

An observational study on the prescription pattern of antihypertensive drugs in a private health care centre, Chennai

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ABSTRACT

Background: Hypertension is a public health problem worldwide. Elevated systolic blood pressure ≥ 140 mm Hg or diastolic blood pressure ≥ 90 mmHg are defined as Hypertension. The choice of an antihypertensive drug is based on its efficacy, side-effects, effects on other systems and cost. The objective of this study is to evaluate the prescription pattern of antihypertensive drugs in a private health care centre.

Methods: A retrospective observational study was carried out in the out-patient department of a private health care centre, Chennai from November 2018 to December 2018.

Results: In the present study, 104 prescriptions were selected based on the inclusion criteria. In which 62 (59.61%) were males and 42 (40.38%) were females. Prescriptions belonging to age group of <40 years were 11 (10.57%), 40–59 years were 48 (46.15%) and >60 years were 45 (43.26%). Monotherapy was received by 62 hypertensive patients and as combination therapy by 42 patients.

Conclusions: Even though the prescription pattern of antihypertensive drugs in this study complied with the recommended guidelines, clinicians should always be vigilant and consider change of regimen whenever necessary.

Keywords: Antihypertensive drugs, Prescription pattern, Monotherapy, Combination therapy

INTRODUCTION

Hypertension is a public health problem worldwide and contributes to the development of non-communicable diseases, especially cardiovascular disease.^{1,2} Elevated systolic blood pressure ≥ 140 mm Hg or diastolic blood pressure ≥ 90 mm Hg are defined as Hypertension.³ The prevalence of hypertension increases with age. Increasing the awareness and diagnosis of hypertension and better control of blood pressure with appropriate treatment protocol are the most important initiatives taken to reduce cardiovascular morbidity and mortality.⁴ The most

prominent evidence based guideline for the management of hypertension was framed by the Seventh Report of the Joint National Committee on the Detection, Evaluation, and Treatment of High Blood Pressure (JNC VII).⁵ Efforts for achieving blood pressure (BP) control should be intensified using recommended guidelines. Assessing individuals with hypertension for BP control and auditing antihypertensive prescription patterns can play key roles in the reducing the burden of hypertension. The choice of an antihypertensive drug is based on its efficacy, side-effects, effects on other systems and cost. Accordingly, there is always a need to survey the pattern of antihypertensive drugs usage for its rationality and

whether they are in concordance with current guidelines for treatment of hypertension.⁶ Hence, the present study was done to study the current prescription trends of antihypertensive drugs by consultants in India.

METHODS

A retrospective observational study was carried out in the out-patient department of a S.S Hospital and Diabetic Health Care Centre, Chennai from November 2018 to December 2018. Prescriptions of hypertensive patients who attended the OPD without any co-morbid illness were included in the study. Duration of hypertension of greater than 4 years were also fixed in the inclusion criteria. Prescriptions of patients with hypertension due to secondary cause, pregnancy induced hypertension were excluded from the study. Prescriptions containing incomplete data of frequency, dose, duration of the drugs and patients who were suggested for life style modifications were not considered for the study. Descriptive statistics was used and values were expressed in percentage.

RESULTS

In the present study, 104 prescriptions were selected based on the inclusion criteria. In which 62 (59.61%) were males and 42 (40.38%) were females. Prescriptions belonging to age group of <40 years were 11 (10.57%), 40 – 59 years were 48 (46.15%) and >60 years were 45 (43.26%) (Table 1). Monotherapy was received by 62 hypertensive patients and as combination therapy by 42

patients. Among the monotherapeutic agents, enalapril (22%) and metoprolol (22%) were the most commonly prescribed drugs followed by amlodipine (21%), losartan (18%), telmisartan (3%), olmesartan (5%), atenolol (2%), ramipril (3%), nifedipine(2%) and cilnidipine (2%) as shown in Figure 1. When these agents were classified based on their groups, there was almost equal distribution of each class. Angiotensin receptor blockers (ARBs) (26%), angiotensin converting enzymes inhibitors (ACEIs) (26%), calcium channel blockers (CCBs) (24%) and beta blockers (24%) (Figure 2). The most frequent combination therapy prescribed was amlodipine + atenolol (41%) followed by ARBs + diuretic namely telmisartan + hydrochlorothiazide (24%) and losartan + hydrochlorothiazide (14%). Equal distribution of combinations of enalapril + amlodipine (7%) and telmisartan + metoprolol (7%) was observed as shown in Figure 3.

