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Original Research Paper

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COMPARATIVE STUDY OF EFFECTIVENESS AND SAFETY OF AZILSARTAN AND CANDESARTAN CILEXETIL IN PATIENTS WITH GRADE 1-2 ESSENTIAL HYPERTENSION IN A TERTIARY CARE HOSPITAL

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ABSTRACT

INTRODUCTION: - Hypertension is defined as either a sustained systolic blood pressure of greater than 140 mm Hg or a sustained diastolic blood pressure of greater than 90 mm Hg. . It can lead to coronary artery disease (CAD), heart failure, stroke, renal failure and other health problems. The angiotensin receptor blockers are effective antihypertensive agent with excellent tolerability profiles. The present study was designed to compare the clinical effectiveness and tolerability of Azilsartan 40 mg OD with Candesartan 12mg OD in patients with grade 1-2 essential hypertension.

MATERIALS AND METHODS: - The present study was a randomized study in 80 eligible patients comparing the effectiveness and safety of Azilsartan 40 mg with candesartan 12mg in patients with grade 1 or 2 essential hypertension.

RESULT - Significantly greater reductions in the sitting DBP and SBP were recorded in the Azilsartan group in comparison with the candesartan group at 2 weeks, 4 weeks and 8 weeks. (P value<0.001). The most common adverse effect occurring in the patients in Azilsartan as well as in candesartan were nasopharyngitis, upper RTI and pharyngitis. Hypotension related adverse effects such as dizziness, syncope, vertigo was reported in both the drugs.

CONCLUSION: - Azilsartan is more effective and safe blood pressure lowering drug as comparable to that of Candesartan.

KEYWORDS : Blood Pressure, Azilsartan, Candesartan

INTRODUCTION

Hypertension is defined as either a sustained systolic blood pressure of greater than 140 mm Hg. or a sustained diastolic blood pressure of greater than 90 mm Hg. According to Joint national committee (JNC VIII) guidelines on hypertension. It can lead to coronary artery disease CAD, heart failure, stroke, renal failure and other health problems.[1]

Among the recommended first line agents for the management of hypertension, ARBs are now widely used because of their favorable efficacy/tolerability profiles.[2] Azilsartan discovered by Japanese scientists by modifying the tetrazole ring present in candesartan. It blocks the binding of angiotensin-II to its receptor (AT-1R) and inhibit the vasoconstriction effects of angiotensin-II.[3-4] In an in-vitro study, Azilsartan was shown to have a higher affinity and slower dissociation from AT1 receptors than other ARBs (as Olmesartan, Telmisartan, Valsartan and Irbesartan).[5] The present study was designed to compare the clinical effectiveness and tolerability of Azilsartan 40 mg OD with Candesartan 12mg OD in patients with grade 1-2 essential hypertension.

MATERIALS AND METHODS

This was a prospective, randomized study carried out in Department of Pharmacology and Department of Medicine, N.M.C Patna between January 2019 to March 2019.

INCLUSION CRITERIA: -

Patients of either sex with age > 20 years with blood pressure of > 140/90 mmHg. were included in the study.

EXCLUSION CRITERIA: -

Severe hypertension with B.P >180/110 mmHg, hypersensitivity to ARBs, secondary hypertension, presence of cardiovascular disease (CVD), cardiac arrhythmias significant hepatic or renal disease, pregnant and lactating women. Patients on antihypertensives, antianginal, antidepressant, NSAIDs, glucocorticoids, antiarrhythmic drugs.

A total of 80 patients who fulfilled inclusion and exclusion criteria and provided informed consent were enrolled for participation in the trial. Sitting B.P was measured 3 times at 1- or 2-min interval using mercury sphygmomanometer. Then demographic data were recorded. Blood sugar, urine analysis, renal function test, liver function test and ECG were assessed. After this patient were randomly divided into 2 groups. Group I received Azilsartan 40 mg and Group II received Candesartan 12 mg and were instructed to take the tablet orally once a day in the morning. Assessment of patients were done by measuring sitting B.P, pulse rate, physical examinations at 2-week, 4 week and 8 week prior to taking their daily dose of medication. Primary end point for assessing efficacy was the change from baseline in mean systolic and diastolic B.P after 8 weeks of treatment. Regarding adverse events, all patients were queried at every visit with non-leading questions.

STATISTICAL ANALYSIS-

The difference of the baseline characteristics and change in BP between groups were compared using an unpaired t test. The difference between values before and after antihypertensive medication within the same group were tested using a paired t-test. P value < 0.05 considered statistically significant.

