

Prescribing Pattern of Antihypertensives in A Teaching Hospital in India – An Observational Study

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Abstract:

Background & Objective: High blood pressure is the biggest single cause of death Worldwide through heart attack, stroke, and kidney diseases. Statistics reveals that many patients with hypertension do not have their blood pressure under control. According to a recent review on “Global Burden of hypertension”, the estimated prevalence of hypertension (in aged 20 years and older) in India in 2000 was 20.6% among males and 20.9% among females and is projected to increase to 22.9% and 23.6% respectively in 2025. The present study was therefore undertaken to get an overview of the current trends in prescribing patterns of antihypertensives in the treatment of Hypertension at St. Martha’s Hospital, Bangalore, India.

Methodology: A nine-month prospective study was carried out in St. Martha’s Hospital, Bangalore after obtaining Institutional Ethical Committee Clearance. Patients’ data was collected from the out-patient cards who were prescribed with antihypertensives.

Results: Out of 180 patients during the study period, 59% were male and 41% were female. Maximum number of patients were in the age group of 50-59 years (32.2%). The results revealed that 43 patients underwent monotherapy, 87 patients got dual therapy, 31 patients triple therapy, and the remaining 19 patients were prescribed with more than 3 drugs. Diuretics and ARBs were found to be the combination of choice.

Conclusion: Among the different approaches of treatment, dual therapy was found to be the most preferred choice of treatment. The present study revealed that, prescribing pattern of antihypertensive drugs follows the standard treatment algorithm as per the JNC VII guidelines for hypertension.

Keywords: *Hypertension, Antihypertensives, Prescription pattern, Diuretic, ARB.*

Introduction

Hypertension is defined as sustained elevation in blood pressure $\geq 140/90$ mm Hg. However, the new definition proposed by Writing Group of American Society for hypertension (WG-ASH) describes it as a complex cardiovascular disorder rather than just blood pressure values. It characterizes the disease as a progressive cardiovascular syndrome with many causes that result in both functional and structural changes in the heart and vascular system.

The new definition incorporates the presence or absence of risk factors, early disease markers, target organ damage and different physiologic abnormalities in the cardiovascular system and other organs caused by hypertension. Though initially symptom less, it is deadly since uncontrolled hypertension leads to target organ damage and thus multiple adverse clinical outcomes including stroke, heart failure or kidney failure. Thus, it is rightly labeled as the “silent killer”^[1]

Hypertension is a triple paradox: easy to diagnose but often remains undetected, simple to treat but often remains untreated: despite availability of drugs, treatment is not adequately effective. Statistics reveals that many patients with hypertension do not have their blood pressure under control.

According to a recent review on “Global Burden of hypertension”, the estimated prevalence of hypertension (in aged 20 years and older) in India in 2000 was 20.6% among males and 20.9% among females and is projected to increase to 22.9% and 23.6% respectively in 2025.^[2]

Hypertension is a Widely prevalent condition across all races and cultures and remains undetected and undertreated in number of patients. According to results of the third national health and nutrition examination survey, only 69% of Americans were aware of their diagnosis and 53% were taking prescribed medication.^[3] Hypertension poses long term risk of cardiovascular mortality associated with various levels of blood pressure rise progressively over the entire range of blood pressure, with no threshold that clearly identifies potential danger. This was demonstrated in the multiple risk factor intervention trial (MRFIT).^[4]

If hypertension is left untreated about 50% of the patients will die of coronary heart disease, about 33% of cerebrovascular stroke and 10-15% of chronic renal failure. Therefore, it is important to control the elevated blood pressure.^[5]

Patient adherence, compliance, convenience of dosing of drugs plays an important role in the prescribing of drugs in the treatment of hypertension. Availability of a wide variety of formulations and newer drugs has increased the therapeutic arsenals of the clinicians in the treatment of hypertension.

Hence, the present study entitled “Prescribing pattern of antihypertensives in a teaching hospital in India – an observational study” was undertaken.

Anti-hypertensive drugs play an important role in the treatment of hypertension. A rapidly expanding therapeutic armamentarium is now available to treat hypertension. More therapeutic options translate into more complex decision making for the prescriber.

