



Original Article

Noncompliance to Antihypertensive Medication in Patients with Essential Hypertension attending Dhaka Medical College Hospital

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Abstract

Introduction: Medication noncompliance is a necessary but neglected factor for the negative cardiovascular outcome. Despite various studies on the issue, the factors behind noncompliance still need to be explored properly. Therefore, this study was conducted to determine the magnitude and factors associated with noncompliance with antihypertensive Medication.

Materials and Methods: This is a cross-sectional study that was conducted on 200 hypertensive patients in Dhaka Medical College Hospital for six months. Patients were included by purposive sampling, aged 18-70 years, and the duration of diagnosis of at least three months. In addition, demographic data, hypertension diagnosis, antihypertensive drugs, factors related to noncompliance, knowledge of hypertension, perception, and family support were included in the questionnaire.

Result: About 85% of the patients were non-compliant with treatment in their course of illness, and the main reason behind it was forgetfulness (48.2%). Other factors were inability to buy, side effects, busy schedule, intentionally, bored, and traveling. The highest prescribed drug was beta blockers (41%). Eighty percent of the patients knew that uncontrolled hypertension could lead to stroke, and 54% knew it could lead to heart disease. The majority (87.5%) of the participant went for follow-up only when they felt hypertensive.

Regarding perception, 63% of patients felt hypertension is not a curable disease. Furthermore, though all patients were asked for follow-up by their physician, 94% missed their follow-up. **Conclusion:** Despite the availability of various types of effective antihypertensive drugs, many patients experience difficulty controlling hypertension due to noncompliance. Patient and family member education efficiently prevented many factors behind the disobedience. However, further studies with large sample sizes in multiple centers could explain this more precisely.

Keywords: Noncompliance, antihypertensive Medication.

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Introduction

Hypertension is a common disease and an important treatable public health problem.^{1,2} It is often described as the “silent killer” as it causes damage to the body with no symptoms or only

mild symptoms. It is defined as a blood pressure > 140/90 mmHg.^{3,4}

Our country, just like other developing countries, is experiencing an epidemiological transition from communicable to noncommunicable diseases.

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Hypertension is a significant risk factor and robust predictor of cardiovascular morbidity and mortality⁵ with proven benefits after treatment. Improved control of hypertension, in turn, has contributed to a reduction in the incidence rate of stroke and ischemic heart disease⁵. Despite these gains, poorly controlled hypertension remains a significant health problem.⁶ The 3rd health and nutrition survey in the USA shows that only 14 to 25 % of treated hypertensive adults had achieved effective blood pressure control of less than 140/90.⁷

A generally accepted public approach to achieving blood pressure control involves early diagnosis, awareness of the diagnosis, and treatment adherence. Of this, treatment adherence has been widely recognized as key to controlling blood pressure.⁸ In the past, it was thought that compliance was only a patient problem, but a physician's role in determining patient compliance is crucial. They should give clear information about the risk of the disease, the advantages of therapy, and how to take medicines. They should also prescribe a therapeutic scheme as simply as possible and inform the patient about possible side effects. Noncompliance is defined as the extent to which a person's behavior doesn't coincide with medical or health advice.⁹ It was associated with a lack of knowledge about hypertension, negative family history of chronic diseases, multiple antihypertensive drugs prescribed, and increased daily dose frequency.¹⁰ Poor compliance is the principal cause of treatment failure, leading to serious hypertension-related complications.¹¹ These include the progression of coronary atherosclerosis, CCF, kidney disease, and CVD. In addition, poor medication compliance can increase the chance of being admitted to the hospital for a hypertensive crisis. The burden of hypertension is currently growing in economically developed countries as well as in developing countries.

Several studies concerning antihypertensive drug compliance have been conducted worldwide, although little research on this topic has been

conducted in Bangladesh. So, it will be time demanded job to study noncompliance to antihypertensive drugs in patients with essential hypertension. In this study, I want to see the factors related to noncompliance to treatment so that we can take action to increase patient compliance with treatment.

Materials and Methods

This is a cross-sectional study that was conducted in Dhaka Medical College Hospital for six months from 1st July to 31st December 2010 to see the noncompliance to antihypertensive medicine and factors related to noncompliance to treatment. A purposive sampling technique was used. All the patients with evidence of hypertension as per Seventh Joint National Committee Criteria' (defined as systolic blood pressure >140 mm Hg or diastolic blood pressure >90 mm of Hg or use any antihypertensive medication, regardless of blood pressure), aged 18-70 years and above, diagnosed at least three months back were enrolled. Patients using medicines other than antihypertensives and co-morbid conditions were also included. Patients who were not willing to take part in the study and who were unstable and unable to give answers were excluded from the study. A sample of 200 hypertensive patients was selected for the study. They were briefed about the study's objectives, risks, benefits, freedom of participation, and confidentiality. Informed written consent was taken accordingly. A pre-tested questionnaire was used to gather data. The patients were inquired about demographic variables, hypertension diagnosis, name and Number of the medications on a daily basis, and schedule. Patients were also asked for their reasons for noncompliance, knowledge regarding the importance of compliance, side effects of drugs, and family support. Confidentiality was maintained in all steps. Data were entered and analyzed in the computer in Statistical Package for Social Science (SPSS) 17.0 Software for windows.

