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PRESCRIPTION PATTERN ANALYSIS ON HYPERTENSIVE PATIENTS IN A TERTIARY CARE HOSPITAL, WAYANAD: A PILOT STUDY

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ABSTRACT

The present study aims to analyse drug prescription pattern analysis in a tertiary care hospital. **Materials and Methods:** A prospective and observational study was conducted in an outpatient department (OPD) of a tertiary care hospital, Wayanad. The data include patient's demographic details, classification of antihypertensive drug were included and patients suffering from the acute MI, cerebrovascular events, pregnant women were excluded from the study. **Result:** The study analysis shown, the male patients (53.8%) were having more prone to the hypertension than the female patients (46.2%). The increased BP patients were observed in the age group ranges of 60-69 years. The patients were prescribed more with monotherapy than with the fixed dose combinations. **Conclusion:** The most prescribed drug for hypertension is angiotensin receptor blocker (61.5%) followed by calcium channel blockers. The monotherapy is mostly commonly preferred over the multitherapy. Risk factors that have been associated with the hypertension are obesity, smoking, alcohol consumption, high intake of salt and fat. Initial drug therapy for hypertension include ACE inhibitors, ARB inhibitors, diuretics and calcium channel blockers.

Key Words: Antihypertensive drugs, prescription-pattern, co-morbidities with CHF, IHD and DM.

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INTRODUCTION

Prescribing drugs is an important skill which needs to be continuously assessed and refined accordingly. It not only reflects the physician's knowledge of pharmacology and pathophysiology but also his or her skill in diagnosis and attitude towards selecting the most appropriate cost effective treatment. Many factors are known to adversely affect prescribing behaviour such as unethical drug promotion, direct

an extremely complex interplay of multiple influences within and outside the human body. Hypertension can leads to cardiovascular, renal and cerebrovascular diseases^[1]. The middle age people of 40-69 age group are prone towards the cardiovascular diseases. The raised blood pressure give rise stroke and heart attack. The hypertension analysis is abrupt and often painless method. It is measured with sphygmomanometer^[2].

According to WHO health status 2018, around 63% of Indian population are being affected by the non-communicable diseases, in which 27% of people are suffering from the cardiovascular complications.

Antihypertensive drugs are those compounds which prevents, controls and regulates the blood pressure^[3]. The hypertensive associated risk factors observed are obesity, alcohol consumptions, smoking, high consumption of the salt and fibre and even other drugs^[4].

MATERIALS AND METHODS:

This study is a prospective and observational study, conducted during December 2021 to January 2022. The pilot study include the collection and analysis of prescriptions from an outpatient department of a tertiary care hospital, DM WIMS Medical College, Wayanad. Prescriptions of both sex and all age groups were analysed in this study.

The patient information include the age, sex, history of patient, commonly used drugs (monotherapy, multitherapy, fixed dose combination), hypertension co-morbidities with DM, IHD, CHF and classification of drugs based on the condition of the patient^[5].

The patients included in the study were having primary hypertension, hypertension along with the DM, CHF, IHD and the patients excluded were the pregnant women, cerebrovascular accidents, myocardial infraction.

RESULT & DISCUSSION

The hypertensive prescriptions were taken into the study. The hypertension were observed commonly in age group of 60- 69 year (30.8%) and is frequently high in male population around 53.8%. 61.5% of patients were taking antihypertensive drugs alone during their course of therapy.

1. Age Distribution of Study Patients

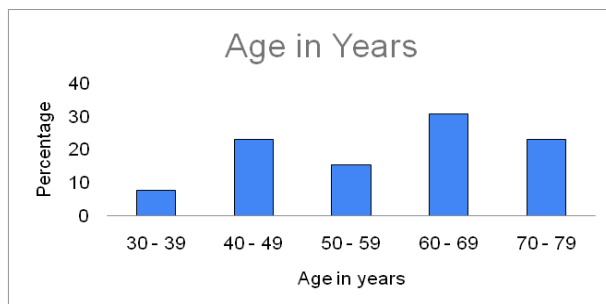
Out of study patients in the table 1.1 and fig 1.1, the maximum number of the hypertensive patients inclined in the age group of 60-69 years (30.8%), followed by 40-49 years and 70-79 years of age (23.1%). Minimum number of hypertensive patients were observed in the age group of 50-59 years (15.4%) and 30-39 years of age (7.7%). The mean of age in years observed was 57.62 ± 14.37 .