Table 1: Demographic characteristics (n=104).

Characteristics	N (%)
Age group (yrs)	
<40	11 (10.57)
40–59	48 (46.15)
>60	45 (43.26)
Gender	
Male	62 (59.61)
Female	42 (40.38)

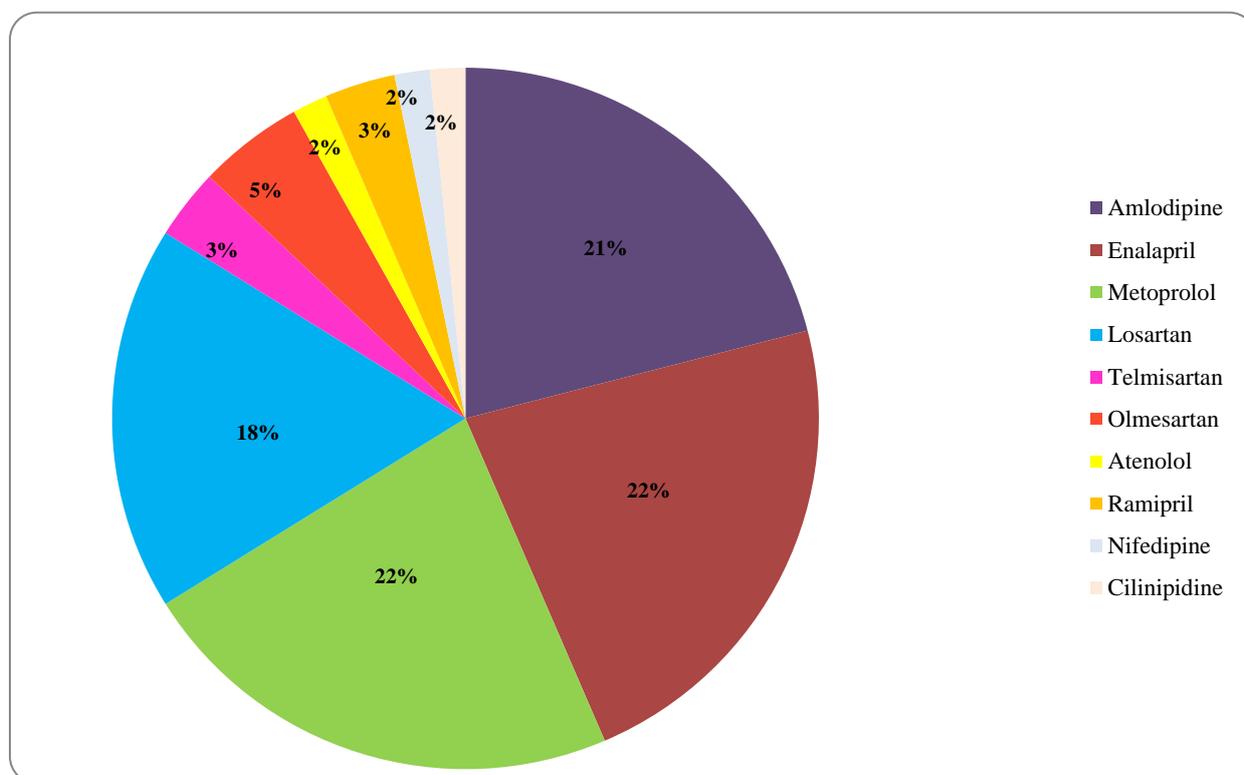


Figure 1: Drug utilization pattern of monotherapeutic agents in hypertension.

