ORIGINAL ARTICLE

Patient Compliance in Systemic Hypertension and to Identify Causes of Non-Compliance

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ABSTRACT

Objective: To assess patient compliance in systemic hypertension and to identify the causes of non-compliance.

Study Design: A descriptive observational study.

Place and Duration of Study: The study was conducted in the Department of Medicine Unit I and Unit II at Pakistan Railway Hospital, Rawalpindi, for 1 month from 5th of September, 2012 to 5th of October, 2012.

Materials and Methods: Semi structured interviews of 32 patients with primary hypertension who were admitted in medical ward were done along with their blood pressure readings and their compliance was assessed. Morisky 8-item medication adherence questionnaire[1] was used to assess the adherence to anti-hypertensive medication. Scores of less than 3 out of 8 were termed as compliant while scores of 3 or more were termed as non-compliant. **Non-compliance** was defined as missing at least two days of medications per week. This definition was arrived at from the general understanding that a minimum compliance of 80% is needed to achieve an adequate reduction in blood pressure in the treatment of hypertension.[2]

Results: Among 32 patients, 18 were male while 14 were female with mean age of 56 years. Twenty six out of thirty two (81.25%) patients did not comply with their antihypertensive medications. In majority of the patients (42.3%), misperception about disease and management due to inadequate education by health care providers was found to be the cause of non-compliance. Other causes were considering medication unnecessary (15.3%) or ineffective (11.5%), forgetting to take them regularly (11.5%), unaffordable drug prices (11.5%) and unpleasant side effects (7.7%).

Conclusion: Patients compliance in hypertension was sub-optimal and misperceptions of the disease and its management seemed to play a major role for non-compliance. Physician-patient relationship, effective communication and better understanding of the disease can result in adequate control of hypertension and its complications.

Key words: *Patient compliance, Hypertension, Physician patient relationship*

Introduction

Hypertension is defined as a blood pressure of 140/90 mm Hg or more than 130/85 mm Hg if Diabetic or having **chronic kidney disease** (CKD), stage III, measured in a proper setting on at least two different occasions.[3] Hypertension is an overwhelming global challenge, which ranks third as a means of reduction in disability-adjusted life-years.[4] It affects 1 billion people worldwide and is the most easily recognized treatable risk factor for stroke, myocardial infarction, heart failure, peripheral vascular disease, aortic dissection, atrial fibrillation and end-stage kidney disease. In a World Health Organization report, blood pressure was responsible for approximately half of all cardiovascular disease worldwide.[5]

Despite this knowledge and unequivocal scientific proof that treatment of hypertension can prevent many of its life-altering complications, hypertension remains untreated or undertreated in the majority of affected individuals in all countries, including those with the most advanced systems of medical care. Inadequate treatment of hypertension is a major factor contributing to some of the adverse secular trends since the early 1990s,

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including an increased incidence of stroke, heart failure, and kidney failure plus a leveling off of the decline in coronary heart disease mortality. The asymptomatic nature of the condition impedes early detection, which requires regular blood pressure measurement. Because most cases of hypertension cannot be cured, blood pressure control requires lifelong treatment with prescription medication, which is costly and often causes more symptoms than the underlying disease process.[6]

Compliance with treatment is an important issue in the successful control of hypertension and prevention of complications. According to the World Health Organization (WHO), poor adherence to antihypertensive medication is the most important cause of uncontrolled blood pressure and estimates that 50-70% of the patients don't take their antihypertensive medication as prescribed by their health care providers.[7]

This study was done to assess the patient compliance in systemic hypertension and to identify the causes of non-compliance in our settings. Railway hospital caters to the railway employees along with general public. Railway employees are entitled for free investigations/ treatment, so lack of financial resources can't be a major factor for non-compliance.

Materials and Methods

This observational study was performed at IIMCT-Pakistan Railway Hospital; a 400 bedded teaching hospital located in West ridge, affiliated with Islamic International Medical College, Rawalpindi.A total of 32 patients who were admitted in medical unit I and II with various medical conditions were included in this study. 12 patients presented with medical conditions resulting as the complications of hypertension mostly stroke, myocardial infarction and heart failure while rest of the patients were having hypertension as co-morbidity. All the patients were previously diagnosed cases of hypertension and had been prescribed with antihypertensive medication. Semi-structured interviews were conducted and Morisky 8-item medication adherence questionnaire[1] was used to assess their adherence to anti-hypertensive medication. Scores of less than 3 out of 8 were termed as compliant while scores of 3 or more were termed as non-compliant. The non-compliance was defined as missing at least two days of medications per week. This definition was arrived at from the general understanding that a minimum **compliance** of 80% is needed to achieve an adequate reduction in blood pressure in the treatment of hypertension.[2] Blood pressures of all the patients were measured at the time of interview and they were within normal limits due to the fact that they were given antihypertensive medication regularly during their management in the ward.