Table 1:

	N	mean \pm sd	Range	Median	IQR
Age in years	13	57.62 \pm 14.37	33 - 79	62	46 - 68.5

Table 1. 1: Age Distribution of Study Patients

Age in years	Frequency	Percent
30 - 39	1	7.7
40 - 49	3	23.1
50 - 59	2	15.4
60 - 69	4	30.8
70 - 79	3	23.1
Total	13	100

**Fig 1.1: Age Distribution of Study Patients.**

Hypertensive patients were maximum observed in the age group of 60-69 years of age and minimum in the age group of 30-39 years.

2. Sex Distribution of Study Patients

Among the study, fig 2 shows the male patients were predisposed to have hypertension (53.8%) than the female patients (46.2%).

Table 2: Sex Distribution of Study Patients

Gender	Frequency	Percent
Female	6	46.2
Male	7	53.8
Total	13	100

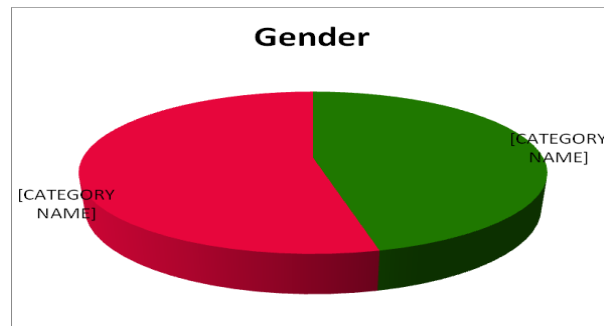


Fig 2: Sex Distribution of Study Patients.

The maximum number of hypertensive patients were observed in the male (53.8%) and female (46.2%)

3. Number of Total Drugs per Prescription

Table 3: Number of Total Drugs per Prescription

No .of total drugs per prescription	Frequency	Percent
1	5	38.5
3	4	30.8
5	1	7.7
6	1	7.7
7	2	15.4
Total	13	100

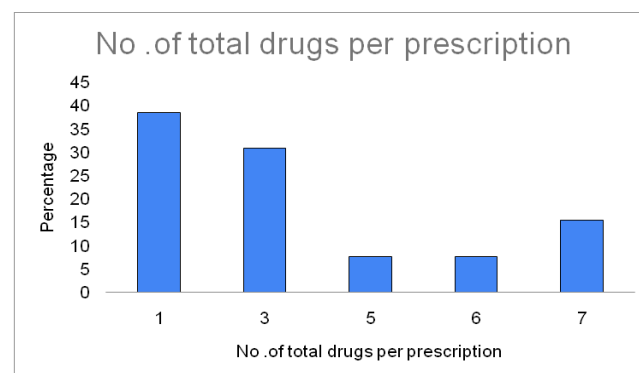


Fig 3: Number of Total Drugs per Prescription.

The maximum total number of drugs per prescription was observed in hypertensive patients alone (38.5%) without any co-morbidity and minimum number of drugs per prescription was observed with co-morbidity with diabetics and chronic heart failure (7.7%).

4. Number of Hypertensive Patients Alone

In this study, fig 4 shows the maximum number of antihypertensive patients alone is in the range 61.5% and minimum number of antihypertensive agent 7.7%

Table 4: Number of Hypertensive Patients Alone

No. of hypertensive patients alone	Frequency	Percent
0	4	30.8
1	8	61.5
2	1	7.7
Total	13	100

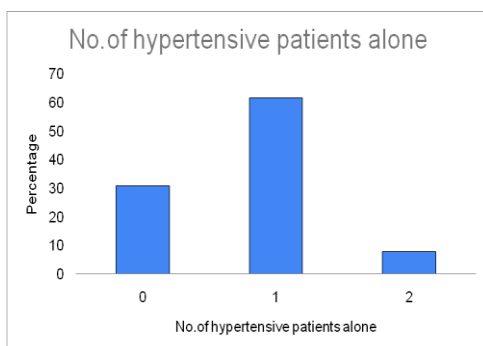


Fig 4: Number of hypertensive patients alone.

A maximum of one antihypertensive drug alone is 61.5% and minimum of two antihypertensive drugs is 7.7%. 30.8% of patients are not using hypertensive drugs alone.

