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Research Article

PRESCRIBING PATTERN OF ANTIHYPERTENSIVE DRUGS IN ESSENTIAL HYPERTENSION IN MEDICINE OUT PATIENTS DEPARTMENT IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To study the prescribing pattern of antihypertensive drugs in essential hypertension in medicine out patients department in a tertiary care hospital, Dibrugarh

Methods: A retrospective observational study of 6 months duration was undertaken in the Medicine OPD. The prescriptions prescribed to the patients suffering from essential hypertension were collected and assessed. Parameters noted were: (1) number of antihypertensive agents used (2) the pattern of different groups of antihypertensive agents.

Results: Out of 270 patients, 190 received monotherapy in which calcium channel blockers [CCB] (65%) is the most commonly used drugs followed by angiotensin converting enzyme [ACE] inhibitors (14%), angiotensin receptor blocker [ARB] (12%), diuretics (6%), β-blockers (3%). The combination therapy comprises 80 (28%) prescription in which 64 (80%) received two drugs and 16(20%) received three drug combination. CCB + diuretics (30%) is the most commonly prescribed followed by ACE inhibitor + diuretics (20%) ARB + diuretics,(15%), ARB + β-blocker 5%, ARB + CCB (5%) and CCB + β- blockers (5%). In triple drug regime ACE inhibitors + diuretics + β- blocker (10%) and ARB + diuretics + β-blocker (10%) were used.

Conclusion: The present study shows CCB is commonly used on account of its fewer side effects. The combination therapy is seen commonly in patients who come for follow up not being controlled by monotherapy.

Keywords: essential hypertension, prescription and antihypertensive drugs

INTRODUCTION

High blood pressure is a major health problem and being the most common cardiovascular disease it results in high morbidity and mortality in world population. (1,2)According to WHO health statistics 2012, the prevalence of hypertension in India was 23.1% in men and 22.6% in women in equal or more than 25 years age.(3) The various reasons for hypertension are socio-economic, behavioral, sedentary life style, nutritional and poor health maintenance. The poor controlling of hypertension leads to further progression of cardiovascular complications like ischemic heart disease, heart failure, stroke and chronic renal insufficiency.(4)

Current clinical criteria for defining hypertension generally are based on the average of two or more seated blood pressure readings during each of two or more outpatient's visits and it is divided as given in table 1.

Table 1: Table showing blood pressure classification

Blood pressure classification	Systolic BP, in mmHg	Diastolic BP, in mmHg
Normal	<120 mmHg	< 80 mm Hg
Prehypertension	(120-139) mm Hg	80-89 mm Hg
Stage 1 hypertension	(140-159) mm Hg	90-99 mm Hg
Stage 2 hypertension	>160 mm Hg	> 100 mm Hg

In children and adolescents, hypertension generally is defined as systolic and/or diastolic blood pressure consistently >95th percentile for age, sex and height. Blood pressures between the 90th and 95thpercentiles are considered pre-hypertensive and are an indication for lifestyle intervention (5)

Hypertension is classified base on etiology into primary (essential) and secondary hypertension. In 95% of cases the specific underlying cause of hypertension cannot be found and referred to have essential hypertension. However it tends to be familial and the prevalence of essential hypertension increases with age and individuals with relatively high blood pressure at young ages are at increased risk for the subsequent development of hypertension.(5)

Various international committees have published guidelines on the treatment of hypertension and also continuously update them keeping in view on the results of such treatment The JNC 7 (Joint National Committee on prevention, detection, evaluation and treatment of high blood pressure) recommends the use thiazide type diuretics as the first choice when used alone or in combination with drugs from other classes of anti-hypertensive's in uncomplicated essential hypertension. For > 20/10 mm Hg above goal BP, combination of two agents is recommended with one of them is usually being a thiazide diuretic.(6) But in recent JNC 8 guidelines it do not consider diuretics as the first choice rather considers first-line and later-line treatments to be limited to 4 classes of medications: thiazide-type diuretics, calcium channel blockers (CCBs), ACE inhibitors, and ARBs. followed by second- and third-line alternatives included higher doses or combinations of ACE inhibitors, ARBs, thiazide-type diuretics and CCBs.(7) The Indian association of hypertension 3 too consider diuretics as a part of ACE inhibitors, ARB and CCB and not as preferred agents as in previous guidelines.(8) The NICE guidelines 2011 also specify age as a selection of initiating drug therapy; with age < 55 years to be initiated with ACE inhibitors and in > 55 years to ne initiated with CCB. (9)

Drug utilization research is an essential part of as it describes the extent, nature and determinants of drug exposure (10).The study of prescription pattern reflects the physician attitude towards the disease and role of drugs in its treatment and their therapeutic knowledge. (11) Moreover it also helps in monitoring, evaluation and necessary modifications in prescribing practices to achieve a better medical care. (4). Keeping this in background the present study was taken to analyze the prescribing pattern of antihypertensive drugs and adherence to international guidelines in medicine OPD in a tertiary care hospital of Assam.