Results

Out of 32 patients, 18 were male and 14 were female. 25 patients were above the age of 50 years with the **age range of** 43 years to 68 years and the mean age was 56 years. 26 out of 32 (81.25%) patients did not comply with their antihypertensive medications. Non-compliance in males was found to be 77.7% while in females it was 85.7%. 11 patients were of the view that their blood pressures were controlled as they experienced no symptoms so they stopped taking their medicines. 4 patients considered medication unnecessary and believed they do not need it. 3 patients considered them ineffective. 3 patients forgot to take medication regularly. 3 patients cited unaffordable drug prices as the main reason for noncompliance. 2 patients experienced unpleasant side effects. Majority of the patients considered the necessity of taking antihypertensive medication only when they experienced symptoms like headache etc and believed

49

that they do not need the medication when they are asymptomatic. Non-adherence was an active decision, partly based on misunderstandings of the condition and general disapproval of medication.

Table I: Frequency of Causes of Non-Compliance

CAUSES OF NON-COMPLIANCE	OVERALL FREQUENCY (%)	FREQUENCY IN MALES (%)	FREQUENCY IN FEMALES (%)
Misperception about disease and management(Due to inadequate education by health care providers)	42.3%	42.8%	41.6%
Drugs are unnecessary	15.3%	14.2%	16.6%
Ineffective drugs	11.5%	14.2%	8.3%
Forget to take medication regularly	11.5%	7.1%	16.6%
Unaffordable drug prices	11.5%	14.2%	8.3%
Unpleasant side effects	7.7%	7.1%	8.3%

Discussion

Despite improvements in the management of hypertension in the past several years, nearly 70% of patients with hypertension are not adequately controlled.[8] One of the major contributors to the large number of uncontrolled hypertensive patients appears to be non-compliance with prescribed regimens. In prescribing medication, compliance usually means "the extent to which the patient takes the medication as prescribed".[9] Non-adherence to prescribed drugs schedule has been and continues to be a major problem the world over.

The World Health Organization (WHO) describes poor adherence as the most important cause of uncontrolled blood pressure and estimates that 50-70% of people do not take their antihypertensive medication as prescribed.[7] Data from the National Health and Nutrition Examination Survey in USA indicates that approximately 40% of hypertensive individuals are untreated, and 65% do not have their hypertension controlled to a blood pressure level of 140/90 mm Hg.[10]

As with the treatment of other chronic illnesses in which long-term treatment is required, adherence to prescribed medications for hypertension is also a problem. Studies have shown that almost 50% of individuals discontinue antihypertensive medications within 6 to 12 months of their initiation.[11] According to the National Health Survey of Pakistan, the prevalence rate of hypertension is 18% in the Pakistani population of more than 15 years of age, with a prevalence rate of hypertension of 16.2% and 21.6% in rural and urban population respectively and it also showed that among all hypertensive patients in Pakistan, more than 70% are unaware of their disease.[12] A study done by *Saleem et al in 2011 at Quetta, Pakistan showed that 64.7% of the patients were non-compliant*[13] *and a study done by* Nazir et al in 2008 at Abbottabad showed that 51.7% of the patients were non-compliant.[14] Another study from Agha Khan University Karachi by Hashmi et al showed compliance to be significantly higher around 77% in hypertensive patients.[15] In our study 81.25% of the patients were found to be non-compliant. This poor compliance was mainly due to the fact that patients were not given adequate education about their disease and its management. Consequently they stopped taking their medication although majority of them were entitled for free treatment by Railway hospital. The free treatment by the Railway hospital also excludes unaffordable drug prices as the major cause in our study as this cause was only found in 11.5% of the patients mainly in those who were Railway non-entitled but this cause cannot be ignored in general

population as we have a substantial poor population in our country. Patients' beliefs and attitudes have been explored in studies worldwide to explain not taking medication as prescribed. Egan *et al* found forgetfulness, adverse effects and not liking to take medication among the reasons for poor adherence in the United States.[16] Commonly encouraging factors, such as understanding the need and effectiveness of medication, a good support system and employing methods to reduce forgetfulness such as keeping medication in sight, were all significantly associated with better adherence in our population. Similarly, among the discouraging factors cited in literature, most commonly reported in our population was forgetfulness (48%) followed by cost (40%) and fear of getting used to medication (27%). These were, however, factors that reduced adherence among the adherent (>80% adherence) population. This was different from the major factors reducing adherence in the non-adherent (<80% adherence) patients, whose main issues were lack of understanding of need of medication (70%) and lack of understanding of effectiveness of medication (59%).[17]

