



A STUDY ON PRESCRIBING PATTERNS OF ANTIHYPERTENSIVES IN GERIATRIC PATIENTS ATTENDING MEDICINE DEPARTMENT IN TERTIARY CARE HOSPITAL, ANANTHAPURAMU

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ABSTRACT

Hypertension is a leading contributor to the global burden of cardiovascular morbidity and mortality. The main objective of the present study was to assess the prescribing patterns for antihypertensives in geriatric patients. A prospective observational study was carried out for the period of six months in an out-patient department. Elderly patients who have been diagnosed with hypertension as per JNC-7 guidelines and patients receiving or prescribed with antihypertensive drugs were included. A total of 100 prescriptions were analyzed during the six-month study period. 72% of the patients were in the age group of 65-67 years and this was found to be higher in men 69%. During the study period 80% of the patients were Pre-Hypertensive systolic (120-139 mmHg) and Diastolic (80-89 mmHg) followed by Stage-I Hypertension and Stage-II Hypertension. The most common drug classes involved in the study was Calcium Channel Blockers 38% followed by Angiotension II receptor antagonists 21% and the most commonly prescribed drugs in the study population were Amlodipine 38%, Losartan 11% and Telmisartan 10%. The most common anti-hypertensive fixed dose combination therapy involved in the study was Telmisartan + Hydrochlorothiazide 15% and most common two drug combination therapy involved in the study was Amlodipine + Atenolol 7% followed by Metoprolol + Amlodipine 1%. Our study shows that the most commonly prescribed drug classes involved were Calcium Channel Blockers followed by Angiotension II receptor antagonists and the anti-hypertensive drug combinations among hypertensive patients were considerable and this practice positively impacted on the overall blood pressure control.

Keywords: Anti-hypertensives, Blood pressure, Geriatrics, JNC-7.

INTRODUCTION

Hypertension is a leading contributor to the global burden of cardiovascular morbidity and mortality. Prevalence of hypertension in Indian population in 2000 was 60.4 million males and 57.8 million females and projected to increase to 107.3 million and 106.2 million respectively in 2025.

Prevalence of hypertension varies from 4 – 15% in urban and 2 – 8 % in rural population [1]. Apart from unhealthy lifestyles, lack of awareness about hypertension, distorted public health systems, physicians treating hypertension also lag behind in treating hypertension according to standard guidelines. Non compliance to antihypertensive therapy is also a reason for uncontrolled hypertension [2]. Elderly patients commonly have multiple pathologies leading to

polypharmacy, and altered pharmacokinetics and pharmacodynamics, are prone to adverse drug reactions from inappropriate medication [3,4]. At least high normal blood pressure (below 140/90 mmHg) in elderly patients as mentioned in the Indian Hypertension Guidelines II [5]. The main objective of the present study is to assess the prescribing patterns for antihypertensives in geriatric patients.

MATERIALS AND METHODS

Purpose of the study

The main purpose of this study was to further evaluate the prescribing pattern of antihypertensive drugs and to identify the factors affecting the implementation

and use of the standard guidelines and to determine the type of drugs commonly prescribed i.e. either monotherapy or combination drugs.

Methodology

- (1) **Number of Patients:** 100 Patient's Prescriptions.
- (2) **Study Site:** The study was conducted in out-patient Medicine Department Govt. general Hospital, Ananthapuramu.
- (3) **Study duration:** 6 Months study.
- (4) **Study design:** Observational, non interventional, prospective study.

A prospective observational study was carried out for the period of six months from Nov 2014 to April 2015 in an out-patient department of Medicine dept., Govt. general Hospital, Ananthapuramu, Andhra Pradesh. Ethical approval was obtained from the institutional and hospital committee prior to study initiation. Elderly patients of age > 65 years who have been diagnosed with hypertension as per JNC-7 guidelines and patients receiving or prescribed with antihypertensive drugs were included⁶. Details necessary for evaluation regarding chief complaints of the patients, previous allergies, co-morbidities, and others were collected from the patients' clinical records. Certain demographic characteristics were studied and the factors studied were: (a) patient characteristics (gender, age (>65 years), and co-morbidities), (b) drug characteristics [list of antihypertensive and number of drugs prescribed] and Blood Pressure. The Socio-demographic status such as educational qualification, occupation, monthly income, and social habits of the patients were collected. All data were collected from data collection form to review the

current prescribing patterns of Anti-hypertensive drugs in hypertension patients with co-morbidities and without co-morbidities, use of Anti-Hypertensive Drug Monotherapy and combination therapy in patient with hypertension.

