

**ANTIHYPERTENSIVE DRUGS UTILIZATION PRACTICE PATTERNS IN AN URBAN
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ABSTRACT

Background: Hypertension is a state of persistent high systolic and diastolic blood pressure, its prevention with rational treatment, is necessary to prevent its dreaded complications related mainly to cardiovascular, renal & cerebro-vasculatures ultimately resulting in “End-organ damage” such as stroke, retinopathy, renal failure, unstable angina, myocardial infarction etc. Hence, the aim & priority is to Prescribe Appropriate rational medications in the practice pattern to preclude the risk of these complications. **Aims;** Therefore the aim of this study is to find out the utilization pattern of antihypertensive drugs in the state of Sikkim, East India. **Methods:** A total of 280 cases suffering from hypertension without any comorbid condition and receiving antihypertensive medication, were recruited from the medicine outpatient department or being admitted in the in-patient facility of the Medicine ward in the Central Referral Hospital, Gangtok, Sikkim. The OPD prescription slips and patient’s case sheets were screened during the study period & also the age & sex of each patient were noted along with antihypertensive used (Generic Name, Brand Name, Dose and Frequency]. **Results:** It is found that calcium channel blockers and angiotensin II receptor blockers are prescribed most extensively ahead of diuretics agents and there are no marked differences in the use of antihypertensive drugs in both the genders. **Conclusions:** Utilization practice Pattern of drugs of different class was varied demonstrating that ACE inhibitor and CCBs the most and Alpha blockers are the least utilized drugs.

KEYWORDS: Antihypertensive, Practices, India.**INTRODUCTION**

Hypertension is a most common cardiovascular disorder, usually of advanced age, it is not a disease in itself but acts as a major risk factor of cardiovascular complications, mortality and morbidity; persistent high systolic and diastolic blood pressure ultimately leads to damage of target organ if not treated promptly.^[1] the aim of treatment of hypertension is to prevent the complication, mortality morbidity associated with raised blood pressure by lowering the blood pressure to an acceptable or tolerable level depending on the clinical state of the individual patient by the antihypertensive drugs’ medication so that the patient can live a normal/ nearly normal life as far as possible.^[2] Hence, appropriate drug therapy can ensure immense therapeutic benefit of essential hypertension with least adverse effects if any. However, because of the high prevalence of hypertension and the requirement of medications for prolonged period, or even for lifelong, the cost of drug represents a major issue on national budget & health economics.^[3] The study of prescribing pattern of drugs is a component of medical audit which deals with monitoring, evaluation and necessary modification in prescribing practices of the prescriber in order to achieve

rational and cost effective medical care. There is growing evidence of irrational prescribing practice of antihypertensive drugs resulting in increased financial burden on the health care system; therefore, it is necessary to analyze the prescribing patterns and the extent of adherence to prescribed guidelines by the prescriber. Drug utilization study is an effective tool for analyzing the effects of guidelines and other relevant information on the prescribing behavior/ habit of the physician.^[4]

Therefore, this study aims to find out the prescribing practice of antihypertensive drugs in the state of Sikkim, India where this sort of study has not been carried out earlier.

METHODS

Patient diagnosed of suffering from hypertension without any comorbid condition and receiving antihypertensive medication, presenting to the medicine outpatient department or being admitted in the inpatient facility of the Medicine ward in the Central Referral Hospital, Gangtok, Sikkim were included in this study. The OPD prescription slips and patient’s case sheets were screened

during the study period. A total of 280 cases were studied, the age & sex of each patient were noted along with antihypertensive used (Generic Name, Brand Name, Dose and Frequency).

Data Analysis

All antihypertensive agents were classified into six major groups along with one miscellaneous group on the basis of Anatomical Therapeutic Chemical Classification [ATC] Code as follows.

1. CCBs (C08)
2. Beta blockers (C07)
3. ACE inhibitors & ARBs (09)
4. Diuretics (C03)
5. Alpha blockers (C02)
6. Miscellaneous drugs : Alpha methyl dopa, Clonidine and Moxonidine (C02)

The latest edition of Indian Drug Review book was referred to for the generic names /chemical names of the various drugs.

