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THE EFFECT OF AZILSARTAN FOR HYPERTENSION MANAGEMENT

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ABSTRACT

Objective: In this study my main aim is to evaluate the effect of azilsartan for hypertension management. **Method**: This Observational study was conducted among 100 patients were enrolled in the study with newly diagnosed with Grade I-II essential hypertension at tertiary medical college and from November 2017 to November 2018. **Results:** Among the patients, mean random blood sugar was 11.4±5.4 mg/dl in and 9.1±4.1 mg/dl in patients. Azilsartan on systolic blood pressure where the mean diastolic BP before Azilsartan treatment was 96.85±2.11mmHg. After treatment, the diastolic BP reduced to 93.75±2.22 mmHg, 91.85±1.59 mmHg, 89.05±2.26 mmHg, 86.75±2.50 mmHg and 84.30±2.37 mmHg at 1st week, 2nd week, 3rd week 4th week and 5th week respectively. **Conclusion:** From my result I can say that, azilsartan medoxomil has been shown to lower 24-hmy BP in hypertensive patients significantly. Further study is needed for better outcome.

KEYWORDS: Azilsartan, hypertension, systolic blood pressure.

INTRODUCTION

Essential hypertension is a common cardiovascular disorder with sustained increase in blood pressure ≥140/90 mmHg. The elevated arterial pressure causes pathological changes in the vasculature and hypertrophy of the left ventricle. Hypertension is the principle cause of stroke that is a major risk factor for coronary artery disease (CAD) and its attendant complications like myocardial infarction and sudden cardiac death. It is also a major contributor to cardiac failure, renal insufficiency and dissecting aneurysm of aorta.[1]

Hypertension is an increasingly prevalent chronic condition that is associated with serious morbidity and mortality. It is an important risk factor for the development and progression of cardiovascular disease (CVD), which is predicted to become the leading cause of death and disability worldwide by 2020.[2] As per the Registrar General of India and Million Death Study investigators (2001-2003), CVD was the largest cause of deaths in males (20.3%) as well as females (16.9%) and led to about 2 million deaths annually. In India, 23.10% men and 22.60% women over the age of 25 years suffer from hypertension.[3] Treating systolic blood pressure (SBP) and diastolic blood pressure (DBP) to targets that are <140/90 mmHg is associated with a decrease in CVD complications.[4] Blood pressure (BP) reductions of 10 mmHg systolic or 5 mmHg diastolic are associated with a 33-48% reduction in stroke and a 17-27% reduction in coronary heart disease (CHD) events.[5]

Azilsartan is a new angiotensin II receptor blockers (ARB), and ARBs may reduce cardiac mortality rates in hypertensive patients.[6] In an *in vitro* study, azilsartan was shown to have higher affinity for and slower dissociation from AT 1 receptors than other ARBs, including olmesartan, telmisartan, valsartan, and irbesartan.[7]

In this study my main goal is to evaluate the effect of azilsartan for hypertension management

Objective

General objective

To assess the effect of azilsartan for hypertension management.

Specific objective

- To detect clinical characteristics of the patients.
- To identify Effect of Azilsartan on systolic blood pressure.

Methodology

Type of study	Observational study
Place of study	Tertiary medical college and hospital
Study period	November 2017 to November 2018
Study population	100 patients were enrolled in the study with newly diagnosed with Grade I-II essential hypertension
Sampling technique	Purposive

Exclusion criteria

- Patients with sinus bradycardia,
- Sick sinus syndrome,
- Prinzmetal's angina,
- Heart block,
- Chronic heart failure,
- Myocardial infarction,
- Peripheral vascular disease

Study procedure

Face to face interview of the participants were conducted with the semi-structured, pre-tested questionnaire. The interview was conducted anonymously and privately as much as possible. Before preceding the data collection, the detail of the study was explicitly explained to each eligible respondent and informed written consents from the respondents were obtained. The upper limit of blood pressure in both groups was 180/110 mmHg. Patients belonging to grade I-II essential hypertension were selected as per JNC VIII report. Only naïve newly diagnosed hypertensive patients without prior antihypertensive treatment and without any associated diseases mentioned earlier were included.