RESULTS

A total of 100 patients were consulted during the six-month study period, in an out-patient General Medical dept from November 2014 to April 2015, at Govt general Hospital, Ananthapuramu. Of these 100 prescriptions, 72% of the patients were in the age group of 60-65 years, followed by 26% in 66-70 years and 2% who were >70 years; and this was found to be higher in men 69% than in women 31%. The numbers of drugs prescribed were in the range of 4 – 6 per prescription. The Socio-demographic status such as educational qualification, occupation, monthly income, and social habits of the patients is summarized in Table 1. Hypertensive patients were classified on the basis of Joint National Committee (JNC-7) guidelines; summarized in Table 2.

The most common drug classes involved in the study was Calcium Channel Blockers 38% followed by Angiotension II receptor antagonists 21%, and other prescribing patterns of Anti Hypertensive Drug Monotherapy were summarized in Table 3. The most common anti hypertensive fixed dose combination therapy involved in the study was Telmisartan + Hydrochlorothiazide 15% followed by Olmesartan + Hydrochlorothiazide 3%, Losartan + Hydrochlorothiazide 1% and Ramipril + Hydrochlorothiazide 1%. The most common two drug combination therapy involved in the study was Amlodipine + Atenolol 7% followed by Metoprolol + Amlodipine 1%. 21%,

Fig 1. In hypertension percentage of anti-hypertensive drugs prescribed patients.

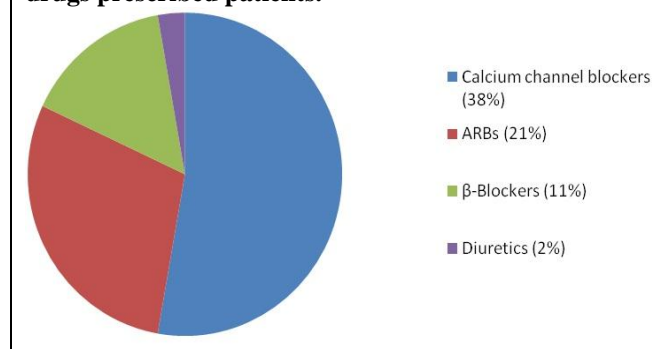


Fig 2. percentage of anti-hypertensive drugs prescribed patients.-Bar diagram

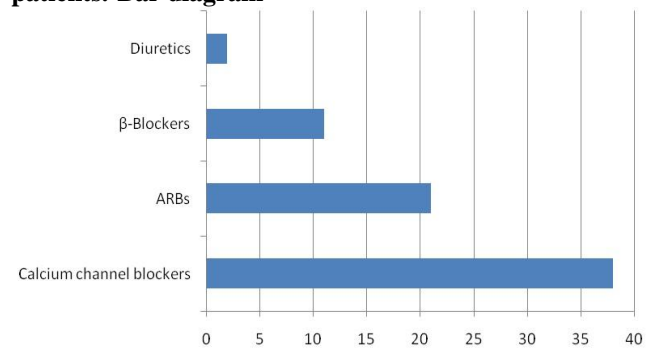


Table 1. Socio-demographic status of the patients

Socio-demographics	Number and percentage (%)
Educational qualifications	
Literate	76 (76%)
Illiterate	24 (24%)
Occupation	
Employed	57 (57%)

Unemployed	43 (43%)
Monthly income	
< 2000	23 (23%)
2000 – 5000	16 (16%)
5000 – 10000	31 (31%)
10000 – 15000	17 (17%)
> 15000	13 (13%)
Social Habits	
Alcoholic	15 (15%)
Smoker	20 (20%)
Both	8 (8%)