Pattern of usage of a class of drugs were calculated by dividing the total number of prescriptions of a particular class of drugs by total number of prescriptions of all classes of drugs, multiplied by 100.

RESULTS

A total number of 280 prescriptions were analyzed. It is found that the number of women patients [52.5%] were slightly higher than that of men patients [47.5%] & larger number of patients of uncomplicated essential hypertension belonged to the < 55 years age group [57.9%] as compared > 55 years age group [42.1%]. As many as 82.5% of the total number of patients were being treated on outpatient basis.

The overall use of antihypertensive is presented in Table No. 1 which shows the utilization of ACE Inhibitors/ AT-2RBs supersedes all other groups of antihypertensive followed by CCBs.

Table 1: Overall Utilization of Antihypertensive agents in uncomplicated Hypertension

| Class | n | % |
|----------------|-----|------|
| CCBs | 136 | 48.6 |
| Beta Blocker | 63 | 22.5 |
| AT2RB | 136 | 48.6 |
| Diuretics | 110 | 39.3 |
| ACE-I | 36 | 12.6 |
| Alpha Blockers | 1 | 0.4 |
| miscellaneous | 4 | 1.4 |

The above table no. 1. Shows calcium channel blockers and AT - II receptor blockers are prescribed most extensively ahead of diuretic & other agents.

Table 2: Relative use of antihypertensive in males and females

| Anti-hypertensive agent | Male (n=133) | | Female (n=147) | |
|-------------------------|--------------|-------|----------------|------|
| | N | % | N | % |
| CCBs | 53 | 47.4 | 73 | 50.0 |
| Beta Blocker | 33 | 24.8 | 30 | 20.4 |
| AT2RBs | 75 | 56.4 | 61 | 41.5 |
| Diuretics | 55 | 41.3 | 55 | 37.4 |
| Alpha Blockers | | | 1 | 0.7 |
| Miscellaneous | | | 4 | 2.7 |

Table No. 2 shows the relative use of antihypertensive in both genders but there is no marked differences between the two.

DISCUSSIONS

Generally, the overall hypertensive utilization pattern indicates that calcium channel blockers and angiotensin-II receptor blockers are being extensively relied on, for the treatment of hypertension. The ARBs and ACE Inhibitors together form the most commonly used group of antihypertensive (48.6% and 12.9%) followed by calcium channel blockers (48.6%), this sort of similar results were obtained by Greene et al in the united states.^[5] ACE inhibitors were the most prescribed (35.4%) followed by calcium channel blockers and diuretics (both 20.3%). However, JNC7 and WHO

guidelines recommend that the diuretics are the first line of treatment strategy, but the one which was used in this study was only 39.3%.

A study conducted in South India on antihypertensive group drug utilization pattern demonstrated, even lower utilization of diuretics which was only 5.12% patients,^[6] considerations on efficacy, safety, availability, access, costs and pharmaceutical advertising have been identified as possible reasons. However, it is difficult to make definitive conclusions because there is no data showing utilization of antihypertensive medicines at the

community level where most low risk cases might be found and the reasons why the other classes of drugs are the preferred is unknown. However there is also no published analysis on how current medicines policies govern prescribing practices.

Additionally, AT-2RBs are preferred over ACE inhibitors in this study, which could be due to better safety profile and lesser side effect like dry cough.

Also, comparing the use of antihypertensive drugs on gender basis, it did not show significant difference, although Angiotensin- II receptor blockers have been used more extensively in males (56.4%) than in females (41.30%), on the other hand, calcium channels blockers have been used more in females (49.6%) as compared to males (47.4%).

CONCLUSION

In summary, our study unveiled the utilization practice pattern of antihypertensive drugs especially in Sikkim hospital as ARBs and ACE Inhibitors together form the most commonly used group of antihypertensive (48.6% and 12.9%) respectively followed by calcium channel blockers (48.6%) and the list traces to diuretics, and alpha 1 blocker.

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