5. Number of Hypertensive Patients with Co-morbidity

Out of those prescriptions, patients having hypertension along with certain co-morbidity. The major co-morbidities observed are diabetic mellitus, chronic heart failure and ischemic heart failure. Among the patients 38.5% of hypertensive patients are having comorbidity with all these above diseases (Table-5, fig-5).

Table 5: Number of Hypertensive Patients with Co-morbidity.

	Frequency	Percent
No. of patients hypertension co-morbid DM	5	38.5
No. of patients hypertension co-morbid with IHD	0	0
No. of patients hypertension co-morbid with CHF	5	38.5
No. of patients hypertension co-morbid with any disease	5	38.5

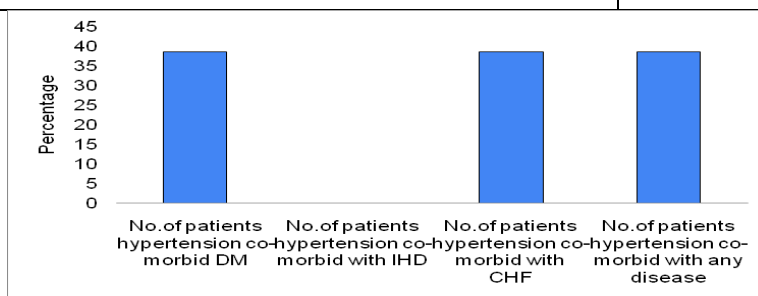


Fig 5: Number of hypertensive patients with Co-morbidity.

38.5% patients are having co-morbid with the diabetics, chronic heart failure and ischemic heart disease.

6. Number of Hypertensive Patients Alone

In this analysis, the table 6 shows the total number of hypertensive patients alone were observed about 76.9% and with no hypertension is about 23.1% (fig-6).

Table 6: Number of Hypertensive Patients Alone

Hypertension alone	Frequency	Percent
Yes	10	76.9
No	3	23.1
Total	13	100

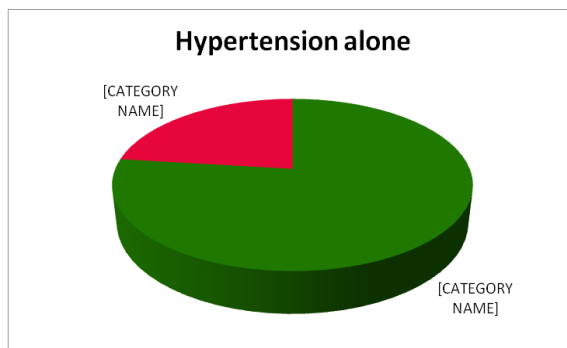


Fig 6: The Maximum Hypertensive Patients Alone.

The maximum hypertensive patients alone is 76.9% and absence of hypertensive patients is 23.1%.

7. Hypertension Co-morbid with DM

Most of the patients are having comorbidity with the DM (Table-7).

Table 7: Hypertension Co-morbid with DM

Hypertension with co-morbid with DM	Frequency	Percent
0	8	61.5
1	2	15.4
2	2	15.4
3	1	7.7
Total	13	100

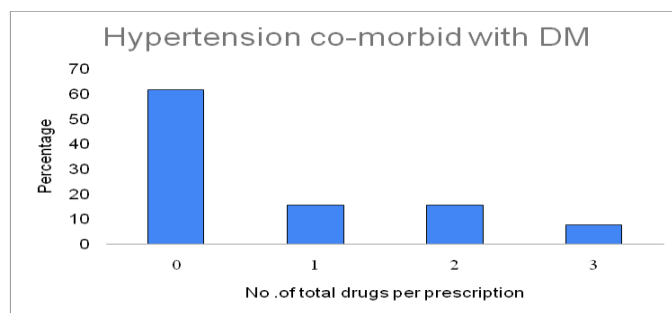


Fig 7: Hypertension with co-morbid with DM

The maximum hypertensive patients with co-morbid with DM found is 15.4% and hypertensive with no DM is 61.5% (fig-7).

