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A PROSPECTIVE STUDY ON TRENDS IN PRESCRIBING PATTERN OF ANTIHYPERTENSIVE DRUGS IN HYPERTENSIVE PATIENTS

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ABSTRACT

Hypertension (HTN) is a global public health issue and a leading cause of cardiovascular disease (CVD), accounting for 45% of deaths due to heart disease, and 51% of deaths due to stroke globally and its alone believed to be responsible for >5.8 % of death all over the world. Major risk factor for hypertension includes excessive salt consumption, increased age, family history, less potassium in diet, race, and tobacco use. Prescribing pattern of antihypertensive drugs would help in reducing the burden of the disease and health quality. The aim of study was to assess the prescribing pattern of drugs among antihypertensive patients. The study was a prospective interventional study and conducted in Karuna Medical College Hospital Chittur, Palakkad in the duration of six months (November 2019 to April 2020). A total of 249 cases were included from Inpatients/Outpatients attending the General Medicine Department. Self designed data entry form was used to collect data related to the patient's demographics, medical history, medication history, social habits and management. In hypertensive patients, monotherapy (77.10%) is mostly preferred, than the combination therapy (22.89%). Diuretics 36.97% (n=71) are mostly used class in monotherapy, followed by CCBs (34.37%, n=66), ARBs (23.95%,n= 46), Beta blockers(7.81%, n=15) and ACEI (3.64%, n=7). In combination therapy, two drug therapy, ARBs with diuretics 42.10% (n=24) are mostly used and the least used therapy, triple drug therapy, ARBs + diuretics + ACEI 1.75% (n = 1).The study concluded that aggressive therapy for the management of hypertension to prevent the patients from coronary artery diseases and stroke.

Key Words: Hypertension, Antihypertensive, Monotherapy, Coronary artery, Stroke.

INTRODUCTION

Hypertension (HTN) is a global public health issue and a leading cause of cardiovascular disease (CVD), accounting for 45% of deaths due to heart disease, and 51% of deaths due to stroke globally and its alone believed to be responsible for >5.8 % of death all over the world [1,2]. Within the context of chronic disease, HTN is counted as a major factor in decreasing life expectancy and disability accustomed life years. An estimation of 1 billion of the world population was diagnosed with HTN in the year 2000 and this fraction is estimated increase to 29% by the year 2025 [3].

Obesity is clearly associated with an increased prevalence of hypertension and another major risk factor for hypertension includes excessive salt consumption, increased age, family history, too little potassium in diet, race, tobacco use. Apart from beneficial effects on chronic conditions such as obesity, diabetes, cancer, depression, premature cardiovascular disease and premature all-cause mortality, an increase in physical activity should be an important component of lifestyle modification for the prevention and treatment of high BP [4].

Prescribing pattern of antihypertensive drugs would help in reducing the burden of the disease and health quality [5]. Patient with hypertension must take antihypertensive drugs on a long term basis. Although such drugs cannot give a radical cure, they can prevent heart failure, kidney failure and acute stroke induced by hypertension and delay the development of atherosclerosis by controlling the blood pressure. Generally speaking antihypertensive drugs must be taken

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for life time [6]. In 2014, Eighth Joint National Committee (JNC 8) was formulated. These guidelines in contrast to the JNC 7 have now set the same preference to the drugs except for Beta blockers. The goal BP were revised to <150/90 mm Hg for age ≥60 years while <140/90 mm Hg for hypertensive adults with diabetes or non diabetic chronic kidney disease and also for the general hypertensive population younger than 60 years [7]. In this study we aimed to evaluate the trends in prescribing pattern of antihypertensive drugs in hypertensive patients.

METHODOLOGY

The study was a prospective observational study and conducted in Karuna Medical College Hospital Chittur, Palakkad. A total of 249 Hypertensive cases were taken from inpatients and outpatients attending the General Medicine Department in duration of 6 months (November 2019 to April 2020). This study was approved by Instutional Ethical Committee of Karuna Medical College (IHEC/12/2019). Patients diagnosed with hypertension and patients who were taking treatment for high blood pressure for the last six months and more were included in the study whereas patients having age greater than seventy years Pregnant women and patients having chronic diseases like CKD**,** Cancer**,** Psychiatric disorders were excluded.