RESULT

There were no remarkable differences between the treatment groups at baseline for any demographic characteristics (Table no. 1

Table no. 1: Base line demographic characteristics of enrolled hypertensive patients

		Azilsartan(40 mg)	Candesartan(12mg)
No of patients		48	32
Age		52 ± 8.4	51 ± 9.55
Gender	Male	66.4	65.2
	Female	33.6	34.8
BMI		24 ± 2.4	23 ± 3
Base line blood pressure	DBP	92 ± 3.5	92 ± 3.3
	SBP	146 ± 11.5	145 ± 12.8

Table no 2: Change in Diastolic blood pressure (ΔDBP) and Systolic blood pressure (ΔSBP) after 2,4 and 8 weeks

		Azilsartan (40mg)	Candesartan (12mg)
2 weeks	DBP	-9.8	-8.8
	SBP	-13.6	-10.0
4 weeks	DBP	-11.6	-9.8
	SBP	-13.8	-10.8
8 weeks	DBP	-12.3	-10.4
	SBP	-14.8	-11.0

The mean change from baseline in sitting DBP at week 2 (Azilsartan -9.8mmHg, candesartan -8.8mmHg), both Azilsartan and Candesartan produced significant decrease,the mean change from baseline in sitting SBP at week 2 (Azilsartan-13.6mmHg, Candesartan -10.0mmHg), both Azilsartan and candesartan produced significant decrease (P value<0.001).(Table no. 2)

The mean change in sitting DBP at week 4 was (Azilsartan -11.6 mmHg, candesartan -9.8mmHg) resulting in a significant decrease in the Azilsartan group compared with the candesartan group (P value<0.001), the mean change from baseline in sitting SBP at week 4. (Azilsartan -13.8mmHg, candesartan -10.8mmHg), both Azilsartan and Candesartan produced significant decreases (P value<0.001.(Table no.2)
The mean change in sitting DBP at week 8 was (Azilsartan -12.3 mmHg, candesartan -10.4mmHg) resulting in a significant decrease in the Azilsartan group compared with the candesartan group (P value<0.001) The mean change from baseline in sitting SBP at week 8. (Azilsartan -14.8mmHg, candesartan -11.0mmHg), both Azilsartan and Candesartan produced significant decreases (P value<0.001.(Table no.2)
Fig. 1 shows, after 2, 4 and 8 weeks of treatment change in DBP and SBP with Azilsartan 40 mg and Candesartan 12 mg. Significantly greater reductions in the sitting DBP and SBP were recorded in the Azilsartan group in comparison with the candesartan group at all measurement time points.

The most common adverse effect occurring in both the drug group patients were nasopharyngitis, upper RTI and pharyngitis. Other adverse effects occurring in 3% of the patients in the Azilsartan group were rashes, and in 3% were hypotension related events (dizziness, syncope, vertigo), whereas in candesartan group dizziness, postural syncope and vertigo were observed in nearly 8%.

DISCUSSION

Present study was conducted for comparing the effectiveness and safety of Azilsartan 40 mg with that of Candesartan 12 mg in grade 1-2 hypertensive patients. Azilsartan a newer angiotensin receptor blocker has shown cardiovascular benefits of lowering blood pressure in preclinical as well as clinical trials.

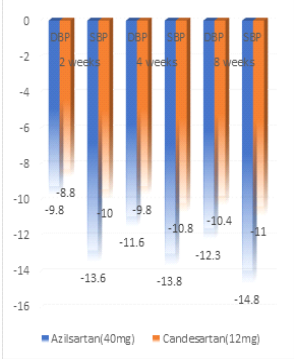

Fig. 1- Change in DBP and SBP after 2,4 and 8 weeks of therapy

These benefits are due to its property of high affinity to and slow dissociation from AT1R. In clinical trials, antihypertensive therapy has been associated with reductions in stroke incidence, myocardial infarction (MI) and heart failure.[6] In the present study, we have observed that both Azilsartan (40mg once daily) and candesartan (12mg once daily) are effective agents in reducing both systolic and diastolic BP but Azilsartan (40 mg OD) provided a significantly greater reduction of BP than candesartan 12 mg OD) in patients of grade 1-2 essential hypertension at all time points from week 2 to 8 over the treatment period.

Most of the adverse effect were mild in severity, and the most commonly reported events with both drugs were nasopharyngitis, upper respiratory tract inflammation and pharyngitis. There was a slightly higher incidence of hypotension related events (dizziness, syncope, vertigo), with candesartan (8%) than with Azilsartan(3%).Earlier clinical trials conducted compared Azilsartan with other ARBs, have reported similar findings to our study.

In a multicenter randomized, double blind study that compared Azilsartan with Olmesartan US patients with primary hypertension, Azilsartan was significantly effective in lowering mean 24 hr SBP than Olmesartan.[7] Similarly, in a multicenter, randomized, double blind study in patients with grade I-II hypertension conducted in Latin American countries and the USA, treatment with Azilsartan was significantly more effective than Valsartan and Olmesartan in lowering mean 24 hr SBP.[8] In both trials, safety profile of Azilsartan was like that of the ARBs and the placebo with which it was compared.

CONCLUSION

It may be concluded from the present study that Azilsartan, a newer angiotensin receptor blocker is an effective and safe blood pressure lowering drug and is more effective than candesartan with additional benefit of lesser side effects and hence can be safely used in all the patients.

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