8. Hypertension Co-morbid with CHF

Table 8: Hypertension Co-morbid with CHF

Hypertension co-morbid with CHF	Frequency	Percent
0	8	61.5
1	5	38.5
Total	13	100

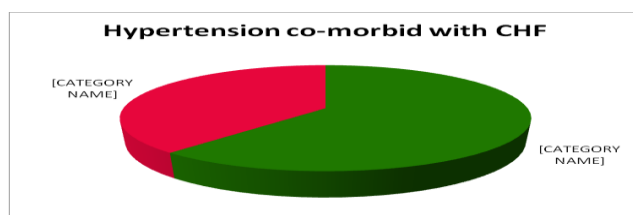


Fig 8: Hypertension Co-morbid with CHF

The maximum number of hypertensive patients, co-morbid with the CHF is 38.5% and patients without the CHF is 61.5% (Table-8 and fig-8).

9. Commonly Used Antihypertensive Drugs

The commonly used antihypertensive drug is Telmisartan 40mg having 61.5% (Table-9 and fig-9).

Table 9: Commonly Used Antihypertensive Drugs

Commonly used antihypertensive drugs	Frequency	Percent
0	3	23.1
1	8	61.5
2	2	15.4
Total	13	100

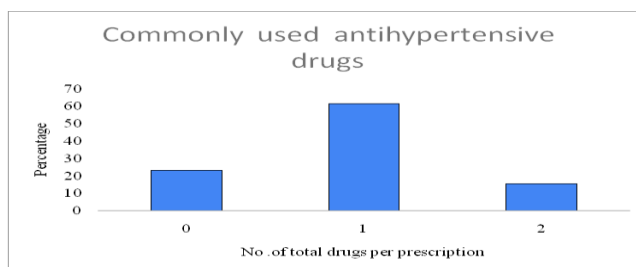


Fig 9: Commonly Used Antihypertensive Drugs.

The commonly used antihypertensive drug is Telmisartan 40mg 61.5%.

10. Commonly Used Antihypertensive Drugs (Without Any Co Morbidity)

Table 10: Commonly Used Antihypertensive Drugs (Without Any Co Morbidity)

Commonly used antihypertensive drugs (without any co morbidity)	Frequency	Percent
0	8	61.5
1	5	38.5
Total	13	100

Commonly used antihypertensive drugs (without any co morbidity) is 38.5% (Table-10).

11.ACE Inhibitor

Among the patients, no one had received any of ACE inhibitor (Table-11).

Table 11: ACE Inhibitor

ACE inhibitor	Frequency	Percent
Enalapril	0	0
Ramipril	0	0

12.Angiotensin Receptor Blocker

Among the Angiotensin receptor blocker, the most commonly given drug is Telmisartan 40mg (23.1%), followed by Telmikind 40mg. The minimum drugs given are having 7.7% and those are Telmisartan 20mg, Telvas H 40/12.5, Telsite H 40 and Telvas beta (table-12 and fig-10).

Table 12: Angiotensin Receptor Blocker

Angiotensin receptor blocker	Frequency	Percent
Telmisartan(40mg)	3	23.1
Telmisartan (20mg)	1	7.7
Telmikind 40	2	15.4
Telvas H 40/12.5	1	7.7
Telsite H 40	1	7.7
Telvas beta	1	7.7

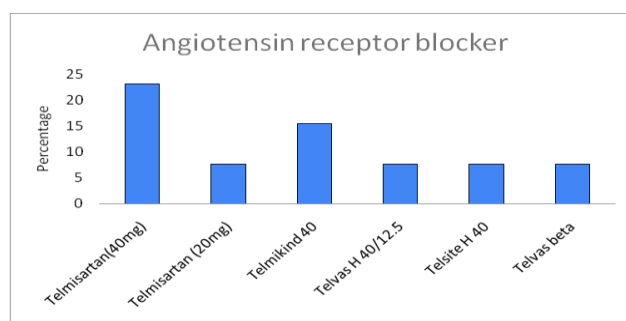


Fig 10: Angiotensin Receptor Blocker .

The most commonly Angiotensin receptor blocker given drug is Telmisartan 40mg (23.1%), followed by Telmikind 40mg (15.4%)

13. Calcium Channel Blocker

Amlong 5mg, Cilacar 10mg, Amlodac and Cilacar T 10/40 were the Calcium channel blockers given to the antihypertensive patients.

Table 13: Calcium Channel Blocker

Calcium channel blocker	Frequency	Percent
Amlong 5mg	2	15.4
Cilacar 10mg	2	15.4
Cilacar T 10/40	1	7.7
Amlodac	2	15.4

Among these Amlong, Cilacar and Amlodac are having 15.4%.The least prescribed drug given is 7.7% (Table-13).

