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A COMPARISON STUDY TO KNOW THE EFFICACY OF DIFFERENT TYPES OF ANTIHYPERTENSIVE DRUGS

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Abstract:
Objective: *To determine the efficacy of different types of antihypertensive drugs.*
Study Design: *An Observational Study.*
Place and Duration: *In the Medicine Department, Lahore General Hospital, Lahore for the time period of 3 months from July 2017 to September 2017.*
Materials and methods: *These four drugs amlodipine, Irbesartan, captopril, atenolol were administered to patients with hypertension. Four groups were formed, each group consisted of 75 patients, the total number of patients was 300, and working time was up to three months. Blood pressure was recorded after 15 days, 30 days and 60 days.*
Results: *In all groups, blood pressure decreased and Irbesartan result in significant decrease in Blood pressure in patients, drug Irbesartan have much better results than other drugs.*
Conclusion: *According to our analysis, Irbesartan is most effective anti hypertensive drug in controlling Blood pressure than other Hypertensive drugs. However, further studies are needed to reach a real conclusion.*
Key words: *antihypertensive drugs, amlodipine, Irbesartan, captopril, atenolol.*

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INTRODUCTION:

The risk of coronary atherosclerotic disease is associated with an increase in diastolic and systolic blood pressure levels. The prevalence of left ventricular hypertrophy increases with age and is higher in hypertensive patients (Frohlich et al. 2010). Blood pressure can be defined as the force exerted by blood against any unitary area of the vessel wall. Systolic blood pressure depends on the maximum pressure in the arteries, systolic and diastolic pressure, cardiac output and peripheral vascular resistance (Guyton et al. 2013). For a long time, in people over the age of 50 diastolic and systolic blood pressure increased morbidity and mortality increase was adopted, systolic blood pressure (Massie 2014) is a better indicator of complications. Several epidemiological studies young people's relationships, and in middle-aged and elderly people of different races and ethnic groups in the country (Vasan et al 2013) stated that the constant pressure in both men and women. High blood pressure is abnormal because of the morbidity associated with a significant increase in the level of 100 young adults because of over age, gender, race and country, is said to have changed with diastolic BP. If systolic is strictly above 160 mmHg, hypertension and diastolic blood pressure above 95 mm is probably considered hypertensive (Chobaxian et al. 2012). There are a number of physiological mechanisms to maintain normal blood pressure, and these disorders may play an important role in the development of essential hypertension. The related factors are genetic, endothelial dysfunction (Schiffrin et al. 2009). There may be structural thickening or functional vasoconstriction of vascular walls (Vikrant 2010). Population studies, but an absolute dividing line between normal and blood pressure is continuously variable anormal8 out koymaktadır8 (and Pastor-Barriuso al. 2013). Hypertension is a heterogeneous disorder that can be fathomed by different pathophysiological features that have a direct impact on the risk of patients with cardiovascular complications (Frohlic et al. 2012). Hypertension can be classified as essential hypertension, indicating that no specific medical cause has been found to explain the patient's condition. Approximately 90-95% of hypertension is essential hypertension (Carretero 2000).

MATERIALS AND METHODS:

This Observational Study was held in the Medicine Department, Lahore General Hospital, Lahore for the time period of 3 months from July 2017 to September 2017. A total of 300 patients were selected and taken after a lifestyle change for 1 month, weight loss, diet regimen, ie restricting sodium in regular diet and daily physical activity with adaptation feeding, and exercise for 30 minutes per day and distributed into four groups, for example, amlodipine, atenolol, captopiril and Irbesartan was divided into groups of 75 patients. Patients of both sexes were between 25 and 75 years of age with newly diagnosed essential hypertension. In this study, lifestyle intervention was performed with controlled blood pressure for at least one month in the study. Patients with a history of allergy test groups antihypertensives, patients with a history of NSAIDs, patients with a history of coronary artery disease or unstable angina, pregnant women and breastfeeding mothers, liver dysfunction and asthma, patients with a history of antihypertensive episodes showed low compliance and already taking antihypertensive drugs patients were excluded from the study. BP was recorded three times a day, mean reading was determined.

RESULTS:

Patients with amlodipine on day 0 had mean systolic BP 154.2 ± SEM 1.62 ± systolic BP 152.0 ± SEM 1.94 after 2 months SBP 143.8 ± 1.98% decrease in SBP was 4.7% (Table 1). Atenolol patients had SBP initially at 157.8 ± 2.72, on the 30th day there was 146.2 ± 2.91and at 60 days 137.2 + 2.40 and there was a reduction in the percentage of 8.6 (Table 1). Initially, with captopril SBP was 157.3 ± 2.43 at 30 days it was 148.6 ± 2.51 and at 60, and 139.8 ± 2.98 at SBP and difference remained at 7.7% (table 1).