Although prescription data indicate that Diuretics and ARBs and other Antihypertensive drugs are being widely prescribed, there is no single drug available without having any adverse drug reactions. Due to the complexity of the disease, it poses various challenges for the clinician right from the diagnosis to the choice of treatment that is most appropriate for the patients.

Therefore, the present study was carried out in St. Martha’s Hospital with the following objectives:

- To Study the prevalence of hypertension in the patients at St Martha’s hospital in Bangalore.

- To Study the demographic profile of the patients suffering from hypertension.
- To Study the prescribing patterns of the drugs used in the treatment of hypertension.

Methodology

Study Site: The study was performed at St. Martha's Hospital, a 600 bedded tertiary care teaching hospital situated at central Bangalore.

Study design: A prospective observational study.

Duration of study: The study was carried out for a period of nine month.

Ethical Committee Approval: Institutional Ethical Committee Clearance was obtained from St. Martha's Hospital, Bangalore to carry out the present study.

Sources of Data: Data was obtained from a prospective series of 180 patients by scrutinizing the out-patients card and laboratory reports of the patients attending the medicine out-patients Department of St. Martha's Hospital, Bangalore.

Inclusion criteria: All patients with primary hypertension in medicine out-patients department of St. Martha's Hospital who are willing to participate in the study (informed consent obtained).

Exclusion criteria:

- Patients below the age of 18 years
- Patients not willing to participate in the study.
- Patients with secondary hypertension

Method of collection of data: Data for the present study were collected by scrutinizing the patients case reports, out- patient cards and laboratory reports.

The data collected were analyzed for the following:

- Prescribing patterns of Anti- hypertensive Drugs
- Demographic profile of the patients suffering from hypertension

The patients enrolled in the study were grouped based on the number of Anti- hypertensive drugs prescribed.

- Group I – Single Anti-hypertensive Drugs.
- Group II – Two Anti-hypertensive Drugs.
- Group III – Three Anti-hypertensive Drugs.
- Group IV - More than three Anti-hypertensive Drugs.

Results

A total number of 180 patients fulfilling the inclusion criteria were recruited for the present study. Patient data was collected from outpatient cards and laboratory reports of the patients recruited for the study. The data collected was analysed for demographic profile of the patients and prescribing patterns of Anti-hypertensive drugs in the treatment of these patients.

The results reveal that out of 180 patients recruited for the present study, 106 (59%) of the patients were males and 74 (41%) of the patients were females. Maximum number of patients were in the age group of 50-59 years [58(32.2%)] followed by 54 (30%) of the patients in the age group of 60-69 years and 35 (19.5%) of the patients in the age group of 40-49 years. 76 (42.2%) patients went to high school (SSLC/PUC) followed by 39 (21.7%) between 1 to 9 standard, 35 (19.4%) were graduates/ PGs and 30 (16.7%) were uneducated. 91 (50.5%) subjects were of normal weight (BMI 20-27.5) followed by 84 (46.7%) of patients who were overweight (BMI > 27.5) and 5 (2.8%) of patients were under weight (BMI <20). It was observed in the present study that, [53(29.5%)] of the patients had a family history of father being hypertensive, followed by 41(22.8%) of mother being hypertensive and 24(13.3%) of the patients having a family history of other family members being hypertensive. Only 10(5.5%) of the patients had a family history of both father and mother being hypertensive. 52(28.9%) of the patients had no family history of hypertension. The results revealed that, 102(56.7%) of the patients belonged to Stage 1 (140-159/90-99), followed by 67(37.2%) of patients in Stage 2 (>160/>100) and 11(6.1%) of the patients belonged to the Pre-hypertension stage.

the pharmacotherapy was classified as monotherapy, dual therapy, and triple therapy where single Antihypertensive, two Antihypertensives and three Antihypertensives respectively were used for the treatment. When more than 3 Antihypertensives were used for the treatment of the patients, they were classified under the group of more than 3 drugs. Table 1 shows the number of patients who underwent treatment under different groups and table 2 summarises overall usage of drugs.