14: Beta Blocker

Table 14: Beta Blocker

Beta blocker	Frequency	Percent
Beta blocker	0	0

No beta blockers were prescribed (Table-14)

15. Diuretics Prescribed

Diuretics prescribed are given in table-15 and fig-11.

Table 15: Diuretics Prescribed

Diuretics prescribed	Frequency	Percent
0	12	92.3
1	1	7.7
Total	13	100

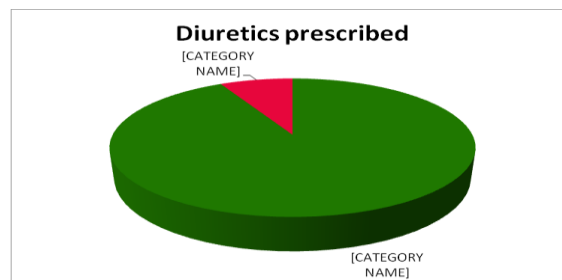


Fig 11: Diuretics Prescribed. The diuretics prescribed were about 7.7% and no diuretics prescribed about 92.3%.

14: Fixed Dose Combination Drugs

Fixed dose combination drugs are given in table-14 and 12.

Table 14: Fixed Dose Combination Drugs.

	Frequency	Percent
HTN alone	2	15.4
HTN + DM	0	0
HTN+IHD	0	0
HTN+CHF	0	0

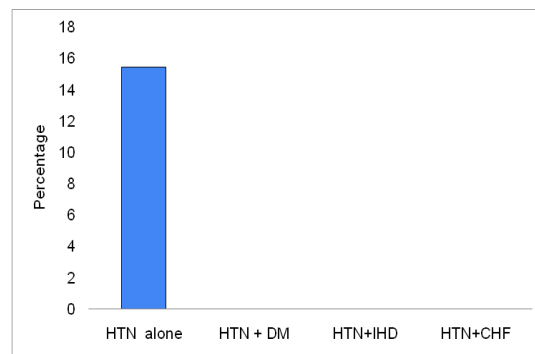


Fig 12: Fixed Dose Combination Drugs.

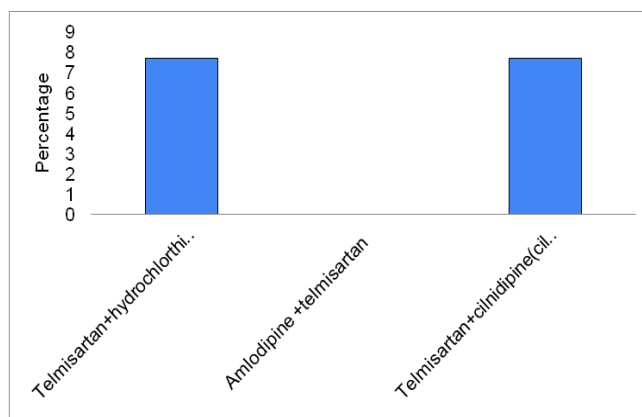
The fixed dose combination drugs were mostly used by the hypertension alone patients and is about 15.4%.

15. Fixed Dose Combination Drugs

Fixed dose combination drugs are given in table-15 and fig-13.

Table 15: Fixed Dose Combination Drugs

	Frequency	Percent
Telmisartan+Hydrochlorthizide(telsite H/telvas H)	1	7.7
Amlodipine + Telmisartan	0	0
Telmisartan+Cilnidipine(cilacar T)	1	7.7

**Fig 13:** Fixed Dose Combination Drugs.

Most commonly used fixed dose combination drugs were Telmisartan + Hydrochlorthizide (Telsite H/Telvas H) about 7.7% and Telmisartan + Cilnidipine (Cilacar T) about 7.7%. Amlodipine + Telmisartan combination were not prescribed.

In this study the prevalence rate of having BP was more among the male population than the female. Calcium channel blockers were found to be more effective while taking as monotherapy. Diabetics is one of the major co-morbid factor observed along with hypertension than other co-morbidities.

CONCLUSION

Hypertension can be overcome by managing diet, regular exercise, and up to date follow up and by intake of the medicines. Monotherapy was found to be an effective initial therapy to control the blood pressure and later stages by calcium channel blockers as a single drug therapy. The most prescribed antihypertensive drug was angiotensin receptor blockers (Telmisartan) followed by the calcium channel blockers.

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