

**PRESCRIPTION PATTERN OF ANTIHYPERTENSIVE DRUGS IN A TERTIARY CARE
TEACHING HOSPITAL**¹Dr. V. Balaji MD and ²Dr. S. Kalaivani MD¹Assistant Professor of Pharmacology, Department of Pharmacology Coimbatore Medical College, Coimbatore.²Assistant Professor, Dept. of Microbiology, Karur Medical College, Karur.***Corresponding Author: Dr. V. Balaji MD**

Assistant Professor of Pharmacology, Department of Pharmacology Coimbatore Medical College, Coimbatore.

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ABSTRACT

Background: Hypertension is a major health problem all over the world. It is not a disease in itself, but it is an important risk factor for cardiovascular mortality and morbidity. **Objective:** To evaluate the prescribing pattern of antihypertensive drugs in a tertiary care teaching hospital in Coimbatore medical College. **Materials and Methods:** A cross-sectional study was carried out at the Outpatient Department in a tertiary care teaching hospital in Coimbatore to access the prescription pattern of antihypertensive drugs during November 2018 to April 2020. **Results:** In the present study, 71.2% patients received monotherapy while 28.8 % received combination therapy. In monotherapy, calcium channel blockers (CCBs) were most commonly prescribed, while angiotensin receptor blockers (ARBs) + diuretics were the most commonly prescribed combination therapy. **Conclusion:** In the present study, it was found that CCBs were the most commonly prescribed antihypertensive drug, followed by ARBs in monotherapy. Combination therapy was given according to associated risk factors and comorbid conditions.

KEYWORDS: Prescribing Pattern; Hypertension.**INTRODUCTION**

Hypertension is a foremost health issue globally at present. It is not a disease in itself, but it is an significant risk factor for cardiovascular mortality and morbidity according to the seventh report of Joint National Committee (JNC) on prevention, detection, evaluation, and treatment of increased blood pressure (BP), and WHO-ISH guidelines have defined it to be 140 mm Hg systolic and 90 mm Hg diastolic though risk appears to increase even above 120/80 mmHg.^[1] It has been projected that by the year 2030, 23 million cardiovascular deaths are expected to be due to hypertension, of which about 85% cases will be from low-resource countries and developing nations.^[2] Scientific evidence exists to suggest that such adverse outcomes can be barred by lowering BP effectively.^[3,4] Recent studies in India show that hypertension is evolving as a major health problem. It is directly accountable for 57% of all death due to stroke and 24% of all death due to coronary heart disease. Even though 69% of people with hypertension are aware that they have the disease, only 54% receive treatment and only 27.4% achieve adequate BP control.^[5] Treatment of hypertension with monotherapy or combination therapy is restructured time to time according to JNC I to VII guidelines.^[6]

MATERIALS AND METHODS

A cross-sectional study was carried out in the medicine OPD of a tertiary care teaching hospital, Coimbatore,

from November 2019 to April 2020 for six months to access the prescribing pattern of antihypertensives. The physician was not informed about the present study to decrease the physician bias. A total of 200 prescriptions of antihypertensive patients were selected randomly in the medicine OPD. These samples were used to study the prescribing pattern of antihypertensive drugs. Inclusion criterion for the selection of prescriptions was hypertensive patients according to the JNC-VII guidelines. The special cases such as pregnancy and the patients with other complications were excluded from the study. The results are based on the details obtained from 200 participants. Data were analyzed using SPSS Version 21 and summarized as counts and percentages as it's a descriptive type of study. This study was done after getting approval from institutional ethics committee.

RESULTS

In the present study, 200 prescriptions were evaluated, of which 132 were male and 68 were female hypertensive patients. Out of 132 male hypertensives, 98 were treated with monotherapy, while 34 were on combination therapy. Similarly, out of 68 female hypertensives, 48 were on monotherapy while 20 were on combination therapy (Table 1). Calcium channel blockers (CCBs) (35.6%) were the most commonly prescribed antihypertensive agent as monotherapy, followed by angiotensin receptor blockers (ARBs) (25.6%) and angiotensin-converting enzyme inhibitors (ACEIs) (16.5 %). 10.8 % patients

were treated with combination of ARBs with CCBs, while 6.6 % received combination of diuretics with ARBs (Table 2).