Table 2. Socio-demographic status of the patients

Systolic blood pressure	Number and percentage (%)	Diastolic blood pressure	Number and percentage (%)
Pre-Hypertension (120-139 mmHg)	84 (84%)	Pre-Hypertension (80-89 mmHg)	79 (79%)
Stage-I Hypertension (140-159 mmHg)	8 (8%)	Stage-I Hypertension (90-99 mmHg)	13 (13%)
Stage-II Hypertension (≥ 160 mmHg)	8 (8%)	Stage-I Hypertension (≥ 100 mmHg)	8 (8%)

Table 3. Prescription pattern of anti-hypertensive drug monotherapy

Anti-hypertensive monotherapy drugs	Number and percentage (%)
Calcium channel blockers	
Amlodipine	38 (38%)
Angiotensin II receptor antagonists	
Losartan	11 (11%)
Telemesartan	10 (10%)
β - Blockers	
Atenlol	6 (6%)
Metoprolol	5 (5%)
Diuretics	
Hydrochlorothiazide	1 (1%)
Furosemide	1 (1%)

Table 4. Use of Anti-hypertensive drugs in hypertension patients with no co-morbidities

Monotherapy drugs	Number and percentage (%)	Combination therapy drugs	Number and percentage (%)
Calcium channel blockers		Metoprolol + Amlodipine	1 (1%)
Amlodipine	20 (20%)		
Angiotensin II receptor antagonists		Olmesartan + Hydrochlorothiazide	2 (2%)
Losartan	6 (6%)	Losartan + Hydrochlorothiazide	2 (2%)
Telemesartan	6 (6%)	Ramipril + Hydrochlorothiazide	1 (1%)
β - Blockers			
Atenlol	6 (6%)	Atenlol + Amlodipine	3 (3%)
Diuretics			
Hydrochlorothiazide	1 (1%)	Telmisartan + Hydrochlorothiazide	14 (14%)

DISCUSSION

With increasing economic growth rate, India is not only facing the epidemic of Coronary Artery Disease but also of obesity, diabetes mellitus, and hypertension. 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 [6, 7]. Our finding shows that the prescribing patterns of anti-hypertensive drugs in geriatrics outpatient department during the study period was found to be higher in men 69% than in women 31%. High blood pressure is more common in men than women. The women's were more likely to develop high blood pressure after menopause [6]. The risk of high blood pressure increases with age and in the early middle age [4,6,8]. In the present study 76% of the patients were literate, 57% were employed, 31% of the patients having the monthly income of 5000-10000 and 20% were smokers and 15% were alcoholic patients. During the study period 80% of the patients were Pre-Hypertensive systolic (120-139 mmHg) and Diastolic (80-89 mmHg) followed by Stage-I Hypertension and Stage-II Hypertension.

The most commonly prescribed drug classes involved in the study was Calcium Channel Blockers 38% followed by Angiotensin II receptor antagonists 21% and the most commonly prescribed drugs in the study population were Amlodipine 38%, Losartan 11% and Telmisartan 10%. 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 and Neal B *et al.*, study results shown that the strong by the overviews of placebo-controlled trails [9, 12]. The most common anti-hypertensive fixed dose combination therapy involved in the study was Telmisartan + Hydrochlorothiazide 15% and most common two drug combination therapy involved in the study was Amlodipine + Atenolol 7% followed by Metoprolol + Amlodipine 1% and these finding were not comparable with the studies conducted at tertiary care Hospital. Beta blockers are used as the most common combination therapy [9, 10].

CONCLUSION

Our study shows that the most commonly prescribed drug classes involved were Calcium Channel Blockers followed by Angiotensin II receptor antagonists and the anti-hypertensive drug combinations among hypertensive patients were considerable and this practice positively impacted on the overall blood pressure control. A significant proportion of patients achieved reduction of blood pressure without facing clinically significant adverse effects.

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