Original Research Article

Comparative Study of olmesartan and losartan in patient with hypertension for reduction of diastolic blood pressure on male patient more than 55 years

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Abstract

Antihypertensive drugs are used to reduce blood pressure. Angiotensin receptor blocker shows beneficial effect to control target organ damage. Study was carried out for production of hypertension by psychogenic stress method.In present work done by me antihypertensive effect of olmesartan and losartan was campared with control and with each other. Student t-test was done to compare result.It was found that blood pressure varied significantly across the three groups (P=.000) Compared to control blood pressure was less in both olmesartan and losartan.(P=.000) Reduction of blood pressure with losartan was less in comparision in olmesartan at end. Olmesartan is more efficacious than losartan as far as blood pressure reduction is concerned.

Keywords : Losartan, Olmesartan, Antihypertensive effect.

Introduction

Hypertension is sustained elevation of the arterial pressure[1]. Essential feature of hypertensive heart disease is left ventricular hypertrophy[2]. The main organs that suffer the most are heart Kidney and blood vessels[3].

Material and Method

This work was done at the department of pharmacology of DMCH laheriasarai, Bihar. Regarding ethical aspect, I had informed concerned authority of this college The patients were grouped as control. Losartan and Olmesartan for inducing rise of blood pressure. For studying rise in blood pressure psychogenic stress method was used. Each group ARBS are combined with duretics for the treatment of hypertension[4].Losartan causes fall in BP in hypertensive patient which lasts for 24 hours,while heart rate remains unchanged and cardiovascular reflexes are not interfered[5] contained 20 patients. Blood pressure was measured in all 3 groups for Forty days from the month of June to July 2020 The difference in blood pressure was observed. For this purpose patient with age more than 55year were taken. Dose of olmesarten taken was 20 mg once daily whereas for losartan was 50 mg daily Hypertension is sustained elevation of the arterial pressure[1].Essential feature of hypertensive heart disease is left ventricular hypertrophy[2]. The main organs that suffer themostare heart Kidney and blood vessels [3]. A Hypertension is associated with both functional and morphologic alteration in blood vessels. Hypertension may lead to congestive heart failure, aortic dissection and renal failure. Blacks are affected twice in comparison to Whites. About (90-95) % of hypertension is idiopathic and apparently primary. Of the remaining (5-10) % most is secondary to renal disease or less after to narrowing of renal artery usually by an atheromatous plaque. Infrequently secondary hypertension is the result of adrenal disorders such as primary aldosteronism, cushing's syndrome and pheochromocytoma, neurogenic disease.

Both essential and secondary hypertension may be either benign or malignant.The full - blown clinical syndrome of malignant hypertension includes severe hypertension (diastolic pressure greater than 120mm Hg); renal failure and retinal hemorrhages and exudates with or without papille-dema.

Vascular Pathology in Hypertension is characterized by smooth muscles hyperplasic,hypertrophy and remodeling, as well as increased deposition of amorphous material in the vessel wall are characteristic of early hypertensive vasculopathy.

In well- established human disease, hypertension is associated with two forms of small blood vessel disease: hyaline arteriolosclerosis and hyperplastic arteriolosclerosis. Both lesions are clearly related to elevations in blood pressure and are most prominently seen in kidney. Hypertension also accelerates atherogenesis and cause the potent aortic dissection and cerebrovascular hemorrhage. Hyaline Arteriolosclerosis is encountered frequently in elderly patients, whether normotensive or hypertensive, but it

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is more generalized and more sever in patients with hypertension.This condition is also seen commonly in diabetes and forms part of the micro angiography character-istic of diabetic disease.Whatever the clinical setting, the vascular lesion consist of a homogenous, pink, hyaline thickening of the walls of arterioles, with loss of the lumen The narrowing of the arteriolar luminacause impairment of the blood of the blood supply to affected organs, particularly well exemplified in the kidneys. Thus, hyaline arterioles-clerosis is a major in which the arteriolar narrowing causes diffuse renal ischemia and symmetric contraction of the kidneys. Hyperplastic Arteriolosclerosis is generally related to more acute or sever elevations in blood in blood pressure and is therefore characteristic of malignant hyperte-nsion (i.e., diastolic pressure greater than 120mm Hg). This form of arteriolar disease can be identified with the light microscope by virtue of its onion-skin, concentric, laminated thickening of the walls of arterioles with progressive narrowing of the lumina.There is hyperplasia of the vascular SMCs and thinking and reduplication of the basement membrane. Frequently, but not invariable, these hyperplastic changes are accompanied by deposits of fibrinoid and acute necrosis of the vessel walls, referred to as necrotizing arteriolitis. The arterioles in all tissues through the body may be affected, with favored sites being the kidney, periadrenal fat, gallbladder, and peripancreatic and intestinal arterioles. Many drugs can also be leading factors for secondary hypertension, Adrenal Stroids Antidepressants, Apetite Suppressants, Cocaine, Cyclosporin, Erythropoietin, Nasal decongestants, NSAIDs, Oral Contraceptives are there in the category of drugs which can reduce hypertension.Status of ARBsin the treatment of hypertension is similar toACE inhibitors. They can be considered as alternatives toACE inhibitors. They can be considered as first line drugs in hypertension. There are two type of angiotensinII receptors present in vasculature and myocardial tissue, brain, kidney and adrenal glomerular cells. ARBs have high affinity for AT1 receptors in comparison to AT2 receptors.By blocking AT1 receptors ARBs block the effect of angiotensin II. ARBS are combined with diuretics for the treatment of hypertension.4Ongoing trials are expected to confirm and may be extend the place of such agents for improving CV outcome[5]. Losartan causesfallin BPin hypertensive patient which lasts for 24 hours,while heart rate remains unchanged and cardiovascular reflexes are not interfered[6].Clinical trials have also demonstrated that ARBs effecting against in reducing the risk of CV mortality, stroke, HF and a new onset atrial fibrillation[7].