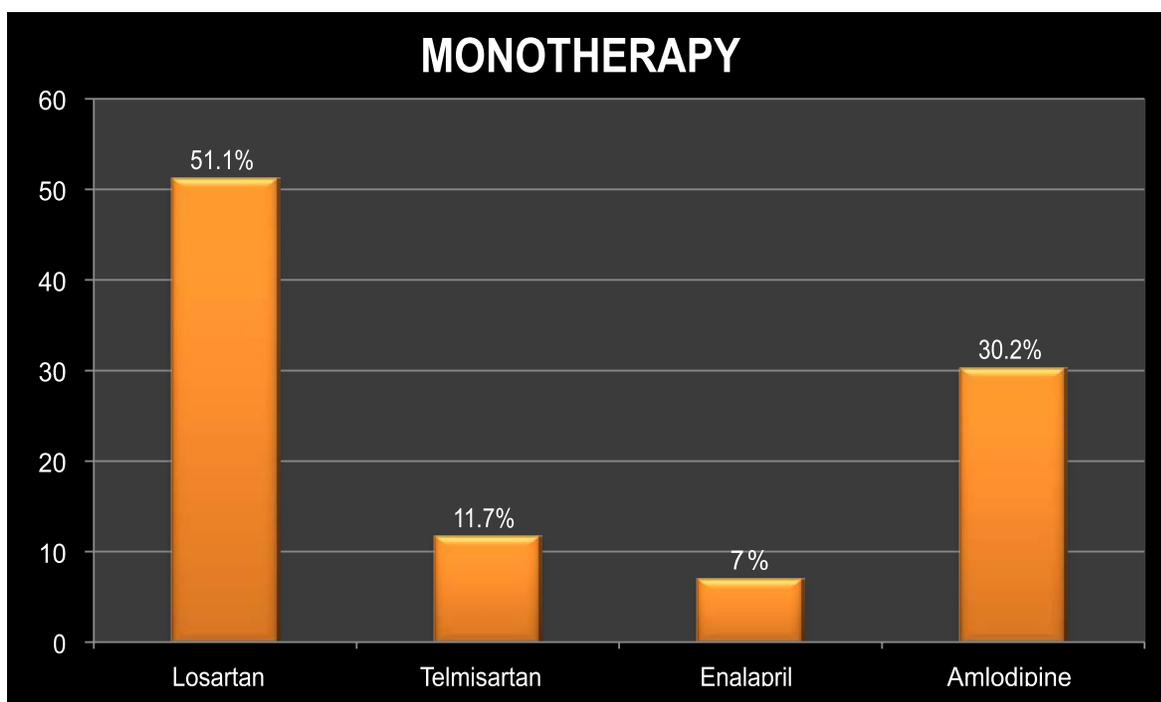


Figure 2: Details of different class of Anti hypertensive's used in dual therapy.