Table 1: Changes in mean systolic BP from day 0 to day 60

Groups	Day 0(mmHg)	Day 30(mmHg)	Day 60(mmHg)	% Decrease(mmHg) Day 0-60
Amlodipine dose(n=75)	154.2±1.62	152.0±1.94	143.8±1.98	04.7%
Atenolol dose(n=75)	157.8±2.72	146.6±2.91	137.2±2.40	08.6%
Captopril dose(n=75)	157.3±2.43	148.6±2.51	139.8±2.98	07.7%
Irbesartan dose(n=75)	160.2±1.97	145.8±1.80	131.4±2.28	13.4%

*Mean ± SEM: *P<0.01 significantly decreases from Day 0. °P<0.01 significantly decreases from Day 0 and Day 30.*

Irbesartain and SBP were 160.2 ± 1.97 in 30 days, equal to 145.8 ± 1.80, 60 days to 131.4 ± 2.28, while the percentage difference was 13.4 (Table 1). Diastolic BP at the beginning of treatment with amlodipine was 96 ± 0.96; 93 ± 1.63 on day 30; On the 60th day, the difference between 88.6 ± 1.86 was 04.20% (Table 2). The value of atenolol DBP was 97.6 ± 1.53, 91.8 ± 1.58 on the 30th day, 87.2 ± 1.78 on the 60th day, and the difference was 5.46% (Table 2). Initially, DBP was on start with captopril; On day 30, there were 97.4 ± 1.05, DBP 91 ± 1.42, 87.6 ± 1.94 at 60 days, and the difference remains of 7% (Table 2).

Table 2: Changes in mean diastolic BP from day 0 to day 60

Groups	Day 0(mmHg)	Day 30(mmHg)	Day 60(mmHg)	% Decrease(mmHg) Day 0-60
Amlodipine dose(n=75)	96.0±0.96	93.0±1.63	88.6±1.86	04.20%
Atenolol dose(n=75)	97.6±1.53	91.8±1.58	87.2±1.78	05.46%
Captopril dose(n=75)	97.4±1.05	91.0±1.42	87.6±1.94	07.00%
Irbesartan dose(n=75)	97.2±1.45	93.2±1.44	85.6±1.72	11.30%

*Mean ± SEM: *P < 0.01 significantly decreases from Day 0. **P < 0.01 significantly decreases from Day 0 and Day 30.*

Initially, Irbesartan and DBP were 97.2 ± 1.45 mmHg in 30 days, 93.2 ± 1.44 in 60 days, 85.6 ± 1.72 and 11.30%, respectively (Table 2). The percentage of side effects is shown in Table 3.

Table 3: Percentage of side effects with various antihypertensives

Side effect	Amlodipine	Atenolol	Captopril	Irbesartan
Drowsiness	04%	08%	04%	02%
Headache	01%	08%	04%	32%
Lethargy	04%	06%	03%	02%
Weakness	01%	01%	0%	01%
Abdominal pain	0%	0%	01%	01%
Diarrhoea	0%	0%	0%	0%
Backache	0%	0%	0%	01%
Dry cough	0%	0%	30%	05%
Weight loss	0%	02%	01%	0%

DICSUSSION:

There are a number of agents that act with different mechanisms for the treatment of hypertension. This wide choice is very useful because essential hypertension is a heterogeneous disease that explains why it is so difficult or that it is both an effective and well tolerated drug regimen for an individual hypertensive patient. Amlodipine reduces SBP as shown in Table 1 and DBP decreases with atenolol p value. Both SBP and DBP decreased with P <0.010. In the captopril group both systolic and diastolic pressures decreased with p <0.010. In the Irbesartan group, both SBP and DBP values decreased by P <0,010. Irbesartan, a long-acting antihypertensive receptor antagonist, was compared with atenolol. Irbesartan was found to be more effective in reducing both SBP and DBP compared with atenolol. Et al. 1998 and warber 2010. The antihypertensive study of atenolol observed in this study is comparable (Dahlofet all 2002). Freshman et al. 1988 concluded that the efficacy and safety of amlodipine was lower than atenolol in patients with mild and moderate essential hypertension. This is also consistent with our study showing that atenolol is more effective in reducing SBP and DBP than amlodipine. In our study, the efficacy of Irbesartan dose for hypertension showed that the results of this study showed a higher efficacy of Irbesartan in higher disease compared to the recommended dose. There was a maximum reduction in both DBP and SBP. The results were obtained by Reves et al. 1998 Irbesartan was found to be an effective and safe antihypertensive agent in this study when administered once a day for the treatment of mild to moderate hypertension; This study was comparable to the pool and colleagues in 1998.

CONCLUSION:

Irbesartan has been found to be an effective and better drug for the treatment of hypertension.

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