Data analysis

Data were entered in the template of Statistical program, SPSS-15 after necessary editing and coding. Descriptive statistics were generated for socio-demographic variables and were presented with relative frequency. For assessing the compilations and health seeking pattern relevant data were analyzed along with the descriptive statistics. Cross tabulation of the selected complication and key health seeking practice variables were done to explore the association through chi square test at a significance level of $P<0.05$.

RESULTS

In table-1 shows age distribution of the patients where most of the patients (31.8%) belongs to age group 40-50 years. The following table is given below in detail:

Table 1: Age distribution of the patients.

Variable	Distribution	Percentage (%)
Age (Years)	< 30	5.1
	30-40	30.6
	40-50	31.8
	50-60	18.6
	60-70	10.2
	>70 Mean(±SD) = 45.91 (±13.02) years	3.7

In figure-1 shows gender distribution of the patients where most of the patients were male, 56%. The following figure is given below in detail.

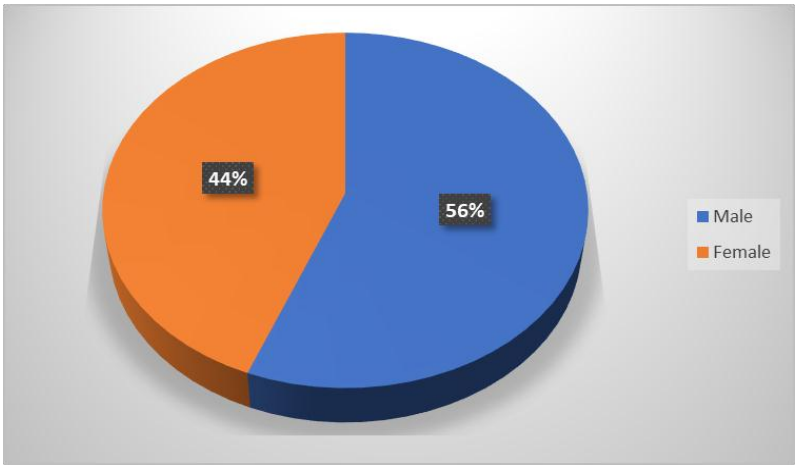

Figure 1: Gender distribution of the patients.

In table-2 shows clinical characteristics of the patients where In table-1 shows baseline investigations findings of patients where the mean random blood sugar was 11.4±5.4 mg/dl in and 9.1±4.1 mg/dl in patients. The following table is given below in detail:

Table 1: Baseline investigations findings of patients (n=100).

Baseline investigations	Group I (n= 100)
	Mean ± SD
R B S. (mmol/L)	11.4±5.4
S. creatinine (mg/dl)	1.0±0.2
TC (mg/dl)	209.0±48.6
LDL-C (mg/dl)	114.5±23.2
HDL-C (mg/dl)	39.7±4.7
TG (mg/dl)	220.8±52.5

In table-3 shows effect of Azilsartan on systolic blood pressure where the mean diastolic BP before Azilsartan treatment was 96.85±2.11mmHg. After treatment, the diastolic BP reduced to 93.75±2.22 mmHg, 91.85±1.59 mmHg, 89.05±2.26 mmHg, 86.75±2.50 mmHg and 84.30±2.37 mmHg at 1st week, 2nd week, 3rd week 4th week and 5th week respectively. The following table is given below:

Table 3: Effect of Azilsartan on systolic blood pressure.

Parameter	Azilsartan systolic BP in mmHg (mean±SD)
Baseline	159.9±7.85
After 1st week	146.95±2.35
After 2nd week	139.60±3.33
After 3rd week	134.45±3.46
After 4th week	129.85±3.11
After 5th week	126.35±1.80

In table-4 shows effect of Azilsartan on diastolic blood pressure. The mean diastolic BP before Telmisartan treatment was 96.70±2.00mmHg. After treatment, the diastolic BP reduced to 93.95±1.83mmHg, 91.40±2.08mmHg, 87.95±2.24mmHg 85.20±2.20 and 82.75±2.15mmHg at 1st week, 2nd week, 3rd week 4th week and 5th week respectively. The following table is given below:

Table 3: Effect of Azilsartan on diastolic blood pressure.