MATERIALS AND METHODS: it was a retrospective observational study of medicine utilization patterns in patients with essential hypertension. The study was done in Assam Medical College and Hospital that caters to health needs of diverse ethnic tribes with various socio-economic status and occupations. Ethical approval was obtained from the institutional and hospital committee prior to study initiation.

The patient under study was registered from July 2012 to December 2012. All hypertensive patients irrespective of age and sex visiting OPD and treated with at least one hypertensive drugs were taken in the study. Patients who were advised life style modification though hypertensive and those having a secondary cause of hypertension were excluded from the study. The following data were collected age, sex, registration number, diagnosis, duration of illness, number of drugs prescribed, route of administration, dose and frequency of drug were collected from the prescription prescribed to the patients.

RESULTS

Out of 270 patients, 142 (53%) were male and 128(47%) were female. Among them 190 received monotherapy (70%) and 80(30%) patients received combination therapy, in which 64 (80%) received two drug and 16(20%) received three drug combination regime.

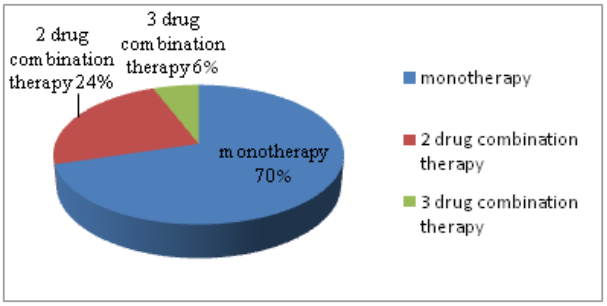

Fig1: Drug utilization pattern

Evaluating the use of monotherapy drugs, calcium channel blockers {CCB} 123(65%) is the most commonly used drug followed by ACE inhibitors 27(14%), ARB 23 (12%), diuretics 11(6%) and β blockers 6(3%). And considering cut off age of 55 years as per NICE guidelines of prescribing ARB and CCB as initial drug of treatment ACE inhibitors were prescribed in 20 patients with age< 55 years and CCB in 102 patients with age > 55 years.