Table 1: Demographic characteristics of hypertensive patients (n=200)

Variables	Male n=132 (%)	Female n=68 (%)
Antihypertensive prescriptions	132 (66)	68 (34)
Monotherapy	98 (49)	48 (24)
Combination therapy	34 (17)	20 (10)
Age (in years)		
20-39	07 (3.5)	08(4)
40-59	36 (18)	18 (9)
>60	89(44.5)	42 (21)

In the present study, total numbers of 132 hypertensive patients were male. Among which, 98 (49 %) were on monotherapy and 34 (17%) were on combination therapy.

In monotherapy, 56 were on CCBs, while 30 with ARBs and 12 were on ACEIs. 17 patients were treated with combination of ARBs + CCBs while 10 patients were on combination of diuretics + ARBs (Table 2). In the present study, total numbers of 68 hypertensive patients were female. Of which, 48 hypertensive patients were on monotherapy, while 20 was on combination therapy. Among which, 25 female hypertensive patients were on CCBs, 14 patients were treated with ARBs, and 9 patients were on ACEIs, while all 15 patients were treated with two-drug combination, ARBs with CCBs (Table 2).

In the present study, it was found that monotherapy was frequently prescribed in the beginning or mild to moderate hypertensive patients while combination therapy was mostly prescribed in patients who have not controlled with single drug therapy on in the case of moderate to severe hypertensive patients.

Table 2: Prescribing pattern of antihypertensive drugs

Group of drugs	Number of male n=132 (%)	Number of female n=68 (%)
CCB	56 (28)	25 (12.5)
ARB's	30 (15)	14 (7)
ACEIs	12 (6)	9 (4.5)
ARBs + CCB	17 (8.5)	15 (7.5)
ARBs + diuretic	10 (5)	02 (1)
Diuretics + CCB	03 (1.5)	0 (0)
ARBs + β blockers	02 (1)	02 (1)
β blockers + CCB	02 (1)	01 (0.5)

DISCUSSION

In the present study, it was found that the prevalence of hypertension was more in male patients (66%) as compared to females (34%), so males are affected more than females, which correlates with the previous study done by Farag et al.^[7] Previous studies revealed that hypertension is better controlled by combination therapy and is most commonly prescribed.^[8,9] However, in contrast to these studies, it was observed in the present study that the monotherapy 146 (73%) is more common than combination therapy 54 (27%). This was in accordance with the previous study done by Kuchake et al.^[10] The combination therapy however is seen frequently in those patients who were not controlled with monotherapy. Combination therapy satisfactorily controlled the BP in hypertensive patients.^[11] In the present study, it was found that CCBs (40.5%) are most commonly prescribed antihypertensive agent as monotherapy. This was in accordance with the previous study done by Konwar et al.^[12] We observed in this study that CCBs were preferred in elderly patients which is in accordance to the guidelines of National Institute for Health and Care Excellence (NICE). The NICE guidelines 2011 also specify that age as a choice of starting drug therapy; with age <55 years to be started with ACEI and with >55 years to be started with CCB.

ARBs and ACEIs were preferred antihypertensive drugs in those patients who have associated nephropathy. Diuretics were most preferred drugs in combination therapy with ARBs, CCBs, and ACEIs. This correlates the previous study done by Johnson and Singh.^[13] A prescription-based survey is considered to be one of the most real approaches to measure and evaluate the prescribing attitude of physician.^[14] Continuous regulation of systematic audit is essential which provides feedback from the physician and helps encourage rational use of drugs.^[15]

CONCLUSION

In the present study, CCBs were the most frequently prescribed drugs, followed by ARBs and ACEIs in monotherapy. In CCBs, most commonly prescribed was amlodipine. Telmisartan was most commonly prescribed in ARBs. In associated risk factors and comorbid conditions, combination therapy was prescribed. There is need of further studies at regular interval to improve the prescribing pattern of antihypertensive drugs so that a more effective guidelines for hypertension can be produced which may be beneficial to the South Indian population.

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