

# COMMON FACTORS LEADING TO NON-COMPLIANCE OF ANTIHYPERTENSIVE DRUGS

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## ABSTRACT

**Introduction:** Hypertension is a most common disease also a significant manageable issue of public health worldwide. It is a big threat and a main predictor of cardiovascular diseases. Currently it is estimated that about one billion human populations all over the world are hypertensive. It is expected that the number of such patients will increase upto 1.56 billion by 2025. Although in the presence of effective antihypertensive drugs, majority of the patients are still hypertensive. In statistical studies it is shown that control rates vary from country to country and in different races. However, the overall control rates are not satisfactory and this is because of mainly due to ignorance or no knowledge of hypertension, inability of follow-ups, financial crises and all above these are main causes of failure to treatment.

**Objective:** To determine the frequency of common factors leading to non-compliance of antihypertensive drugs

**Methodology:** This study was conducted in the Medicine Department, Hayatabad Medical Complex (HMC), Peshawar. The design of study was cross sectional (descriptive) study. Study Duration was one years (1/2/2017 to 1/2/2018). Sample size was 131 patients. More over patients of both genders, patients of age more than 16 years, non compliant patients of hypertension of >3 months duration were included. All patients were subjected to detailed history and examination. The diagnostic criteria for hypertension were based on blood pressure  $\geq 140/90$  mmHg in clinical examination. Careful scrutiny of past medical records and detailed history was taken under the supervision of a senior physician to detect the factors leading to non-compliance of antihypertensive drugs as per operational definitions. The Morisky 8 items questionnaire was used for identifying the factors leading to non-compliance. Patients who were grouped into non-compliance group was asked about the following 4 more questions (self-designed) related to forgetfulness, lack of finances, busy life schedules, and side effects. Data collected was entered and analyzed in SPSS 22. Mean  $\pm$  SD was calculated for continuous variable like age and categorical variables like gender and factors leading to non-compliance. Categorical variables were expressed as frequencies and percentages. Factors leading to non-compliance were stratified among age and gender to see the effect modification.

**Results:** Majority of patients in the study were above the age of 40 years (83%). Female patients were more non-complaint as compared to males (55%). Unaffordability (40%) was the leading factor in the study for poor compliance followed by lack of counseling by caregiver and missed appointment.

**Conclusion:** Unaffordability (40%) was the leading factor in the study for poor compliance followed by lack of counseling by caregiver (26%) and missed appointment (24%).

**Key Words:** Factors, Non-compliance, hypertension, antihypertensive drugs.

## INTRODUCTION

Hypertension is a most common disease also a significant manageable issue of public health worldwide. It is a big threat and a main predictor of cardiovascular diseases. Currently it is estimated that about one billion human populations all over the world are hypertensive. It is expected that the number of such patients will increase upto 1.56 billion by 2025. Although in the presence of effective antihypertensive drugs, majority of the patients are still hypertensive. In statistical studies it is shown that control rates vary from country to country and in different races. However, the overall control rates are not satisfactory and this is

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because of mainly due to ignorance or no knowledge of hypertension, inability of follow-ups, financial crises and all above these are main causes of failure to treatment.

Although, the knowledge towards hypertension is well-known like 62% in Australia and 72% in US, the organize rates are not satisfactory as 24% and 35% respectively. In the South Asian, the situation is more difficult as China reported only 8% control rates and India with 6% in control of hypertension.<sup>4</sup> A same condition is present in Pakistan also. According to the National Health Study of Pakistan 18% of adults and 33% of adults above 45 years old are affected by hypertension. In another comparable study, it was seen that 18% of people in Pakistan suffer from hypertension with each third person over the age of 40 becoming increasingly at risk to a broad variety of diseases. It was also seen that overall 12.5% of hypertensive patients were effectively controlled because 50% of the people with hypertension were diagnosed and only half of those were ever treated.

Poor compliance with drugs is a big issue for recherche and different methods were suggested for its betterment but there was difficulty in comparison of compliance studies due to unavailability of standard expressions and style.<sup>7</sup> On the other hand it has a very bad impression on the patients and their families when blood pressure control is not achieved. Hypertension has been a big public health challenge even in some of the developed countries like Russian Federation and China.<sup>8-9</sup> Studies have also suggested that hypertension is common in resource poor communities and developing countries. So, there is a need to find the local data which can guide local physicians for formulating strategies to control the common factors leading to non-compliance in order to overcome the issue of hypertension. The present study, in this regards, is designed to determine the frequency of common factors leading to non-compliance of antihypertensive drugs in our local population. The statistics found through this study will be shared with various health care institutions and hospitals, which will help the policymakers to design proper guidelines for the management of hypertension.

## OBJECTIVE

To determine the frequency of factors leading to non-compliance of antihypertensive drugs