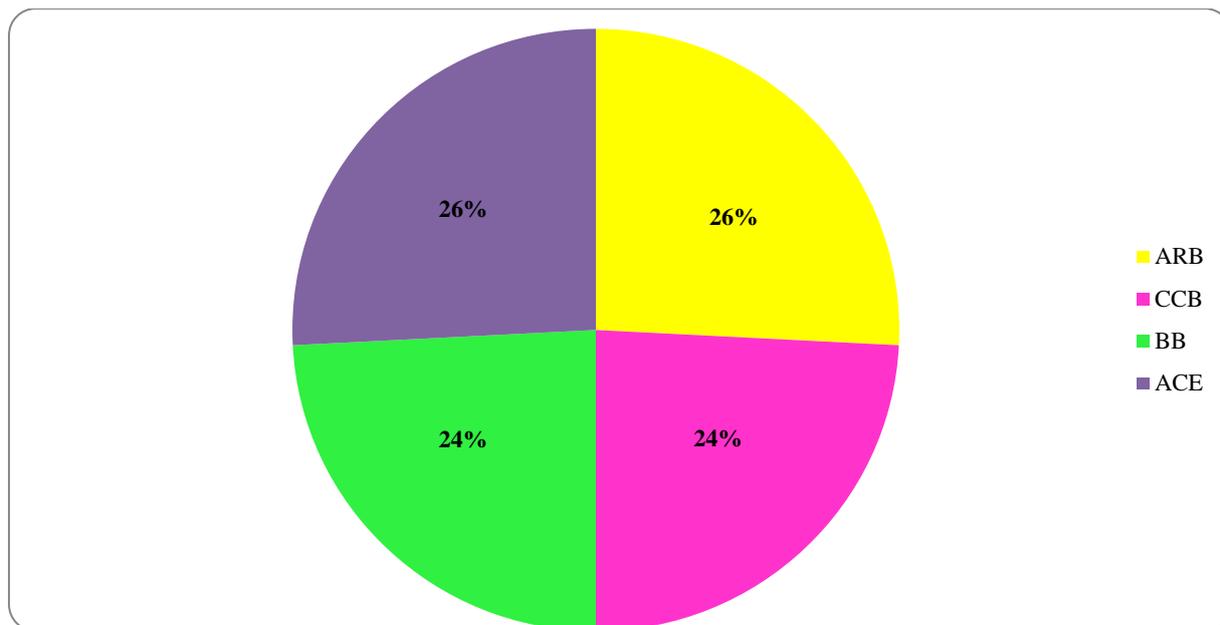


Figure 2: Percentage of antihypertensive prescribed based on classification.