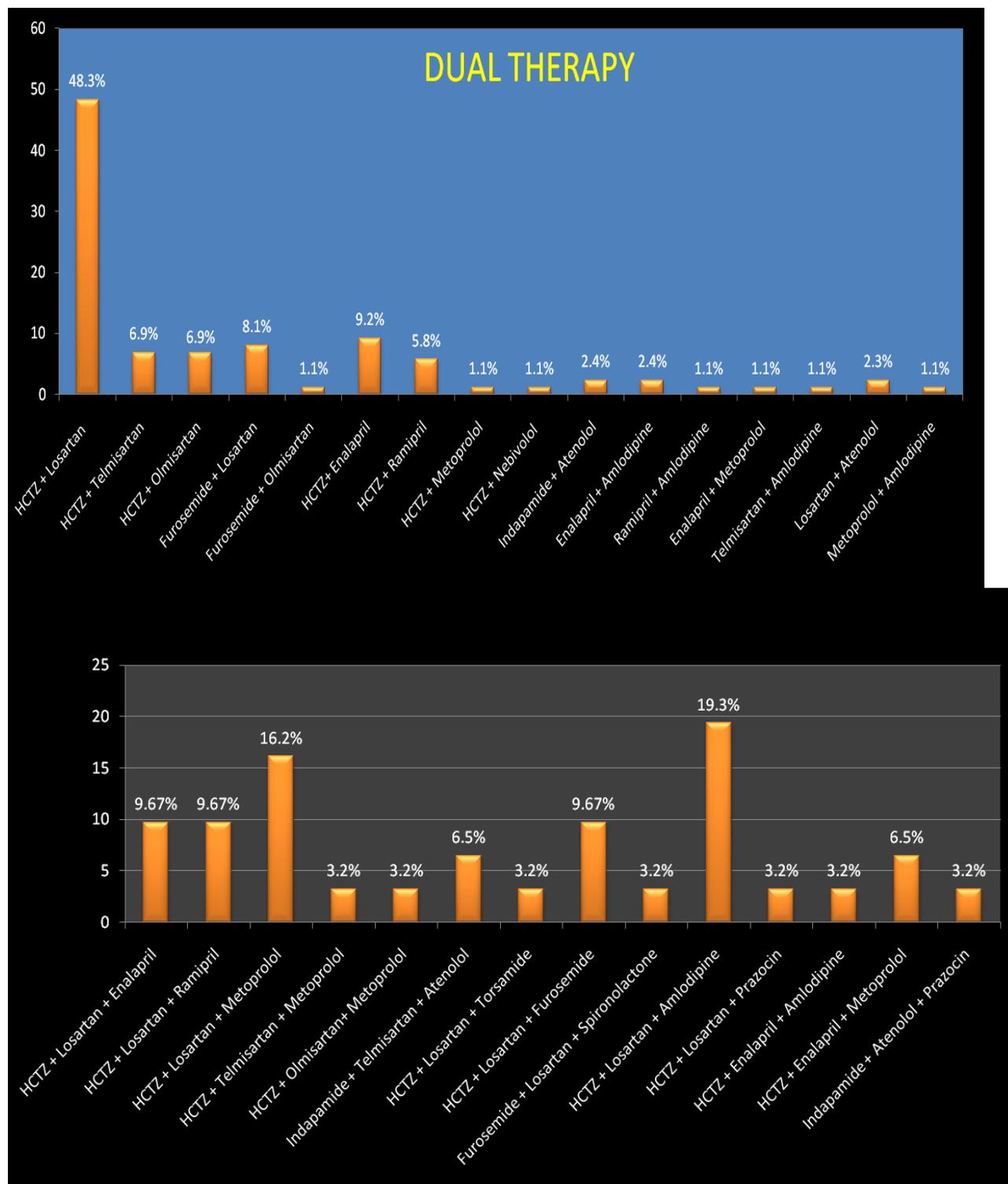


Figure 3: Details of different drugs used in triple therapy.

