ORIGINAL ARTICLE

PREVALENCE OF BETA BLOCKERS USE IN ELDERLY FOR UNCOMPLICATED HYPERTENSION

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ABSTRACT

Objective: The study was conducted to identify the prescribing practices in essential hypertension to find out prescribing patterns in elderly patients.

Material and methods: A retrospective study was done to assess the pattern and prescription of antihypertensive drugs at Maharishi Markandeshwar Medical College and Hospital, Kumarhatti Solan (H.P) A total of 100 handwritten prescriptions of patients >60 yrs of age were randomly chosen from the hospital pharmacy during 8-week period in the month of July-August 2014 and were analyzed.

Results: An analysis of 100 prescriptions revealed that diuretics were the most commonly prescribed antihypertensive drugs (28.15%), followed by calcium channel blockers(21.35%), beta blockers (20.5 %), ACE inhibitors (18.93%), Angiotensin receptor blockers(9.22%), combined alpha and beta blockers(1.45%) while alpha blockers were the least prescribed drugs(0.97%). The doses of the drugs were standard doses as outlined in the JNC7 report. The frequency of dose prescribed was: once daily 72%: twice daily 27% and thrice daily 1%. Prescriptions for monotherapy were 38% whereas in remaining 62% prescriptions a combination of 2 or more drugs was prescribed. In 63% prescriptions, generic name of the drugs was used whereas in remaining 37%, non-generic name was used. Prevalence of hypertension was found to be higher in men (65%).

Conclusion: The most common drug group used was diuretics followed by calcium channel blockers, beta blockers, ACE inhibitors, Angiotensin receptor blockers. Polypharmacy and use of nongeneric drugs was much common.

Keywords: Drug utilization, prescribing pattern, elderly, beta blockers, Antihypertensive drugs

INTRODUCTION

Hypertension is an important risk factor for cardiovascular morbidity and mortality, particularly in the elderly. One major reason for this trend is the pattern of BP changes and increasing hypertension prevalence with age (about 1 billion people worldwide).[1]

Lifestyle changes should be the initial approach to hypertension management. A number of pharmaceutical agents, well evidenced by large randomized clinical trials, are available for initial treatment of high BP. These include diuretics and beta-blocking agents, calcium channel blockers (CCB), angiotensin converting enzyme (ACE) inhibitors, and angiotensin receptor blockers (ARB). [2]

The JNC 7 guidelines recommend diuretics as the first line treatment in hypertension.[3] Thiazide-type diuretics are recognized as the cornerstone of antihypertensive therapy because of their extensive track record in preventing stroke and cardiovascular events and their low cost.[4] The use of beta blockers in the elderly with uncomplicated hypertension has reduced in comparison to angiotensin receptor blockers and calcium channel blockers.[5,6] Beta-blockers are recommended in the JNC 7 Report as first-line therapy in patients with "compelling indications" such as ischemic heart disease and heart failure.[7]

Changes over time in terms of recommended guidelines have resulted in modification to the prescription patterns of antihypertensive drugs.

Therefore, drug utilization studies, which evaluate, and analyze 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 drug rationally.[8]

In this study, we examine the prevalence of prescribing beta-blockers as initial antihypertensive therapy in elderly individuals with uncomplicated hypertension.

METHODOLOGY

This was a retrospective study to study the drug utilization and prescription pattern of antihypertensive drugs. The ethical clearance was taken from institutional ethic committee.

The study was done to assess the pattern and prescription of antihypertensive drugs at Maharishi Markandeshwar Medical College and Hospital, Kumarhatti Solan(H.P) A total of 100 handwritten prescriptions were randomly chosen from the hospital pharmacy during 8-week period in the month of July-August 2014 and were analyzed. Patients in the age group of ≥60 years who have been diagnosed with hypertension as per JNC-7 guidelines and patients receiving or prescribed with antihypertensive drugs were included. The data was recorded on the proforma and analyzed.

Inclusion / Exclusion Criteria: For inclusion in this study, all prescriptions with diagnosis of hypertension were chosen. Prescriptions with patient age group of more than 60 years were chosen irrespective of gender.

For exclusion from this study, prescriptions with more than one diagnosis, e.g. Hypertension with Diabetes mellitus, were rejected. Prescriptions with age group less than 60 years and pregnant women were not included in this study.

RESULTS

After collection and critical analysis of 100 prescriptions the following results were obtained in respect of individual antihypertensive drug prescribed.

Of these 100 prescriptions, 76.6% of the patients were in the age group of 60-69 years, followed by 23.4% who were ≥70 years, and this was found to be higher in men 68.5% than in women 31.5%. The numbers of drugs prescribed were in the range of 4-6 per prescription.

Hypertensive patients were classified on the basis of Joint National Committee (JNC-7) was summarized in Table I.

