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FREQUENCY OF RESISTANT HYPERTENSION IN HYPERTENSIVE PATIENTS PRESENTING TO NISHTAR HOSPITAL, MULTAN, PAKISTAN

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Abstract:

Objective: Evaluation of resistant hypertension amongst hypertensive patients presenting to Nishtar hospital, Multan, Pakistan. Methodology: A cross sectional on 150 hypertensive patients was conducted in department of internal medicine, Nishtar hospital Multan during January to June 2017. Resistant hypertension was defined as failure of response to at least 3 anti-hypertensive drugs prescribed at the optimal dosage. All these drugs belong to different groups, diuretics being a part of prescribed regimen. Patients' blood pressure remains 140/90 (assessed through history, examination and patients' record) or more than that despite of good compliance to medicine. Results: Total 150 hypertensive patients were enrolled, with mean age of 56.4±9.6 years. 131.6±26.6 was mean systolic blood pressure while 83.9±14.6 was mean diastolic blood pressure. 39 out 150 patients had resistant hypertension i.e. 26% out of whole enrolled population. Conclusion: It was concluded that resistant hypertension was more common in females than in males and the age group commonly involved is 56 to 72 years.

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INTRODUCTION:

Hypertension is defined as increase in blood pressure more than 140/90. It increases with increase in age. The most common cause of hypertension is idiopathic, called essential hypertension which makes 90% of all the hypertensive patients. Hypertension is called resistant hypertension when treatment with optimally prescribed at least three anti-hypertensives fail to bring blood pressure to the normal range. One of these anti-hypertensives should be a diuretic.

Treatment adherence amongst patients who apparently were suffering from resistant hypertension was studied by measuring drug level in their blood at random intervals. It was observed that 68% patients were not taking medicines in a way it was prescribed, non-compliance to treatment was the major factor in inability to bring down blood pressure [1,2]. In a clinical conference conducted in April 2018, trials and tribulation related to resistant hypertension were studied in terms of causes and treatments [3].

Marguireta R, et al studied the association between resistant hypertension, nocturnal and non-dipping hypertension, it was concluded that there is strong association between resistant hypertension and nocturnal hypertension with ratio of 1.20, the association between resistant hypertension and non-dipping hypertension was strong (ratio 1.25). However, when patients were studied after 7 years it was found out that long term association of nocturnal and non- dipping hypertension with resistant hypertension was poor [4].

Due to high prevalence rate of hypertension, physicians keep looking for novel drugs which can help in treating the disease more effecting. A clinical trial conducted by Gollasch M, et al in 2018, besides K_{ATP} channels two new classes of VSMC potassium channels were studied, K_V7, $K_{ir.}$ Drugs which target both these channels were tested in patients suffering from resistant hypertension, especially those patients with conditions like obesity and metabolic syndrome [5].

METHODOLOGY:

The study was conducted at department of internal medicine Nishtar Hospital Multan, Pakistan. Study duration was from January to June 2017. The understudy population was randomly selected from hypertensive patients presenting to outdoor clinic. The informed written consent was taken from all individuals. The no ethical issue certificate was obtained from hospital ethical committee.

Study was conducted on 150 hypertensive individuals both males and females, belonging to age group 40 to 70 years. Patients on treatment of resistant hypertension, previously diagnosed cases of resistant hypertension were excluded. Hypertension is defined by systolic blood pressure more than 140 mmHg and diastolic blood pressure more than 90 mmHg for duration of at least 6 months on the basis of history and clinical record of participant. Resistant hypertension was defined as patient taking at least three anti-hypertensives at optimal doses with at least one diuretic but unable to achieve the desired blood pressure i.e. 140/90 mmHg, patient's compliance to medicines is also good and dietary restriction and lifestyle modifications also adopted.

