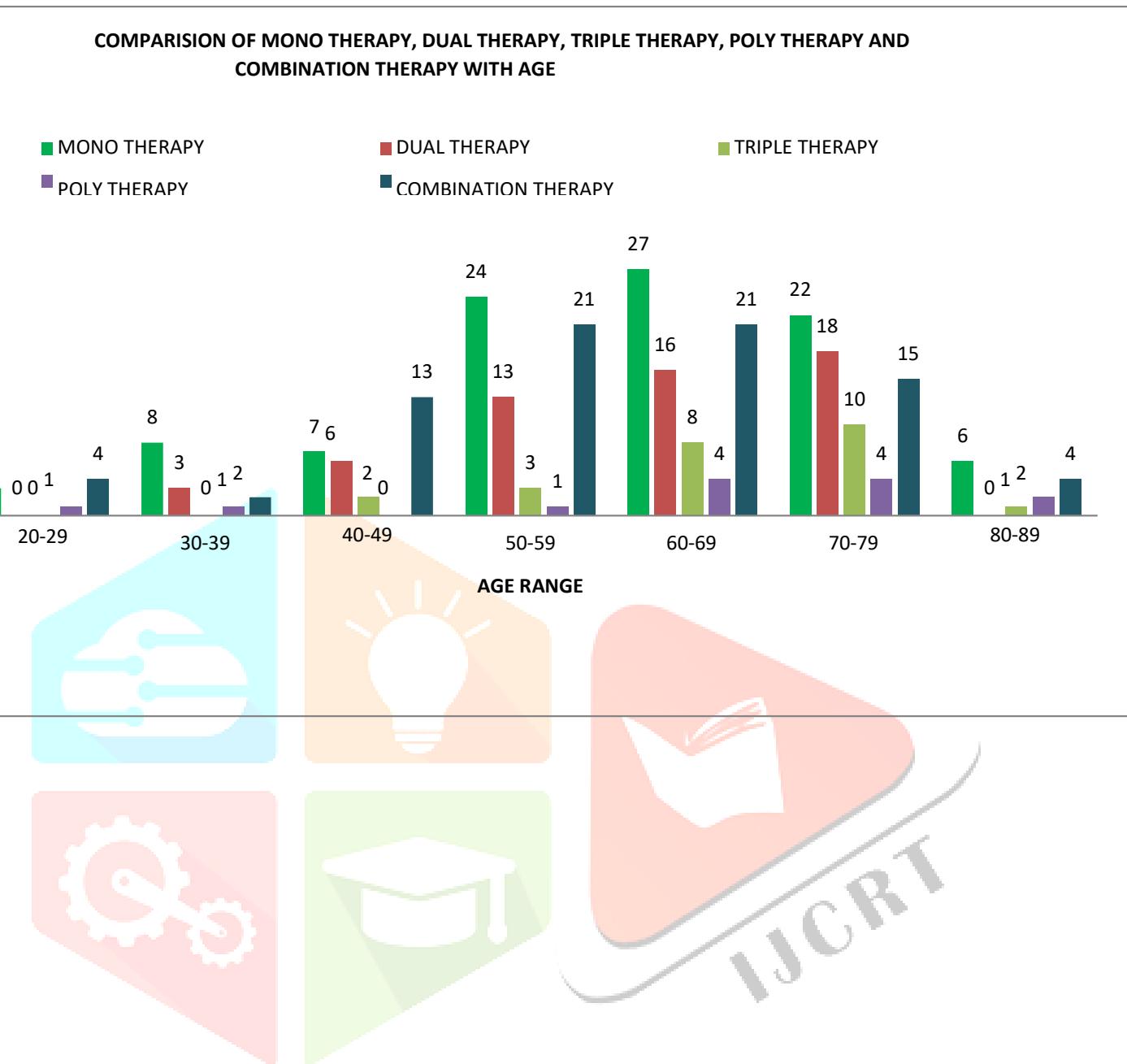
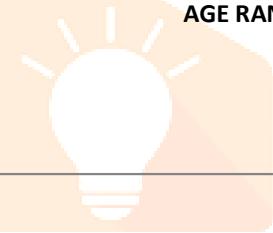
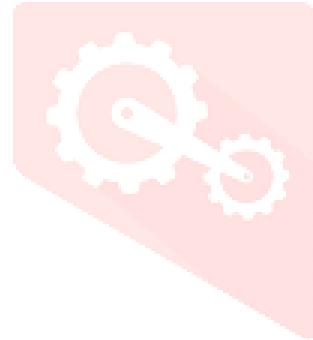
