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STUDY TO KNOW THE EFFICACY OF PRAZOSIN GIVEN ALONE OR IN COMBINATION FOR TREATING HYPERTENSION

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Abstract:
Aim: *This study was held to determine the efficacy of prazosin given alone or in combination with diuretic and with both diuretic and a Beta-adrenergic blocker to control the hypertension.*
Place and Duration: *In the Medicine Unit I of Services Hospital Lahore for six months duration from September 2019 to March 2020.*
Methods: *130 cases of hypertension have been studied and treated with prazosin given alone or in combination with diuretic and with both diuretic and a Beta-adrenergic blocker to control the hypertension. The patients were observed for over one years. All these cases were clinically evaluated, a detailed medical history was collected and a comprehensive clinical examination, including fundoscopy, was performed. Blood pressure was recorded daily in the morning and afternoon, both in the supine position and for three days using a standard mercury sphygmomanometer, and standing blood pressure was recorded at least 2 minutes after getting up. The data was analyzed using SPSS Version 21.0.*
Results: *Prazosin has been found to be a very safe and effective antihypertensive drug, either alone or in combination with a diuretic or beta-adrenergic drug with varying degrees of hypertension. The mean drop in blood pressure during standing position was 33 systolic and 22.30 diastolic. Side effects were mild and only 6 patients had to stop taking the drug. Prazosin has been found to be a very safe anti-hypertensive, especially in uremia and hypertension.*
Key Words: *Prazosin, diuretic, Beta-adrenergic blocker, hypertension.*

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INTRODUCTION:

The growing importance of hypertension is reflected in epidemiological studies. Almost 20% of the population in the United States suffers from hypertension (Page and Sidd, 2003). 12.4% of the population of the Lahore community was reported to be affected (Abbasi and Syed, 2001). A new study in the European population has shown that between 10 and 15% of adults suffer from high blood pressure[1]. The incidence of hypertension is low in developing countries. This is rare in some African countries (Donnison, 1998)[2]. In Libyans, it accounted for 3% of total medical income (Kazilbaş) [3]. A moderate increase in blood pressure was associated with a higher mortality rate of 76.4% in middle age, whereas treatment of hypertension reduced mortality from 18% to 55%.

Various drugs have been used alone or in combination with corn and other antihypertensive drugs to treat hypertension, but have not yet been satisfactory (drug was discovered with all ideals) [4-5]. In most patients with primary hypertension, the cause is high peripheral vascular resistance high blood pressure, cardiac output usually falls within normal limits[6]. Together, although initially high blood pressure can be lowered, reducing cardiac output or reducing peripheral resistance[7]. Prazosin hydrochloride is an alpha-adrenergic receptor blocker and decreases blood pressure by relaxing smooth muscles of the arterioles, which leads to a reduction in total peripheral resistance, this blockade seems to be post-junctional, which clarifies the absenteeism of tachycardia and Renin release[8]. Prazosirt reduces the cholesterol (Oliver et al., 2012) and cholesterol fraction in very low density lipoproteins and low density lipoproteins (Leren et al). Prazosin (Minipress) trial was started among 150 cases of hypertension for examination, twenty cases (17%) were excluded for various reasons.

MATERIAL AND METHODS:

Place and Duration: In the Medicine Unit I of Services Hospital, Lahore for six months duration from September 2019 to March 2020.

130 patients with high blood pressure were selected. All these cases were clinically evaluated, a detailed medical history was collected and a comprehensive clinical examination, including fundoscopy, was performed. Blood pressure was recorded daily in the morning and afternoon, both in the supine position and for three days using a standard mercury sphygmomanometer, and standing blood pressure was recorded at least 2 minutes after getting up. The fifth stage of Korotkov was recognized as diastolic reading. During these three days, all laboratory tests were performed, including routine blood counts, urine test in three different conditions, blood urea, and serum creatinine, fasting blood glucose, creatinine clearance, serum cholesterol, triglycerides, total lipids and electrolytes were done, ECG was recorded in each patient. Radiological examination included plain X-ray, chest and abdominal X-ray and I.V.P. Renal Scan was completed in those patients whose have above 100 mg percent blood urea and Reno gram was also done in some patients. Prazosin started the fourth day. 14 patients (11%) did not report follow-up. Therefore, he was abandoned and perhaps 6 patients (4.7%) stopped taking the drug due to the side effects of prazosin. 130 cases have been observed for the duration of two years or above.

RESULTS:

Age and Sex:

Table I shows the distribution by age and sex in 130 patients.

Table I: Age & Sex

Age (Yrs)	Male	Female	Total	%age
12-21	5	3	8	6%
21-30	6	4	10	8%
31-40	7	7	14	11%
41-50	35	25	60	46%
51-60	25	13	38	29%
Total	78	52	130	

Degree of hypertension:

Moderate hypertension in 63 patients (48%), 42 (32%) mild and severe in 25 patients Hypertension (19%) (Table II).