## METHODOLOGY

This study was conducted in the Medicine Department of HMC Peshawar. Study plan was cross sectional (descriptive) study. Period of the study was one years (1/2/2017 to 1/2/2018). Sample size was 131 patients, using 21% proportion of drug side effect, 7% margin of error and 95% confidence interval under WHO software. Sample technique non probability consecutive sampling. more over patients of both genders, patients of age more than 16 years, Non compliant patients of hypertension of > 3 months duration were included while patients who are dependent on others for their medications. E.g., patients with psychiatric illnesses or physical disabilities, patients who had to stop their medications according to their physician's advice. E.g., low blood pressure in congestive cardiomyopathy patients, patients who miss their medications due to acute or acute on chronic conditions. E.g. porto-systemic encephalopathy in chronic liver diseases, uremic encephalopathy were excluded. All patients were subjected to detailed history and examination. Diagnosis of hypertension was based on blood pressure  $\geq 140/90$  mmHg in clinical assessment. Careful scrutiny of past medical records and detailed history was taken under the supervision of a senior physician to detect the factors leading to non-compliance of antihypertensive drugs as per operational definitions. The Morisky 8 items questionnaire was used for identifying the factors leading to non-compliance (see appendix--). Patients who were grouped into non-compliance group was asked about the following 4

more questions (self-designed) related to forgetfulness, lack of finances, busy life schedules, and side effects. Data collected was entered and examined in SPSS 22. Mean  $\pm$  SD was computed for continuous variable like age and categorical variables like gender and factors leading to non-compliance. Categorical variables were expressed as frequencies and percentages. Factors leading to non-compliance were stratified among age and sex to observe the outcome of adjustment.

## RESULTS

- Mean age was 47 years with SD  $\pm$  2.73. Majority of the hypertensive patients were above the age of 40 years (table no 1)
- Gender distribution among 131 was analyzed as 59(45%) patients were male while 72(55%) patients were female. (table no 2).
- Common factors among 131 were analyzed (table no 3) as;

Unaffordability was seen in 53(40%) patients

Lack of counseling by caregiver was seen in 34(26%) patients

Missed appointment was seen in 31(24%) patients

Drugs side effects were seen in 13(10%) patients.

## DISCUSSION

Hypertension is a common disease and a significant manageable issue of public health worldwide. It is a big threat and a powerful predictor of cardiovascular morbidity and mortality.<sup>1</sup> Presently it is expected that about 1 billion people globally have hypertension, also it is anticipated that this number will increase upto 1.56 billion by 2025.<sup>2</sup> This is due to the presence of effective antihypertensive drugs, large numbers of patients in actual clinical practice still experience uncontrolled hypertension. In National Health survey of Pakistan 18% of adults and 33% of adults above 45 years old were affected by hypertension. In another comparable study, it was seen that 18% of people in Pakistan suffer from hypertension with each third person over the age of 40 becoming increasingly at risk to a broad variety of diseases. It was also seen that merely 12.5% of hypertensive patients were effectively controlled because 50% of the people with hypertension were diagnosed and only half of those were ever treated.

Our study shows that 17% patients were in age range 30 to 40 years, 37% patients were lie in the age range 41 to 50 years, 46% patients were in age range 51 to 60 years. Average age was 47 years with its SD  $\pm$  2.73. Forty five percent patients were male and 55% patients were female. Unaffordability was observed in 53(40%) patients, lack of counseling by caregiver was observed in 34(26%) patients, Missed appointment was observed in 31(24%) patients and drugs side effects

**Table No 1: Age Distribution (n=131)**

Age	Frequency	Percentage
30-40 years	22	17%
41-50 years	49	37%
51-60 years	60	46%
Total	131	100%

Mean age is 47 years with its SD  $\pm$  2.73

**Table No 2: Sex Allocation (n=131)**

Sex	Frequency	Percentage
Male	59	45%
Female	72	55%
Total	131	100%

**Table No: 3 Common Factors Responsible For Non-Compliance (n=131)**

Common factor	Frequency	Percentage
Unaffordability	53	40%
Lack of counseling by caregiver	34	26%
Missed Appointment	31	24%
Drugs Side effects	13	10%
Total	131	100%

were observed in 13(10%) patients.

The results of our study was comparable with another study done by Arshia Bilal et al<sup>10</sup> in which the sample size was 113. In that study most of the hypertensive patients were above the age of 46 years (82%). Majority of the hypertensive patients were female (64%). Complication of hypertension was seen in about 55/77 (71.43%) of non-complaint patients. The two main factors of non-compliance were carelessness (22.12%) and un-affordability (20%) during the research. We also asked the patients about the circumstances of taking medicine through which we came to know that 51/113 (45.13%) were taking medicines for symptomatic reasons. Among the patients who thought that by taking the drugs their B.P. got controlled, 55/85 (64.71%) were noncompliant while in vice versa case, 22/28 (78.57%) were non-compliant. Non-compliant patients were not taking medicines on regular basis and on prescribed time and dose ( $p=0.000$ ). Non-compliance is reported greatest, i.e. 65(86%) among patients who paid themselves for their medicines ( $p=0.06$ ) than those whose medicine paid by family or others. Side effects of drugs also contribute to some extent in causing noncompliance in 10 (9%). Common side effects which were reported by patients were dizziness 13 (17%), polyuria 9 (12%), and sedation 7 (9%).

Non-compliance is a significant predictor for uncontrolled hypertension. One study conducted in Nigeria reported the factors of non-compliance as forgetfulness (8.4%), adverse drugs reactions (6.1%), poverty to purchase drugs (6.8%), having a so many works to get a time to take drugs (3.6%), felt better therefore no need to take drugs (11%), regularly missing to rarely taking medications (41.5%) etc.<sup>11</sup> One study in Pakistan, found overall 51.7% non-compliant patients who had missed a dose or more of their antihypertensive drugs during the last three month due to any reason.<sup>12</sup>

Unlike other studies we have not found side effect of antihypertension drugs as a main cause for low compliance to show that the participants were inadequately acknowledge or their attitude was not serious

## CONCLUSION

Unaffordability 40%, lack of counseling by caregiver 26% and missed appointment 24% were the most common factors leading to non-compliance of antihypertensive drugs.

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