Table 1: Classification of hypertensive patients according to JNC 7 guidelines

BP (Systolic/Diastolic) mmHg	Patients(%)
Prehypertension (120-139 / 80-89)	76 (76%)
Stage I hypertension (140-159/90-99)	16 (16%)
Stage II hypertension (>160 />100)	8 (8%)

Table-II Frequency and percentage of antihypertensive drug use:

Drug	Frequency (%)
Enalapril	17 (8)
Ramipril	23 (11)
Amlodipine	41 (20)
Diltiazem	2 (1)
Nifedipine	2 (1)
Atenolol	31 (15)
Metoprolol	2 (1)
Nebivilol	2 (1)
Carvedilol	2 (1)
Losartan	13 (6)
Telmisartan	6 (3)
Furosemide	2 (1)
Spironolactone	4 (2)
Triamterene	10 (5)
Benzthiazide	10 (5)
Labetalol	8 (4)
Hydrochlorothiazide	27 (13)
Prazosin	2 (1)
Torasemide	2 (1)

Table III: Frequency and percentage of antihypertensive drug use

Drug class	Frequency (%
Beta-blockers	35 (18)
Calcium channel blockers	45 (22)
Diuretics	55 (27)
ACE-inhibitors	40 (19)
AT1receptor antagonist	19 (9)
Combined alpha & beta blockers	**10 (4)**
Alpha receptor blockers	2 (1)

As for individual medicines, amlodipine (20%) was the most commonly prescribed antihypertensive drug followed by atenolol (15%), hydrochlorthiazides(13%), ramipril (11 %) and enalapril (8%) as shown in table II.

The drug classes most frequently prescribed were in declining order, diuretics 27.25%, calcium channel blockers in 21.92%, Beta-blockers in 18.23%, ACE inhibitors in 18.72%, AT 1 receptor antagonists in 8.88%), combined alpha & beta blockers in

3 patients (3.88%) and alpha-receptor blockers in 1.12% (Table III)

The most common two drug combination therapy involved in the study was Amlodipine + Atenolol followed by Amlodipine + Hydrochlorthiazide, Metoprolol + Amlodipine. Other dose combination therapy involved in the study was Telmisartan + Hydrochlorothiazide followed by Olmesartan + Hydrochlorothiazide, Losartan + Hydrochlorothiazide and Ramipril + Hydrochlorothiazide.

Of all the prescriptions (n=100), total number of antihypertensive drugs prescribed were 206. Prescriptions for monotherapy were 38% whereas in remaining 62% prescriptions a combination of 2 or more drugs was prescribed. In 62.88% prescriptions, generic name of the drugs was used whereas in remaining 37.12%, non-generic name was used.

DISCUSSION

Prevalence of hypertension has remained stable or has decreased in developed countries during the past decade; it has dramatically increased in developing countries like India.[9] Our finding shows that the prescribing patterns of anti-hypertensive drugs in patients during the study period was found to be higher in men 68.5% than in women 31.5%. High blood pressure is more common in men than women. The risk of high blood pressure increases with age and in the early middle age.[9]

In this study, 62.88% of prescriptions, generic name of the drugs was used whereas in remaining 37.12%, non-generic name was used.

The World Health Organization (WHO) expects a 100% prescription of drugs in generic names. Increasing generic prescribing could substantially reduce the cost of drugs for the patients and reduce cost for pharmacists.[10]

The drug classes most frequently prescribed were in declining order, diuretics 27.25%, calcium channel blockers in 21.92%, Beta-blockers in 18.23%, ACE inhibitors in 18.72%, AT 1 receptor antagonists in 8.88%), combined alpha & beta blockers in 3 patients (3.88%) and alpha-receptor blockers in 1.12% as shown in table in table III.

As for individual medicines, amlodipine (20%) was the most commonly prescribed antihypertensive drug followed by atenolol (15%), hydrochlorthiazides(13%), ramipril (11 %) and enalapril (8%) as shown in table II and graph I. Calcium antagonists have been extensively studied in the elderly hypertensive population and the results showed a significant reduction in CV events.[11] These results were compared with Datta S *et al.*, and Almas A *et al.*, conducted at tertiary care hospital shown that Calcium Channel Blocker- Amlodipine is the most commonly used antihypertensive monotherapy.[12, 13] β-blockers do not seem to be the first choice to start in elderly hypertensive patients. However, there are still comorbid conditions in which β-blockers need to be considered for antihypertensive therapy in the elderly, such as coronary artery disease, post-myocardial infarction, heart failure, senile tremor, and supra- and ventricular arrhythmias.[14]

The most common two drug combination therapy involved in the study was Amlodipine + Atenolol followed by Amlodipine + Hydrochlorthiazide, Metoprolol + Amlodipine. Other dose combination therapy involved in the study was Telmisartan + Hydrochlorothiazide followed by Olmesartan + Hydrochlorothiazide, Losartan + Hydrochlorothiazide and Ramipril + Hydrochlorothiazide.[8, 15] These data are of importance in view of the fact that the prevalence of hypertension in this setting is very high since more than 60% of patients in this set up were over the age of 60 years. All hypertensive patients received drug treatment some as monotherapy while others were put on combination of two or more drugs. Majority of the patients were put on a combination of two or more drugs for the treatment of hypertension for the proper control of blood pressure.

CONCLUSION

Our study shows that the most commonly prescribed drug classes involved were Diuretics followed by calcium channel blockers and the ACE-I. The anti-hypertensive drug combinations among hypertensive patients were considerable on the overall blood pressure control.

The result obtained from present study indicates that a regular therapeutic audit for analysis of drug efficacy can provide regular feed back to clinical prescribers and there by motivate and promote rational and economical antihypertensive drug therapy.

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