The Patient informed consent (Annexure1) was collected from Patients to assess the data from patient case sheet and confidentiality was strictly maintained. Special designed data entry form were used to collect the patient demographic details, past medical history, past medication history, social history, family history, vital signs, laboratory investigations, diagnosis, treatment plan.

Fig 1. Gender wise distribution among study population.

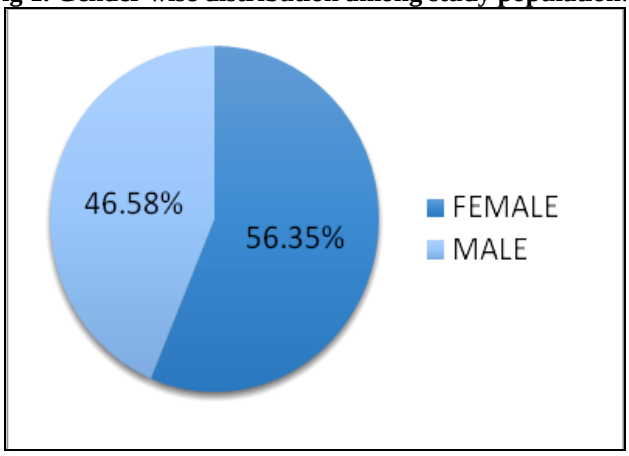

Fig 2. Age wise distribution among study population

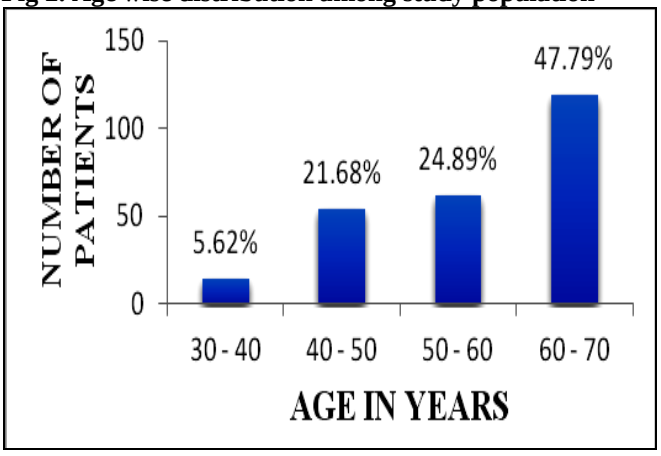

Fig 3. Distribution of risk factors among study population

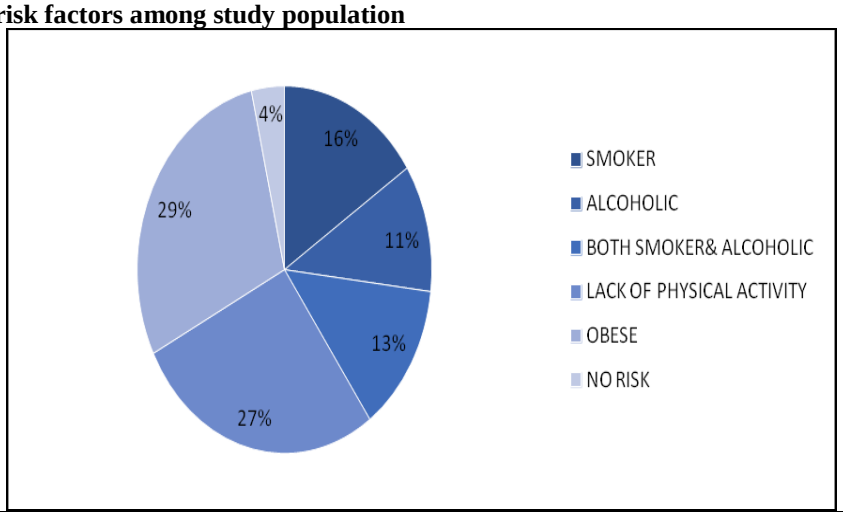

Table 1. Distribution of Antihypertensive drugs as monotherapy among study population