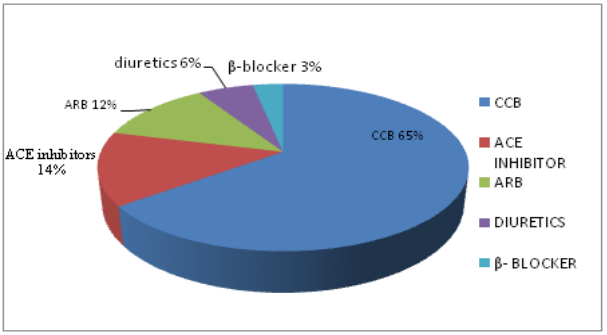

Fig 2: Monotherapy drug utilisation pattern

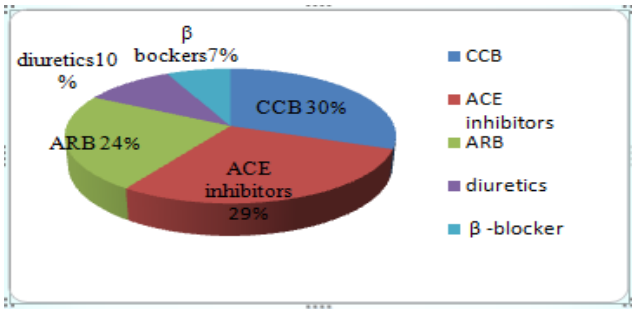

Fig 3: Monotherapy drug utilisation pattern < 55 years

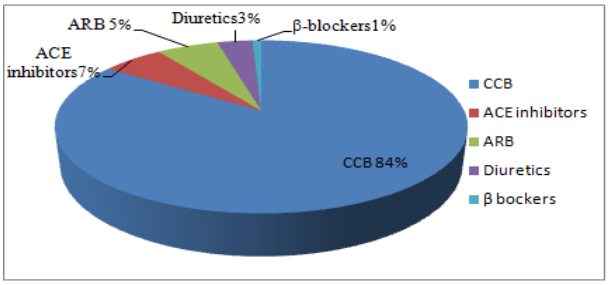

Fig 4: Monotherapy drug utilization pattern in > 55 years

In 2 drug combination regime CCB + Diuretics 24(30%) is the most commonly prescribed followed by ACE inhibitors + Diuretics 16(20%), ARB+ Diuretics12 (15%), ARB+ β-blockers4 (5%), ARB +CCB 4(5%) and CCB + β-blockers4 (5%). In triple drug regime, ACE inhibitors + diuretics + β- blocker 8(10%) and ARB + diuretics + β-blockers 8(10%) were used.

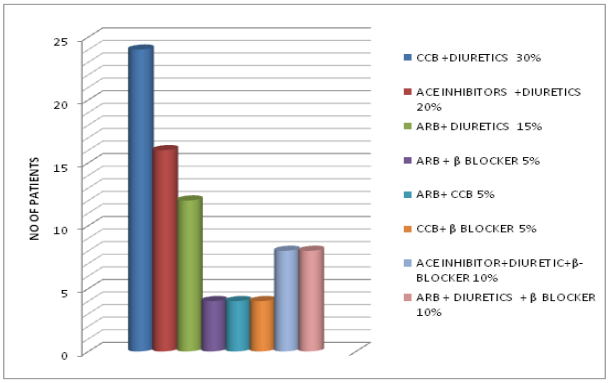

Fig.5: Combination therapy drug utilization pattern

Table 2: Distibution of essential hypertension pattern in relation to age and sex

Age(years)	Male	Female	Total
<20	3	1	4
20-29	6	9	15
30-39	24	30	54
40-49	37	42	79
50-59	33	24	57
60-69	21	14	35
>70	16	10	26

DISCUSSION

It is important to consider the recommendation of international bodies on hypertension in order to improve the prescribing pattern of drugs to ensure a better treatment and survey of prescriptions is an effective way to evaluate the prescribing attitude of the physicians of drugs as per guidelines. (12)

In this study the prevalence of hypertension in female is 47% and to that of male is 53% which correlate to previous study done on this field. (13)

The patients under age group 30-60 years presented with more cases of hypertension. This shows that advanced ages are not only the risk factor of hypertension; sedentary life style, food habits and stress also plays an important role leading to it. (14, 15)

According to reports hypertension is better controlled by combination therapy and so commonly prescribed (16-20), but present study shows monotherapy (70%) to be more commonly used than fixed dose combination (30%). The combination therapy however is seen commonly in patients who come for follow up which were not controlled with monotherapy. The present study revealed that CCB were the most commonly prescribed as a single therapy. In relation to age CCB is seem to be preferred in age group more than 55 years which is as per National Institute for Health and Care Excellence (NICE)guidelines. However in age less than 55 years, ACE inhibitor though use commonly, CCB is also used as par with ACE inhibitors; this may be attributed to the cost, good response and less incidence of side effects of CCB's.

Diuretics is the most common drug that had been included in fixed drug combination, they are mostly combined with CCB, ACE inhibitor and ARB. The use of diuretics in multi drug regimes is recognized as essential for reduction of blood volume, vascular resistance and hence the efficacy of the combined regime (21, 22)

CONCLUSION: With time, there happened to be change in the treatment strategies and thereby the prescription pattern. Base on the data of the study it is seen that for essential hypertension treatment seem to be inconsistent with international hypertension guidelines. Though diuretic happens to be the least costly drug, it has been the least used monotherapy drug but as a combination therapy, it is found to be the most commonly used drug. Another lacunae in the prescribing pattern is the underutilization of less number of fixed dose combinations of antihypertensive drugs. As per with age as a criteria for selection of drugs the present study is in the favour of NICE guidelines on hypertension. So, it can be said that further studies are needed from time to time and in large scale to improve the current prescribing pattern in the treatment of hypertension. Moreover it should be also noted that most of the international guidelines are made in respect to the western population and Indian population is vast different from the west both ethnically and genetically. So robust large clinical trials need to be done in the field of drug therapy of hypertension in India so that a more effective update of the current guidelines of hypertension can be produced which can be attributed to the general population of India.

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