



## Pharmacology

## STUDY OF DRUG UTILISATION PATTERN OF ANTIHYPERTENSIVE DRUGS IN A TERTIARY CARE CENTRE

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**ABSTRACT**

**OBJECTIVE:** To document the utilisation profile of various antihypertensive drugs in the IPD patients of tertiary care hospital.

**MATERIALS AND METHODS:** Study included retrospective retrieval of data from patients admitted in Medicine ward of MGM hospital, Navi Mumbai from Dec 2012 to April 2013. The data was scrutinised for presence of hypertension and the drugs used to control it during hospital stay.

**RESULTS:** Total of 208 patients were studied. The male to female ratio was (2.58:1). In males the age range was 30 to 78 yrs whereas in females it was 40-68 yrs. Associated diseases were Diabetes, Ischemic heart disease, Bronchial-asthma, Obesity, Chronic renal failure, Congestive cardiac failure. Most commonly used drug was olmesartan [angiotensin receptor blocker;ARB] followed by telmesartan (ARB), followed by combination of ARB plus diuretic, then ACE inhibitor and calcium channel blocker as a single drug therapy followed by beta blocker alone followed by beta blocker plus calcium channel blocker.

**CONCLUSION:** ARBs were found to be the most preferred drugs prescribed for hypertension in both males and females.

**KEYWORDS :** Hypertension, Antihypertensives, Drug utilisation pattern.

**INTRODUCTION :**

Hypertension is one of the major chronic diseases resulting in high mortality and morbidity in today's world<sup>(1,2)</sup>. Socio-economic, behavioral, and nutritional and public health issues have also led to increase in cardiovascular disease (CVD) throughout the world. A plethora of new drugs are now available, and the quality of life for these patients has altered for the better.

A number of drugs in various combinations<sup>(3-5)</sup> are generally used for effective long-term management. Therefore, drug utilisation studies, which evaluate and analyse the medical, social and economic outcomes of the drug therapy are more meaningful and observe the prescribing attitude of physicians with the aim to provide drugs rationally<sup>(6,7)</sup>.

The aim of this study was to describe the current utilisation pattern of antihypertensive drugs in the IPD (admitted) patients in a tertiary care hospital in navi Mumbai in line with the regional and international guidelines for hypertension management.

**OBJECTIVE:**

To document the utilisation profile of various antihypertensive drugs in the IPD patients of tertiary care hospital.

**MATERIALS AND METHODS:**

Study was a retrospective ,observational study. Study included retrospective retrieval of data from patients admitted in Medicine ward of MGM hospital, Navi Mumbai from Dec 2012 to April 2013. The data was scrutinised for presence of hypertension and the drugs used to control it during hospital stay. Both first line drugs, add on drugs and drug combinations were included. Use of antihypertensives in specific associated diseases was also studied.

**Appendix I****PRESCRIPTION MONITORING PROFORMA****Patient Demographics**

Name: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_

Occupation: \_\_\_\_\_

Socio-economic parameter: \_\_\_\_\_

Diseases diagnosed: \_\_\_\_\_

Investigations done: \_\_\_\_\_

Duration of disease: \_\_\_\_\_

**Drug prescribed**

Name/Type	Class of drug	Dose/Freq/ Dur	Dosage form	Generic/Brand	Drug Disp Y/N

Patient care indicators

A. Average dispensing time

Adequate labeling: \_\_\_\_\_

Instruction (O/W): \_\_\_\_\_

B. Patient knowledge on medication

Awareness: \_\_\_\_\_

Patient compliance: \_\_\_\_\_

**Prescriber's**

Name: \_\_\_\_\_

Qualification: \_\_\_\_\_

Date: \_\_\_\_\_

**RESULTS :**

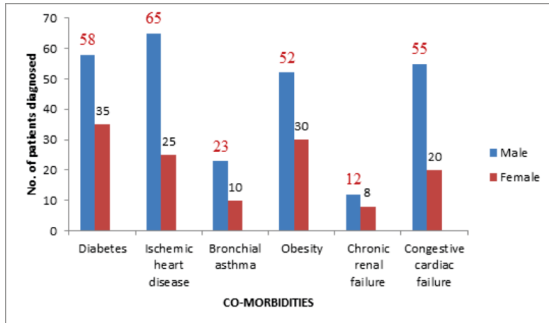
Total of 208 patients were studied. 150 were males and 58 were females. The male : female ratio was 2.5 : 1.