Table II: Grades of Hypertension

Grades	Male	Female	Total	%age
Mild	25	17	42	32%
Moderate	35	28	63	48%
Severe	15	10	25	19%
Total	75	55	130	

Type of hypertension:

97 patients had primary hypertension, 33 had secondary hypertension, 11 had diabetes, and 5 had pyelonephritis. Two had glomerulonephritis. One coarctation of the aorta and the other had Cushing's disease (Table III).

Table III: Type of Hypertension

Type	Male	Female	Total	%age
Essential	62	35	97	75%
Secondary	15	18	33	25%
Total	77	53	130	

Retinopathy

75 patients (58%) had stage II retinopathy, 25 patients had stage I (19%), and 5(4%) patients had stage III and IV.

Table IV: Groups Regarding Treatment

Groups	Drugs	Male	Female	Total	%age
I	Minipress Alone	25	21	46	35%
II	Minipress Plus Diuretic	29	25	54	42%
III	Minipress Plus Diuretic Beta-Blockers	17	13	30	23%
Total		71	59	130	

Laboratory tests:

27 patients had high creatinine levels and high blood urea. 15 of them had more than 100% blood urea, 55 patients had serum cholesterol and 12 cases had high blood sugar. Each patient underwent a urine test three times. All patients had urine culture. In thirty cases, a positive urine culture, E. Coli, is the most common isolated organism. E.C.G. of 50 patients showed left ventricular hypertrophy abnormalities, 33 men and 17 women. Chest X-rays showed enlarged heart in 30 patients, 19 men and 11 women. IX.P was done in all cases with normal blood urea. Patients were divided into three treatment groups (Table IV). In group I there were 40 patients whose blood pressure was controlled only by only prazosin. In the IT group, 50 patients required the addition of a diuretic with prazosin to control blood pressure. 30 patients in group III were treated with beta-blockers, diuretics and prazosin.

DISCUSSION:

Our findings show that prazosin used alone or in combination with other antihypertensive agents is effective in lowering blood pressure to normal levels[9]. It is well tolerated and there is a significant decrease in supine and standing blood pressure, the mean supine pressure drop was 32.6 at systolic pressure and 20.0 at diastolic pressure. The steady-state systolic pressure drop was 33 and the diastolic pressure 22.3. Similar changes seen by Weber and Stokes (2009), Hayes et al. (2010), Garden Stokes et al. found that Prazosin alone or with diuretic and beta blocker combination is effective, or Lund Johansen (2008), Venables and Duff, (2009) and Bolzano (2013), studies have same conclusions in controlling hypertension by the parazosin alone or in combination[10].

Table V: Fall in Blood Pressure (mm Hg)

Position	Systolic	Diastolic
Supine	32.6	20
Standing	33	22.3

Our experience has not been inspiring with prazosin alone or with a diuretic in some cases of moderate and most of the severe cases of hypertension[11]. We used mostly either aprinox or furosemide as a diuretic. In such cases Propranolol (a beta-adrenergic blocker) was added to the treatment. These patients have already taken 12 to 16 mg of prazosin, one or two times a day (loses and diuretic one- or two-times day has a diuretic effect. Beta-blocker addition in such cases ultimately organized the hypertension. Effective blood pressure control by combination of beta blocker and Prazosin has also been reported by Zacest (2009), Sanner Stedt et al[12]. (2009), Gorden et al[13]. (2013), Gotlieb et al[14]. (2015), Kincaid-Smith et al[15]. (2012), Koch-Weser (2011), Turner et al. (2016) and Bolli and Simpson (2009).

High blood urea levels were reported in 26 patients, 14 had more than 100mg% blood urea. In these cases, we found that Prazosin is quite a safe drug for lowering blood pressure without further compromising functions of kidney. Eight out of 26 cases with high blood urea died (31%). In these patients, we note a gradual decrease in blood creatinine and urea levels as well as improved kidney function. In such cases, relatively small closure of prazosin was necessary. Bateman and

Curtis (2014), described the effective use of prazosin in diastolic hypertension and uremia.
Hayes et al. Alabama and Kincaid Smith et al first noticed the Prazosin first dose phenomenon in two patients. In five patients, postural hypotension was reported. In such cases, the dose of Prazosin was gradually increased without further attacks. This phenomenon was not seen when the first dose was started the night before bedtime. Side effects recorded during the Prazosin study with or without diuretics are orthostatic hypotension, especially dizziness during travel. Some patients complained of headaches and loose bowels, frequency of urination, fatigue, excessive sleepiness, dry mouth, nausea, vomiting, diarrhea and irregular menstruation. These side effects were usually mild and gradually disappeared, certainly for the patient, and none of them stopped taking the medication.

Four patients stopped taking Prazosin because of side effects, three complained of tachycardia, one type of angina in chest pain developed, and one developed extrasystoles, which gave him an unpleasant feeling.

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