Parameter	Azilsartan systolic BP in mmHg (mean±SD)
Baseline	96.85±2.11
After 1st week	93.75±2.22
After 2nd week	91.85±1.59
After 3rd week	89.05±2.26
After 4th week	86.75±2.50
After 5th week	84±3.00

In figure-2 shows treatment-emergent adverse events occurring in the Azilsartan where the vast majority of AEs were either mild or moderate in intensity. The following figure is given below in detail.

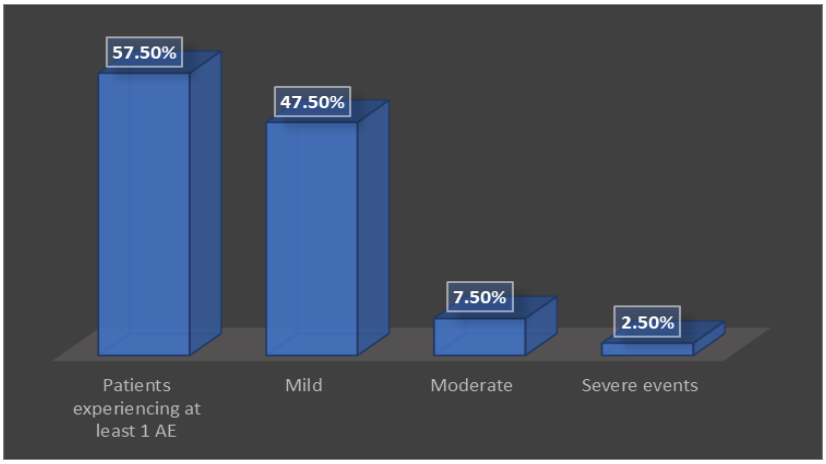

Figure 2: Treatment-emergent adverse events occurring in the Azilsartan.

DISCUSSION

Hypertension is defined as a SBP of 140mmHg or more or a DBP of 90 mmHg or more or taking antihypertensive medication.[8] Hypertension is classified as either essential hypertension (EH) or secondary hypertension, and EH accounts for about 90-95% of the cases characterized by high blood pressure with no obvious underlying medical causes.[9] In developing countries, it is a major medical concern that the high rate of undetected and untreated EH.[10] In clinical trials, antihypertensive therapy has been associated with reductions in (1) stroke incidence, averaging 35-40%; (2) myocardial infarction (MI), averaging 20-25%; and (3) HF, averaging >50%.[11]

Azilsartan was discovered by modifying the tetrazole ring present in candesartan.[12] Chemical structure of azilsartan is very similar to the structure of candesartan and differ only by replacement of candesartan's 5 member tetrazole ring with the 5 member oxa-oxadiazole ring of azilsartan. Unlike candesartan which must be orally administered as a prodrug candesartan cilexetil to ensure adequate bioavailability, azilsartan has been shown to be effective in reducing BP when orally administered as either the ester prodrug, azilsartan medoxomil or as the primary compound.[13] During gastrointestinal absorption, azilsartan medoxidil is rapidly hydrolyzed to azilsartan, the bioactive molecule that selectively and competitively blocks angiotensin induced activation of AT1 receptor in an insurmountable fashion.[14,15] Azilsartan in clinically approved doses as azilsartan medoxomil has been shown to lower 24-hmy BP in hypertensive patients significantly.

In the present study, I have observed that both Azilsartan (40mg once daily) is effective agents in reducing both systolic and diastolic BP throughout the study period when measured at the baseline with 1st 2nd 3rd 4th and 5th week in grade I-II essential hypertension. When efficacy of Azilsartan was evaluated I found that Azilsartan was as effective in reducing systolic BP but Azilsartan is more effective in reducing diastolic BP which is quite similar to other report.[16,17]

CONCLUSION

From my result I can say that, azilsartan medoxomil has been shown to lower 24-hmy BP in hypertensive patients significantly. Further study is needed for better outcome.

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