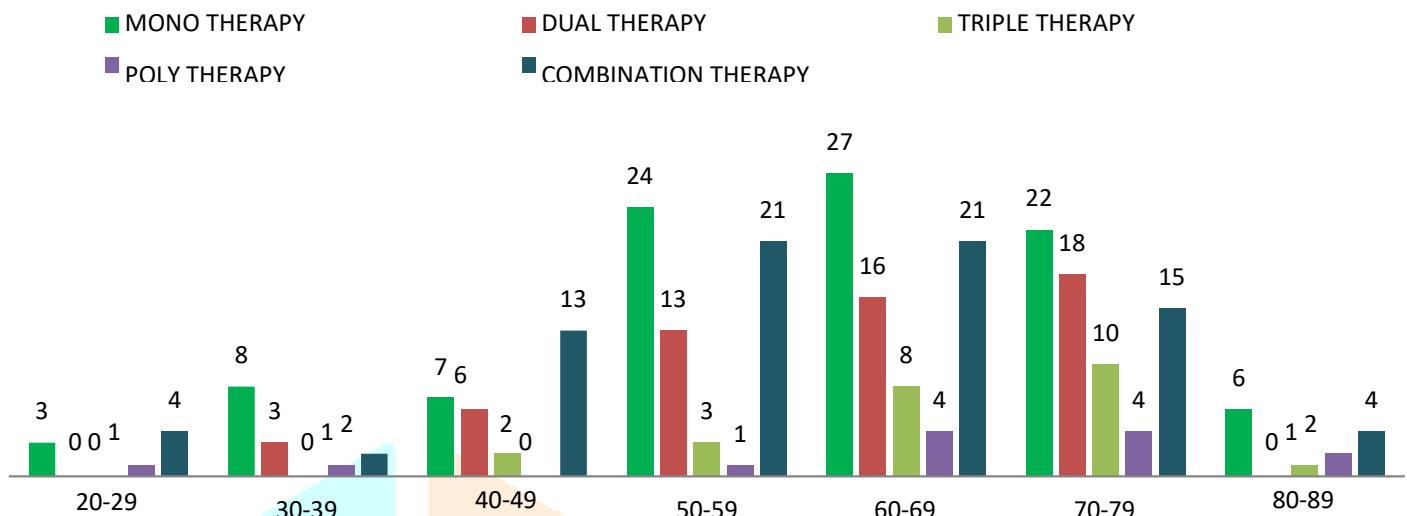
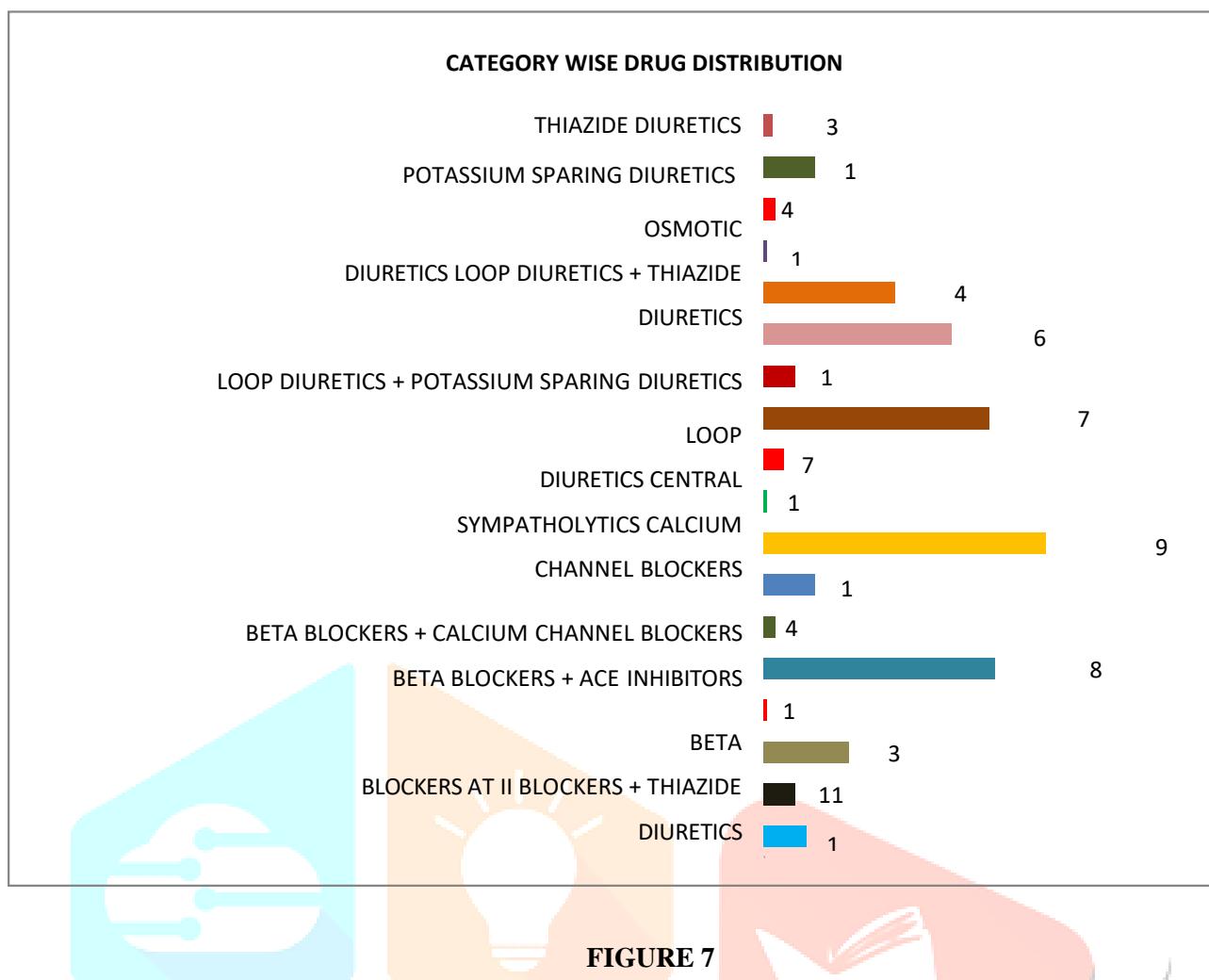
**FIGURE 4****FIGURE 5**

