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## Prescription pattern of antihypertensive drugs in a tertiary care teaching hospital

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### ABSTRACT

**Background:** Hypertension is one of the modifiable risk factors for cardiovascular and kidney disease and has been identified to contribute significantly to cardiovascular mortality.


**Objective:** To evaluate the prescribing pattern of antihypertensive drugs in a tertiary care teaching hospital. **Materials and Methods:** A retrospective analysis was carried out from in patients in a tertiary care hospital, Kanchipuram to access the prescription pattern of antihypertensive drugs during June 2018 to December 2018. **Results:** In the present study, the percentage of monotherapy and combination therapy was 46.49% and 53.51% respectively. Beta blockers was the most commonly prescribed drug as monotherapy and beta blockers + Calcium channel blockers (CCB) were the most commonly prescribed drug among combination therapy. **Conclusion:** In the present study combinational therapy was considered to be more effective in the management of hypertension over monotherapy.

**Key Words:** Antihypertensive drugs, Monotherapy, Combination Therapy.

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## INTRODUCTION

Hypertension is one of the modifiable risk factors for cardiovascular and kidney disease and has been identified to contribute significantly to cardiovascular mortality [1]. Recent studies in India show that hypertension is directly responsible for 57% of all death due to stroke and 24% of all death due to coronary heart disease. Although 69% of people with hypertension are aware that they have the disease, only 54% receive treatment and only 27.4% achieve adequate BP control [2]. Treatment of hypertension with monotherapy or combination therapy is updated time to time according to JNC I to VIII guidelines [3]. The drug utilization varies in time and place which has many implications medically, socially and economically over both the individual patient and the populations. Hence, Drug utilization studies are necessary to identify the socio- demographic characteristics, co-morbid conditions and pattern of anti- hypertensive drugs usage. Hence this study was designed to evaluate the prescribing pattern of antihypertensive drugs in a tertiary care teaching hospital, Kanchipuram.

## MATERIALS AND METHODS

A retrospective study was carried out from inpatients in a tertiary care hospital, Kanchipuram to access the prescription pattern of antihypertensive drugs during June 2018 to December 2018. A total of 134 prescriptions of antihypertensive patients were selected randomly in the medical records department. These samples were used to study the prescribing pattern of antihypertensive drugs. Prescriptions of antihypertensive patients without any comorbid illness were included in this study. Twenty prescriptions having lifestyle modification and non-pharmacological measures were excluded from our study. The special cases such as pregnancy and the patients with other complications were excluded from the study.

## RESULTS

In the present study, 134 antihypertensive prescriptions were evaluated retrospectively. Out of which 20 prescriptions were excluded for having lifestyle modification and non-pharmacological management. Hence out of 114 prescriptions 59(51.75%) were male and 55(48.25%) were female and as a whole 53(46.49%) patients received monotherapy while 61(53.51%) received combination therapy. Among 59(51.75%) male hypertensive, 29(49.15%) were treated with monotherapy while 30(50.85%) were on combination therapy and out of 55(48.25%) female hypertensive, 24(43.64%) were on

monotherapy while 31(56.36%) were on combination therapy (Table 1).

Beta blockers (BBs) (28%) were the most commonly prescribed antihypertensive agent as monotherapy, followed by angiotensin-converting enzyme inhibitors (ACEIs) (25%) and angiotensin receptor blockers (ARBs) (21%) (Figure 1). In combination therapy, 25% of patients were treated with beta blockers + Calcium channel blockers (CCB) while 21% of patients received combination of diuretics with CCBs (Figure 2). In the present study most of the patients were treated with combination therapy having moderate to severe hypertension, while monotherapy was considered in patients with mild to moderate hypertension.

## DISCUSSION

The increase in economic growth rate and sedentary activity in India has enormously increased the incidence of obesity, diabetes mellitus and hypertension which directly contributes the occurrence of Coronary Artery disease. Successful management of hypertension always relies on effective choice of appropriate monotherapy or combination therapy of antihypertensive agents [4]. In the present study, it was found that the prevalence of hypertension was more in male patients (51.75%) as compared to females (48.25%) as depicted in table 1 which correlates with the previous studies [5]. Combination therapy (53.51%) is more common than monotherapy (46.49%) which corroborates with the previous studies [6, 7, 8, 9]. In monotherapy, Beta blockers (28%) were the most commonly prescribed drug followed by ACEIs (25%). Among combination therapy beta blockers (BB) + Calcium channel blockers (CCB) (25%) were the most commonly prescribed drug followed by Diuretics (D) + CCB (21%). Combination therapy was found to be useful in treating uncontrolled hypertension rather than monotherapy. Criteria for the selection of drugs according to the NICE guidelines should be kept in mind during prescription of antihypertensive drugs. We observed in this study that BBs were preferred in elderly patients that are not in accordance to the guidelines of National Institute for Health and Care Excellence (NICE). The NICE guidelines 2011 depict the age as an important criterion in initiating the management of hypertension, which explains when age <55 years ACEI has to be started and when age is >55 years CCB has to be started [10]. But this particular study does not comply with the NICE guidelines. Continuous supervision of systematic audit is necessary which provides feedback from the physician and helps promote rational use of drugs. The prescribing attitude of the physician on a

particular disease condition can be assessed effectively by carrying out prescription pattern analysis [11]. Continuous and systematic audit serves as an effective tool in getting feedback from the physician prescriptions and rational use of drugs.

**CONCLUSION**

In this study, we found that most of the hypertensive patients were treated with the combination therapy. In monotherapy, BBs were the most frequently prescribed drugs, followed by ACEIs and ARBs. Among combination therapy beta blockers + Calcium channel blockers (CCB) were the most commonly prescribed drugs. The drug selection for hypertension must comply with

NICE and JNC guidelines. Most of the international guidelines do not match practically with genetic and ethnic variations of Indian population. Hence, there is always a need for further research at regular intervals to improve the prescribing pattern of antihypertensive drugs so that in future effective guidelines for hypertension can be created which may be beneficial to the Indian population.

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Table 1. Demographic characteristics of hypertensive patients (n=114)

Variables	Male n=59	Female n=55
Antihypertensive prescriptions	59(51.75%)	55(48.25%)
Monotherapy (53)	29(49.15%)	24(43.64%)
Combination therapy (61)	30(50.85%)	31(56.36%)
<b>Age in Years</b>		
≤ 55yrs	27	22
> 55 yrs	32	33

No of Patients on Monotherapy

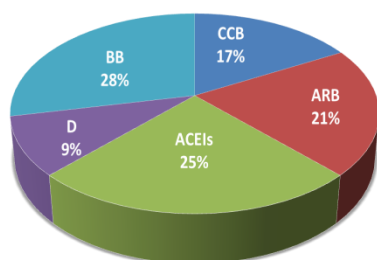


Figure 1: Total number antihypertensive patients on Monotherapy

No of Patients on Combinationtherapy

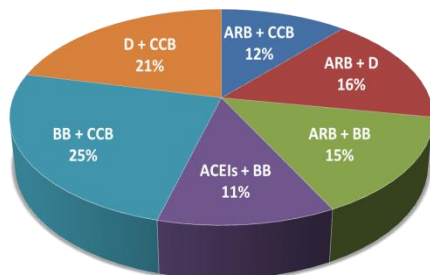


Figure 2. Total number antihypertensive patients on Combinationtherapy

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