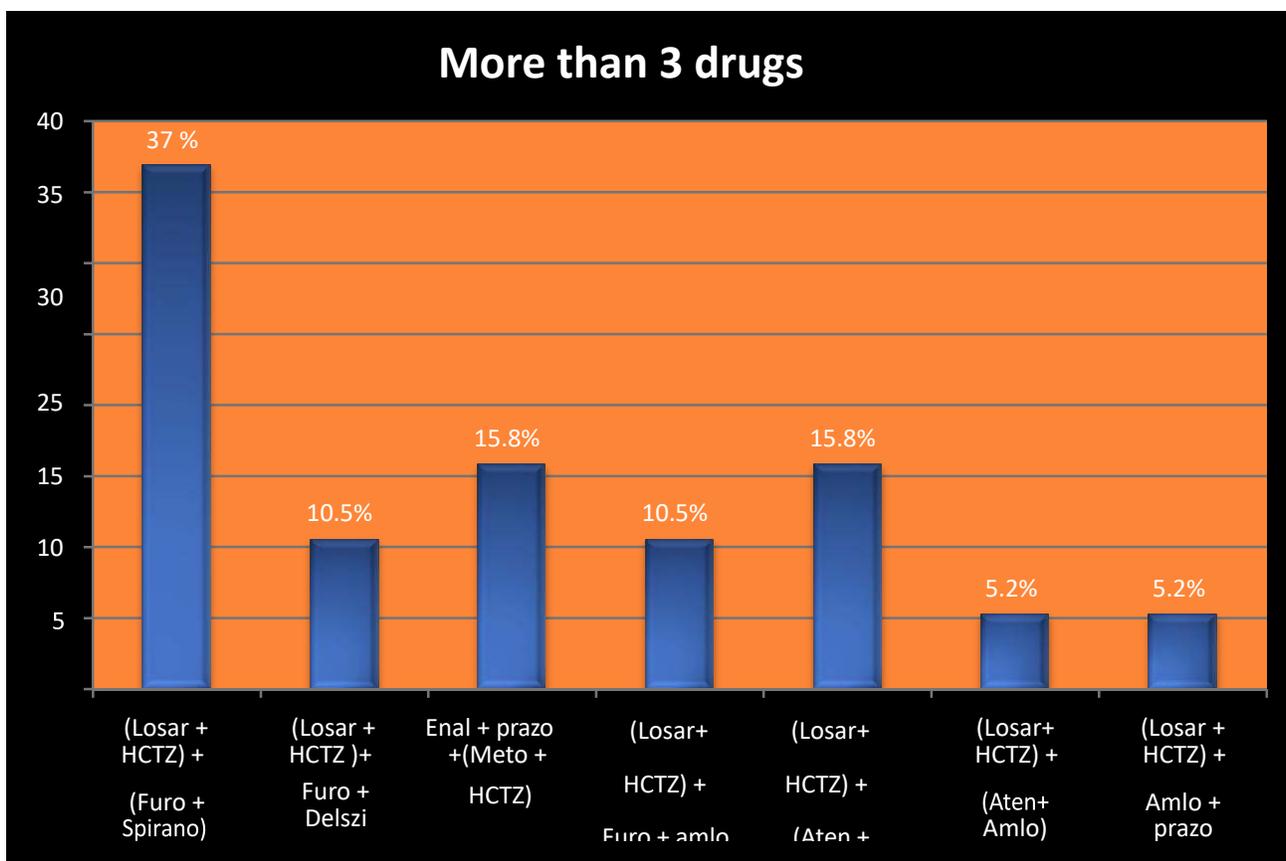


Figure 4: Details of different class of drugs used as more than 3.

Discussion

As there is a strong epidemic rise in hypertension in our country, the present prospective study was carried out to assess the prescribing patterns of Antihypertensive drugs in the treatment of hypertension in the medical OPDs of St. Martha's Hospital Bangalore.

In a chronic disease like hypertension, day to day management and adjustment of treatment, constant follow up for successful management and extra treatment added or withdrawn in the face of complications is a must. Careful literature review reveals that there is no consistency in the gender distribution of the patients suffering from hypertension. While some of the studies have reported higher percentage of the male patients,^[6] in contrast, few studies have reported lower percentage of the male patients.^[7] Higher percentage of the patients were in the age group of 51-60 years^[8] and the same results were obtained from our study. Although there is a correlation between high BMI and incidence of hypertension but in our study higher percentage of hypertensives were with normal BMI and this was supported in the study performed by Abdulla K,^[9] which reveals that there is no consistency or any positive correlation existing between BP and increasing BMI in the patients. A total of 128(71.1%) of the patients having a family history of hypertension reinforces the fact that there is a strong genetic predisposition in hypertension. This result was backed by many studies which also demonstrates the relation of genetic predisposition.^[10, 11]

In our study the use of single antihypertensive is similar when compared to the pattern of prescribing ARBs, CCBs and ACE I in a previous study.^[12]

As per our study results fixed dose combinations were preferred over separate drugs. The higher choice of fixed dose combinations could be because, these products offer a potential means of reducing pill burden and cost for the patients and increases patient convenience and compliance.^[13]

Regarding dual antihypertensives, Earlier studies shows that diuretics and ACE I can be used alone or in combination with different antihypertensive drugs.^[14]

Counselling and educating the patient on the importance of diet and exercise in the management of hypertension are of vital importance. The importance of educating hypertensive patients are appreciated by pioneering clinicians all over the world. Continuing education for the clinicians to keep themselves abreast of the latest development in the field of hypertension treatment would also contribute to the effective management of hypertension.

Although the prescribing patterns was analysed by the present study, the results revealed that, the prescribing pattern of Anti-hypertensive drugs follows the standard treatment algorithm as per JNC VII guidelines for hypertension.

Conclusion

Among the different approaches of treatment, dual therapy was found to be the most preferred choice of treatment. The present study revealed that, prescribing pattern of antihypertensive drugs follows the standard treatment algorithm as per the JNC VII guidelines for hypertension. In India, the role of the pharmacist in direct interaction with patient is often limited. But in certain advanced countries, a pharmacist has an ample scope in playing the role of a hypertensive educator. This aspect needs exploration in our country.

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