In males age range was 30 to 78 yrs. In females it was 40 -68 yrs. Associated diseases with hypertension were Diabetes ;58 males and 35 females, Ischaemic heart disease ;65 males and 25 females, Bronchial asthma ;23 males and 10 females, Obesity ;52 males and 30 females, Chronic renal failure ;12 males and 8 females and Congestive cardiac failure ;55 males and 20 females.

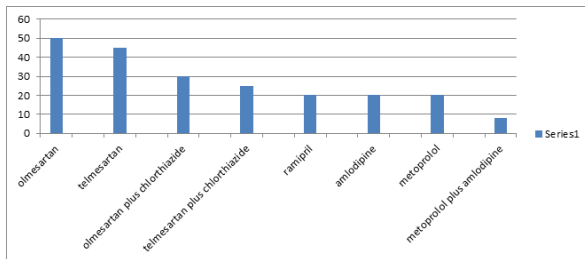
Most commonly used drug was Olmesartan ;Angiotensin receptor blocker (ARB). 50 out of 208 patients received Olmesartan as a single drug therapy .45 patients received Telmesartan alone as a single drug. Third most prescribed was the drug combination of olmesartan plus chlorthiazide which comprised of 30 patients. This was followed by the combination of telmesartan plus chlorthiazide which comprised of 25 patients. Next was ramipril (ACE -INHIBITOR) & amlodipine

(calcium channel blocker) single drug therapy prescribed to 20 patients each. Next was metoprolol alone prescribed to 10 patients followed by metoprolol plus amlodipine combination which was prescribed to 8 patients. As a result single drug therapy was given to 145 patients (69.7%) whereas combination therapy was used in 63 patients (30.28%).

**Figure 1. COMORBIDITIES ASSOCIATED WITH HYPERTENSION**



**Figure 2. COMPARATIVE USE OF ANTIHYPERTENSIVE DRUGS IN OUR HOSPITAL**



**DISCUSSION**

A prescription-based survey is considered to be one of the most effective methods to assess and evaluate the prescribing attitude of physicians<sup>(8)</sup> and dispensing practice of pharmacists. It is also important to consider the recommendations of international bodies on hypertension that help to improve prescribing practice of the physicians and ultimately, the clinical standards. A continuous supervision is therefore required through such kinds of systematic audit, that provide feedback from the physician and help to promote rational use of drugs. The present study observed that hypertension was more prevalent in males than in females. In our study combination therapy was needed in 40% male patients and 55.1 % female patients. These results supported the work of Hansson et al that showed blood pressure could be adequately controlled with the help of combination therapy<sup>(3)</sup>. Furthermore, combination therapy seems to be a rational approach to reduce the cardiovascular mortality<sup>(9)</sup>.

Diuretics are generally recommended as first-line therapy for treatment of hypertension (JNC V; JNC VI). Lesser use of diuretics in the present study may be due to adverse effect of diuretics on glucose homeostasis and lipid profile<sup>(10)</sup>. The efficacy of ACE inhibitors on blood pressure was reported to be marked in patients with an activated renin-angiotensin-aldosterone system<sup>(11)</sup>.

Earlier studies<sup>(12)</sup> also suggested that an ideal combination must include anti-hypertensives drugs possessing complementary modes of action that provide a synergistic anti-hypertensive effect without any significant adverse effects, at low doses. Further more, the anti-hypertensive drug combination therapy should be able to minimise or counteract the reflex compensatory mechanisms that often limit the fall in blood pressure<sup>(12)</sup>.

**CONCLUSION :**

Most commonly prescribed class of antihypertensives were angiotensin receptor blockers (ARBs) followed by their combinations with diuretics. Next was ACE inhibitor & calcium channel blocker followed by beta blocker and followed by its combination with calcium channel blocker. Most frequently used drug was olmesartan (ARB) .2 drug combination was used in 63 patients ;30.28 %. It is concluded that ARBs are now the most preferred drug in hypertension.

**ACKNOWLEDGEMENT:**

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**Limitations of the study :** The no of patients were only 208. More studies on larger numbers and groups of patients need to be done.

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