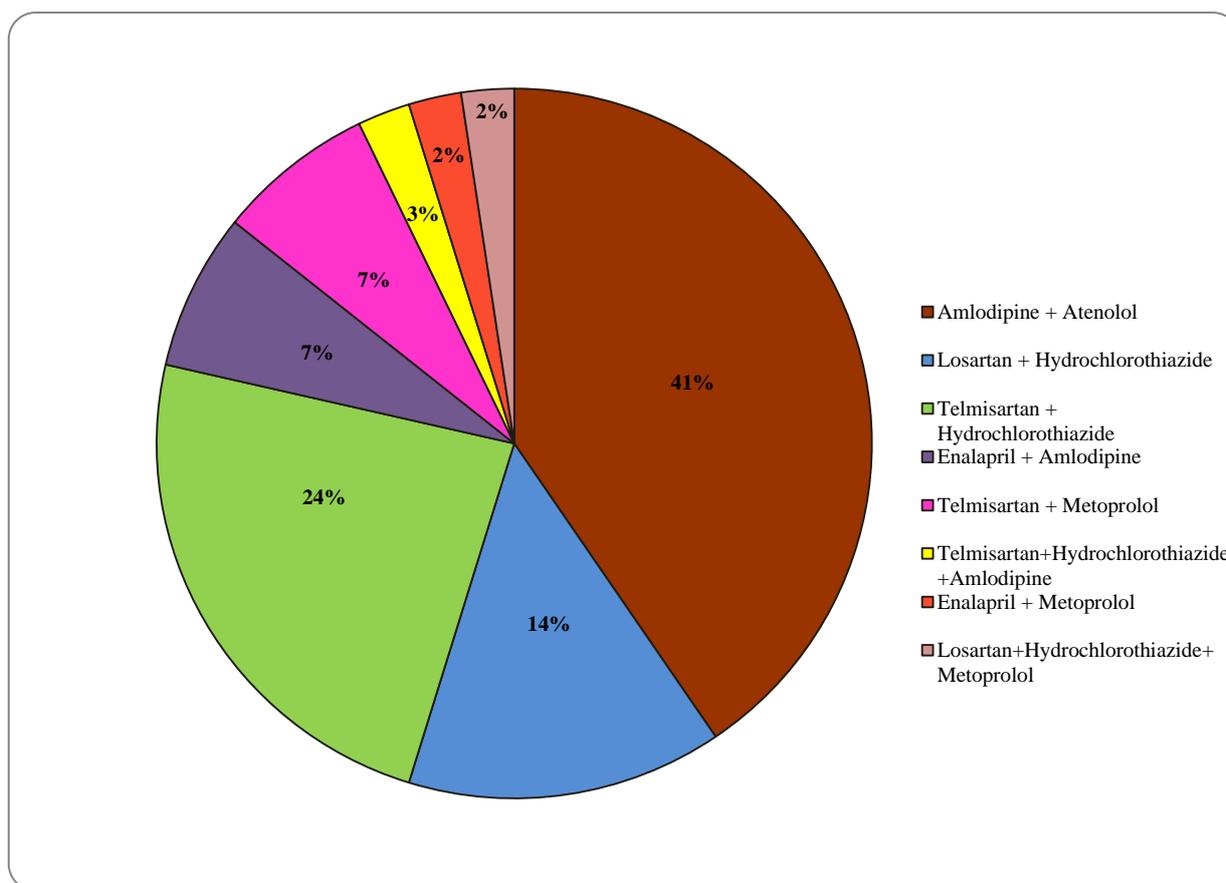


Figure 3: Drug utilization pattern of combination regimens in hypertension.

DISCUSSION

In this study unsurprisingly, the majority of hypertensive patients were above the age group of 40 years, this finding is comparable to previous studies related to

hypertension.⁷ Hypertension is more prevalent among older individuals due to increased arterial and arteriolar wall stiffness, increased responsiveness to sympathetic nervous stimuli, decreased baroreceptor sensitivity and

altered renal and sodium metabolism associated with aging.^{8,9}

The present study observed the prevalence of hypertension more common in males (59.61%) when compared to females (40.38%) which was in contrast to the previous study by Kuchake et al.¹⁰ Findings of the present study were different from that previous literatures stating combination therapy was commonly prescribed than monotherapy.¹¹

Though, JNC VII and Indian hypertension guidelines II (2007) recommend thiazides as initial therapy either alone or in combination with other classes of antihypertensive drugs, the NICE guidelines of UK recommend ACEI or a low-cost ARB for hypertensive patients aged under 55 years and a CCB to people aged over 55 years.¹²⁻¹⁴ Our findings in the present study are suggestive of ACE and ARB antihypertensive drugs as first line of monotherapeutic agents with is comparable with NICE guidelines. But in the present study there was no role of diuretics as monotherapeutic agents.

Most frequent use of CCBs in this study may be due to their established efficacy and better tolerance. Utilization of ACEIs and ARBs in a greater extent might be because of physicians' perceptions that ACEIs and ARBs have better control on blood pressure, its cardiovascular & renal protection and fewer side effects compared to diuretics. The decreasing use of diuretics, which is reflected in our study may be explained by physician misperceptions that diuretics are less effective, less safe.¹⁵ BBs are considered as one of the first line antihypertensive drug classes, Some prefer to use BBs only in patients with compelling cardiac indications for them or as add on agents in those with uncontrolled or resistant hypertension.¹⁶ Use of beta blockers (BB) as monotherapy has contributed around 24%.

JNC-7 doesn't give clear guidelines as to which antihypertensive drug combinations should be preferred.³ Indian hypertension guidelines-II recommend the combination of one out of the two groups viz. drugs acting on 'RAS (ACEI/ARB) or BB' with 'CCB or thiazide diuretic' but discourages the use of combination of diuretics and BBs for the fear of new-onset diabetes mellitus. It further recommends use of combination of ACEI/ARB + CCB + thiazide diuretic when 3 antihypertensive drugs are needed.³ In our present study, the combinations had adhered to the above guideline of 2 drug having amlodipine + atenolol (CCB & BB), telmisartan + hydrochlorothiazide (ARB and thiazide diuretic), enalapril + amlodipine (ACE & CCB) and 3 drug therapy having telmisartan + hydrochlorothiazide + amlodipine (ARB and CCB and thiazide diuretic). There was also not a single combination of BB and diuretic in the present study.

In the present study the physicians had strictly followed and complied with Indian hypertension guidelines II on

prescribing the antihypertensive drugs. This study has provided an insight about the prescription patterns of antihypertensive drugs with respect to the blood pressure.

CONCLUSION

Even though the prescription pattern of antihypertensive drugs in this study complied with the recommended guidelines, Clinicians should always be vigilant and consider regimen changes if the contemporary regimens do not bring changes in blood pressure. Therapeutic modifications could always bring about an improvement in BP. Further studies from time to time are required to study the drug utilization pattern of antihypertensive drugs. Furthermore, physicians should be sensitized to adhere to the standard treatment guidelines.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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