Statistical Analysis

Data was shown in the form of(mean+SEM)and were analysed using student's t-test and ANOVA were applied to compare significance between different groups(P<.05)[9]

Results and Discussion

Dystolic blood pressure change from baseline was measured for different groups. It was(19.2+.57). (14.76+ .23) and (15.00+.44) respectively for control olmesartan and losartan groups from baseline.The mean blood pressure in three group varied significantly. [F()2.27)=122.02 P=.000] The mean diastolic blood pressure change from the baseline of olmesartan group was more than that with losartan group (t (18)=8.04.P=. 000]. t here was a l so more decline with olmesartan than with control group(t= 6.42, P=.000]. In year 2007 Opril Suzanne et al did similar work and found that reduction of diastolic blood pressure was more with olmesartan than with losartan or Irbesartan[10]. Angiotensin receptor blocker will take a growing place in the management of hypertension. In this study we saw that both olmesartan and losartan reduced the diastolic blood pressure.DBP was used for comparative purpose. It was recorded from baseline and till the end of the study. Then the comparison was done with the help of computation method.

Conclusion

Lorsartan is less efficacious than olmesartan as far as distolic blood pressure lowering is concerned.

Table 1:Showing change in Mean Diastolic Blood Pressure level in different sets of patients (participants) after 40 days of clinical trial

No. of sets	No. of participants	Drug used	Blood Pressure change (Mean±SEM)	t value	p value
1	10	control	14.76± .23		
2	10	Olmesartan	19.2± .57	6.42	=.000
3	10	Losartan	15.00± .44	8.04	=.000

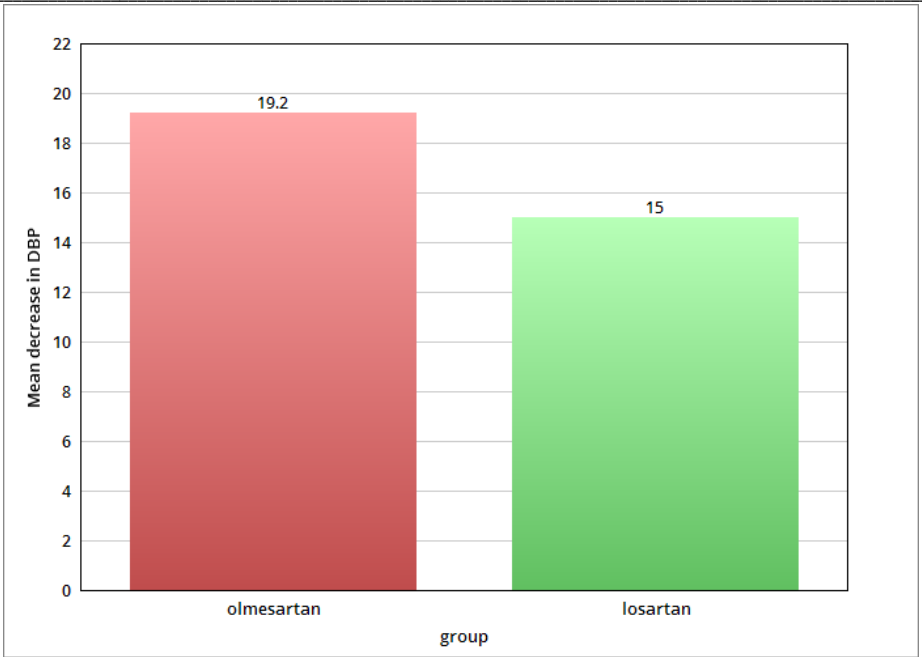

Fig 1:Graph showing different groups and mean decrease in DBP

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