In our study 42.3% of the patients believed that one should only take medication when there are symptoms and had strong concerns about the potential adverse effects of taking medication every day or did not see the need for taking medication when one is not feeling ill. This finding also provides a preliminary insight into the mechanism by which beliefs relating to medication might influence compliance. A study done by ***Saleem et al*** *in Quetta, Pakistan showed that* patients were unsure of the benefits of continuous medication use which resulted in non-adherence (64.7%) to regimens.[13] The same study showed that out of the 385 patients 37.9 % of the patients were within the poor knowledge range, 61.3 % of the patients moderate and only 0.8 % of the patients showed adequate general knowledge about hypertension[13]. Some of these findings were similar to those reported in previous studies.[18,19]

Familoni *et al.,* in a 2004 study in Nigeria, reported that only about one-third of patients knew that hypertension should ideally be treated for life, and 58.3% believed that antihypertensive drugs should be used only where there are 'symptoms' while the remaining 6.3% believed that the treatment should be for a period of time and not for life.[20]

Hayrettin K. in his study showed that there is a positive relationship between patient's levels of knowledge of treatment and better adherence.[21] It was found in the same study that 43.7% of patients believed that antihypertensive drugs can be stopped once the blood pressure has stabilized. This shows how the lack of knowledge about treatment contributes to patient low adherence behavior. Patients cannot necessarily be blamed for this as studies[21-23] have shown that patients' poor knowledge about disease and medication is often related to the effectiveness of the health education they receive. There are many studies which describe the role of physician-patient communication in enhancing patients' adherence to medication.[24-26] The outcome of 'patient-centered' communication between patients and health care providers is that it contributes to increase patients' understanding about their illnesses and adherence to treatments.

Although the interpersonal communication process in the patient-physician relationship has a potentially positive impact on patients'

51

health outcomes, physicians usually do not ask their patients about medication-taking behavior or may use ineffective communication approaches.[24] It is argued that non-collaborative communication on the part of healthcare providers often result in poor patient adherence to antihypertensive treatments.[25] In our study population 81.25 % of were non-adherent to the treatment regimen which is similar to the study "Prevalence, awareness, treatment and control of hypertension among the elderly in Bangladesh and India: a multicentre study" where 90% patients were estimated as being non-adherent.[27]

Patient knowledge is critical in the management of hypertension and yet is an area that is frequently neglected. In our study the most important factor resulting in non-adherence was found to be lack of patient education about disease, its management and side effects. Patients who have been educated and understand their disease process, the goal of controlling blood pressures, potential side effects associated with antihypertensive medication (and the fact the medication can be changed if there are side effects), and the consequences of poor adherence and inadequate BP control tend to be more adherent with the medical regimen.[28]

A recent systematic review of 59 papers in July 2012 from 16 countries (United States, United Kingdom, Brazil, Sweden, Canada, New Zealand, Denmark, Finland, Ghana, Iran, Israel, Netherlands, South Korea, Spain, Tanzania, and Thailand) by Marshall IJ, Wolfe CD, McKevitt C., showed that non-adherence to hypertension treatment often resulted from patients' understanding of the causes and effects of hypertension; particularly relying on the presence of stress or symptoms to determine if blood pressure was raised. These beliefs were remarkably similar across ethnic and geographical groups.[29] To improve adherence, clinicians and educational interventions must better understand and engage with patients' ideas about causality, experiences of symptoms, and concerns about drug side effects. Although it has been suggested that it is sometimes possible to withdraw drug therapy and continue lifestyle-modification after several years, the consensus is that almost all who are hypertensive before treatment will become hypertensive again if treatment is stopped.[30]

Conclusion

Misperception of disease understanding and its management is a significant cause of non-compliance in hypertension. Educational efforts and behavioral techniques can improve patient compliance in chronic, asymptomatic conditions. Effective management requires continuity of care by a regular and knowledgeable physician as well as sustained active involvement by an educated patient. Health care providers need to educate, counsel and motivate their patients in this regard. Further studies should be carried out to identify major causes of non-compliance.

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52

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53