TABLE 3: COMBINATION THERAPY

COMBINATION THERAPY	NO.OF Pts	*n%
TORSEMIDE+SPIRANOLACTONE	41	50
TELMISARTAN+HYDROCHLOROTHIAZIDE	13	16
FUROSEMIDE+SPIRONOLACTONE	6	8
AMLODIPINE+ATENOLOL	5	6
AMLODIPINE+TELMISARTAN	3	4
TELMISARTAN+CHLORTHALIDONE	3	4
AMLODIPINE+METOPROLOL	2	3
SACUBITRIL+VALSARTAN	2	3
LOSARTAN+HYDROCHLOROTHIAZIDE	2	3
LOSARTAN+METALAZONE	1	1
METOPROLOL+RAMIPRIL	1	1
TELMISARTAN+HYDROCHLOROTHIAZIDE+AMLODIPINE	1	1
TOTAL	80	100
MEAN	11.42	
STD. DEV	8.141	

(%)* Percentage from 80 patients.

COMPARISON OF MONO THERAPY, DUAL THERAPY, TRIPLE THERAPY, POLY THERAPY AND COMBINATION THERAPY WITH AGE

**FIGURE 7**

V.DISCUSSION

A total of 270 prescriptions of hypertensive patients with anti hypertensive drugs have been analysed for study by gender wise distribution (table 1), it was revealed that male predominance over female patients. out of 270 patients, the numbers of male patients were 180 (67%) and female patients were 90 (33%). the age wise distribution(figure-1) of the study population revealed maximum number of patients were between 60-69 and the least number of patients were in the age group of 20-29. by assessing the risk factors (table 2) of hypertension, it was revealed that dm was the most common risk factor of hypertension. therapy wise distribution (figure2) mono therapy (35%) was most commonly prescribed type of therapy and least was poly therapy (5%). among mono therapy (figure-3), telmisartan was the most frequently prescribed. in the dual therapy(figure-4), the highest combination was metoprolol and amlodipine (12.5%). among the triple therapy, the most commonly prescribed combinations were metoprolol with ramipril and torsemide (12.5%). the most commonly prescribed poly therapy (figure-6), was amlodipine with carvidilol, furosemide, telmisartan and spiranolactone of about 23%. The most commonly prescribed combination therapy was torsemide and spironolactone (50%). Among all the therapies, Mono therapy was most frequently prescribed in patients between the age group 60-69 years and less commonly prescribed in the age group 20-29 years whereas the highest and lowest age groups of Dual therapy(70-79 and 30-39 years), Triple therapy (70-79 and 80-89 years). Poly therapy(60-69 and 70-79 years).Combination therapy (20-29, 30-39 and 50-59 years). On comparision between mono therapy and poly therapy with age the t test value was found to be 3.129 and p value was found to be 0.0087 with level of significance of 0.05 which shows significant difference with age and while comparision between poly therapy and combination therapy with age the **t test** value was found to be **3.053** and **p value** was found to be **0.01** with a level of significance of 0.05 which shows significant difference with age. Beta blockers were the most commonly prescribed category.

VI.CONCLUSION:

The study revealed that the prevalence of hypertension was predominantly more in male patients than in female patients. In this study it was observed that the physicians had preferred monotherapy more oftenly than the combinations and the most frequently prescribed agent among monotherapy was angiotensin receptor blocker class of antihypertensive. The study revealed that the physician were treated by the patients population with telmisartan, metoprolol, amlodipine as mono therapy. The most commonly prescribed combination was found to be torsemide with spiranolactone. Present study represents the current prescribing trend of antihypertensive agents. Maximum number of patients underwent mono therapy followed by combination therapy (torsemide+spiranolactone), dual therapy (metoprolol+amlodipine), triple therapy (ramipril with furosemide and spiranolactone, ramipril with torsemide and metoprolol), poly therapy (amlodipine with carvidilol, furosemide, telmisartan, spiranolactone). Thiazide diuretics were very less frequently prescribed which is not in accordance with JNC VII and JNC VIII guidelines. In our study it was concluded that maximum number of patients suffered from hypertension was between 60-69 years of age group. In this study it was observed that DM was the most common risk factor for hypertension. In order to promote the rational prescribing drugs and hospital formularies in special committees are useful in reducing the misuse of drugs especially in poly-pharmacy and in the treatment of hypertension. The study points out a need for improved patient education on adherence to therapy. Counselling and educating the patient on importance of diet and exercise in the management of hypertension are of vital importance.

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