S.No	Category of Drugs	Number of patients (n=192)	Percentage of patients (%)
1	ACEI	7	3.64
2	Beta blockers	15	7.81
3	ARBs	46	23.95
4	CCBs	66	34.37
5	Diuretics	71	36.97

Table 2. Distribution of Antihypertensive drugs as combination therapy among study population

S.No	Category of drugs	Number of patients (n=57)	Percentage of patients (%)
1	Diuretics + ARBs + ACEI	1	1.75
2	Beta blockers + CCBs	2	3.50
3	Beta blockers + Diuretics	2	3.50
4	Diuretics + CCBs	3	5.26
5	ACEI + ARBs	9	15.78
6	ARBs + CCBs	16	28.07
7	ARBs + Diuretics	24	42.10

RESULT

The present study was conducted to assess the prescribing pattern of antihypertensive drugs among adult hypertensive patients. In Gender wise distribution among the total study population of hypertensive patients in which 133(56.35%) were female patients and one hundred and 116 (46.58%) were female patients (Fig 1). The data related to Age of patients shows 47.79% (n=119) from the age group 60-70, followed by 24.89% (n=62) of patients in the age group of 50-60 years and least 5.62% (n=14) patients were from 30-40 years (Fig 2). Out of 249 patients, 72(29%) are obese followed by 68(27%) patients were having lack of physical activity and 33(17%) of them are both smokers and alcoholic and the least 4% of them were not having any risk (Fig 3).

In the prescribing pattern of antihypertensive drugs included with monotherapy and combination therapy. In hypertensive patients, monotherapy (77.10%) is mostly preferred, than the combination therapy (22.89%). Diuretics 36.97% (n=71) are mostly used classes in monotherapy, followed by CCBs (34.37%,n=66) > ARBs (23.95%,n= 46) > Beta blockers(7.81%, n=15) > ACEI (3.64%, n=7) (Table 1). In combination therapy, two drug therapy, ARBs with diuretics 42.10% (n=24) are mostly used and the least used therapy, triple drug therapy, ARBs + diuretics + ACEI 1.75% (n = 1) (Table 2).

DISCUSSION

HTN is counted as a major factor in decreasing life expectancy and disability accustomed life years. An estimation of 1 billion of the world population was diagnosed with HTN in the year 2000 and this fraction is estimated increase to 29% by the year 2025 [3]. In a longitudinal study, being overweight, maintaining an elevated waist circumference or having an annual rise of these measurements above expected values increased the incidence of high blood pressure (BP). Physical inactivity is a risk factor for cardiovascular disease, and less active and less fit persons have a greater risk for high BP [6].

Previous studies revealed that hypertension is better controlled by combination therapy and is most commonly prescribed. However, in contrast to these studies, it was observed in the present study that the monotherapy (77.10%) is more common than combination therapy(22.89%).This was in accordance with the previous study done by Kuchake et al [8].

Among the monotherapy diuretics and CCBs were mostly prescribed drug of choice for the hypertensive patients supported by another study done by Ashok *et al*. [9]. The combination therapy however is seen commonly in those patients who were not controlled with monotherapy. Combination therapy adequately controlled the BP in hypertensive patients.

Diuretics were the most preferred drug with the combination of ARBs, CCBs, ACEIs and Beta blockers. This correlates the previous study done by Johnson and Singh.[10]

CONCLUSION

In the present study, diuretics were the most frequently prescribed drugs, followed by CCBs, ARBs, beta blockers and ACEIs in monotherapy. In diuretics, most commonly prescribed was furosemide. Diuretics were most commonly prescribed in combination therapy. In associated risk factors and comorbid conditions, combination therapy was prescribed. Criteria for the selection of drugs according to the NICE guidelines should be kept in mind during prescription of antihypertensive drugs. Most international guidelines are western world oriented, but we Indians are genetically and ethnically different from these people. There is need of further studies at regular interval to improve the prescribing pattern of antihypertensive drugs so that a

more effective guidelines for hypertension can be produced which may be beneficial to the Indian population.

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Nil

CONFLICT OF INTEREST

No interest.

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