All enrolled patients were evaluated for presence of resistant hypertension. Biodata, detailed clinical history, drug history was collected on a pre designed questionnaire. SPSS 16 was used for data analysis. Mean ± SD for quantitative variables was calculated. Qualitative variables were recorded in form of percentages and frequencies. Data was organized according to age and gender and after organizing chi-square test to evaluate significance, was applied. P value of <0.05 was considered statistically significant.

RESULTS:

150 hypertensive patients were studied with mean age group of 56. 4±9.6 years. Mean systolic BP 131.6±26.6 mmHg. Diastolic mean blood pressure was 83.9±14.6 mmHg. 26 percent individuals had resistant hypertension.

Patients division into two groups on basis of age and gender was done, 40 to 55 years age group and 56 to 70 years age group. Out of 55 individuals (36.6%), 14(25.4%) had resistant hypertension. 95(63.3%) patients were from 56 to 70 years age group. 25(26.3%) patients in second group had resistant hypertension. P value 1.00 was noted in age relation to resistant hypertension [table: 1].

68 (45.3%) males were hypertensives while there were 82(54.6%) females. Resistant hypertension was present in 9 males and 30 females, (13.2% and 36.5%) respectively. P value of 0.001 was calculated. Resistant hypertension rate in female patients was more than males [table: 2].

Table:1 Division in age groups.

Age	Resistant hypertension		Total	P value
	Yes (%)	No (%)		1.00
40 to 55 years	14 (25.4)	41 (74.5)	55 (36.6%)	
56 to 70 years	25 (26.4)	70 (73.6)	95 (63.3%)	
Total	39 (26)	111 (74)	150	

Table: 2 gender stratification.

Gender	Resistant hypertension		Total	P value
	Yes (%)	No (%)		0.001
Male	9(13.2)	59(86.7)	68(55.3)	
Female	30(36.5)	52(63.1)	82(54.7)	
Total	39(26)	111(74)	150	

DISCUSSION:

Resistant hypertension is one of the leading non communicable diseases, associated with certain complications like, ischemic heart disease, stroke, renal failure, retinal hemorrhages. The disease prevalence increases with increase I age of patient. In a study conducted by Ajmal a, et al. the prevalence of resistant hypertension and its association with age of sample population and gender of understudy population was measured. It was concluded that patients belonging to more than 50 years age group had higher prevalence of resistant hypertension than those with age less than 50 years [1].

Due to higher disease burden, scientists and researchers keep looking for newer treatment options for resistant hypertension. A clinical trial conducted by Gollasch M, et al in 2018, besides K_{ATP} channels two new classes of VSMC potassium channels were studied, K_V7, $K_{ir.}$ Drugs which target both these channels were tested in patients suffering from resistant hypertension, especially those patients with conditions like obesity and metabolic syndrome [5].

Similarly, interventional treatment options were also studied in order to get better and effective results. In this regards various interventional treatment modalities were conducted. Use of central arteriovenous anastomosis for treatment of resistant hypertension was tested by Kapil, et al. [6]. Okamura K , et al, studied endovascular ultrasound renal denervation technique in order to get early recovery in resistant hypertension patients. It was concluded that the under-test treatment modality was not successfully applicable due to various application limitations and age limitations [7]. Sequential nephron block trial was done on patients with resistant hypertension and its efficacy with the dual blockade of renin-angiotensin aldosterone system plus bisoprolol was compared [8].

Certain researches to find out the cause or pathophysiology of resistant hypertension are also being conducted by researches worldwide. Abouelfath R, et al studied the ACE insertion or deletion polymorphysim as one of the possible causes of resistant hypertension. It was concluded that homogenous gene mutation was more common in patients with resistant hypertension. Out of 100%, 54.7% patients with resistant hypertension had this gene mutation in them [9,10].

The under study topic aims in determining the frequency and estimation disease burden and to find out its possible causes along with association with age and gender, in order to get better knowledge about disease and to provide better care regarding its control.

CONCLUSION:

It was concluded that resistant hypertension was more common in females than in males and the age group commonly involved is 56 to 72 years.

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