Results

In this study, 200 hypertensive patients attending in Department of Medicine, Dhaka Medical College Hospital, were included with an aim of finding out the noncompliance pattern to antihypertensive treatment. The result of the study was as follows -

Table I: Demographic characteristics of the participant:

Patients characteristics	Frequency	Percentage
Age group		
30-40 yrs	23	11.5
41-50 yrs	151	75.5
51-60 yrs	26	13.0
Total	200	100.0
Mean(SD)	47.08(\pm 5.03)	35.0-60 yrs
Sex		
Male	110	55%
Female	90	45%
Occupational status		
Government job	20	10.0
Private job	24	12.0
Farmer	26	13.0
Business	25	12.5
Day labor	25	12.5
Housewife	64	32.0
Unemployed	04	2.0
Garments worker	12	6.0
Total	200	100.0
Educational status		
Illiterate	22	11.0
Primary	45	22.5
Secondary	78	39.0
Higher Secondary	33	16.5
Graduate and above	22	11.0
Total	200	100.0

Socio-economic status

Low income (<5000 taka)	98	49
Middle income (5000-20000 taka)	78	39
Upper middle income (>20000 taka)	24	12
Total	200	100
Mean (\pm SD) monthly income taka	10947.5(\pm 4575.82)	3000-25000 taka

Diagnosis of hypertension

1-5 year	148	74
6-10 yrs	45	22.5
>10 yrs	07	03.5
Total	200	100.0
Mean(\pm SD)	3.99(\pm 3.47)	1-15 years

Drugs taken

Beta blocker	82	41%
ACEI	10	5%
Diuretics	13	6.5%
Calcium channel blocker	76	38%
ARB	19	9.5%

Table II: Status of nonadherence to Medication

Nonadherence to medication	Frequency	Percent
Nonadherent	170	85.0
Adherent	30	15.0
Total	200	100.0

Table III: Reasons for not taking Medication

Reasons	Frequency	Percentage
Unable to buy	12	07
Side effect	17	10
Busy schedule	27	15.8
Intentionally	09	5.29
Boring	11	6.47
Forgetfulness	82	48.23
Traveling	12	07
Total	170	100.0

Table IV: Knowledge of complication of uncontrolled hypertension

Complication	Correct answers Number	Percentage
Brain stroke	160	80
Kidney failure	19	9.5
Heart disease	108	54
Retinopathy	17	8.5
Diseases of peripheral vessels	01	0.5

Table V: Knowledge of side effects of the antihypertensive drugs:

Side effects of the drug	Correct answers / Number	Percentage
Anorexia, nausea	40	20
Hypotension	158	79
Leg swelling	13	6.5
Dry cough	6.0	3.0
Severe weakness	74	37.0
Impotence	37	18.5

Table VI: Knowledge of compliance to treatment

Knowledge of compliance to treatment	Correct Number	answers	Percentage
The necessity to take all medicine according to prescription	28		14
When BP is under control, stop taking the drug	54		27
Only when you feel hypertensive go for follow up	175		87.5
Change medicine for expenses	70		35

Table VII: Perception of each item of 200 hypertensive patients

Items	Agree		Not sure		Disagree	
	Number	%	Number	%	Number	%
Hypertension is a curable disease	03	1.5	71	35.5	126	63
The disease has no definite signs and symptoms	55	27.5	84	42	61	30.5
If not treated with drugs, according to the physician, BP will be uncontrolled	147	73.5	50	25	03	1.5
Only regular antihypertensive can prevent complication	02	1.0	156	78	42	21
Preserving prescriptions help to understand HTN status	155	77.5	01	0.5	44	22
Buying drugs is a wastage of money	23	11.5	53	26.5	124	62.0

Table VIII: Status of family support of the respondents

Family support	Yes	No
	N (%)	N (%)
Family members told the significance of taking medication and seeking treatment	57(28.5)	143(71.5)
Need monetary support for seeking antihypertensive treatment	94(47)	106(53)

Table IX: Follow-up status of the patients

Follow up status	Number	Percentage
Asked for follow up	200	100
Missed any follow-up	188	94

Discussion

The cross-sectional study was conducted in the Department of Medicine of Dhaka Medical College Hospital. In this study mean age was 47.08(±5.03) years. The major age group was 41-50 years (75.5%). Fifty-five percent of patients were male. This gender inequality may be due to the negligence of the male members of the family to bring them to the health care provider and reflect the gender discrepancy prevailing in our

society. Ekram et al. (2008)¹² showed the mean age was 52 (±11) years maximum age group was <50 years, and the male was 59%, which is similar to our study.¹³

In this series, the occupations of patients varied, including housewives (32%), farmers and laborers (25.5%), office workers (22.0%), and businessmen (12.5%). Educational levels varied greatly; 55.5% had a secondary or higher secondary education level, 33.5% had no education or primary

education, and only 11% had a bachelor's degree or higher. Low educational levels may contribute to reducing compliance.

Forty-nine percent were poor, earning <5000 taka per month, and 12% earning >20000 taka per month. That result was approximately similar to Ekram et al. study; they reported that 70% were poor and earning \leq 10,000 taka per month¹², reflecting hypertension is not only a disease of the wealthy. Poverty may also play an essential role in noncompliance.

In this study duration of the disease ranged from 1 to 15 years, with an average of 3.99(\pm 3.47) years. About one-fourth of the patients were hypertensive for more than six years. Ekram et al.¹² found that the disease duration ranged from 1 to 30 years, with an average of 7.2 \pm 5.5 years. In this series most commonly used antihypertensive medicine was beta blockers (41%), and the less frequently used drug was ACEI (5%). It may be due to the cost-effectiveness and easy availability of beta blockers. Khurshid et al.¹⁴ reported, among the monotherapy category, the various classes of drugs used were as follows: beta-blockers (28.8%), diuretics (24.1%), calcium channel blockers (21.8%), ACE inhibitors (18.4%), angiotensin II receptor blockers (5.7%) and α 1-blocker (1.1%).

In this study, about 85% of patients were non-compliant with treatment, and 15% were compliant with their treatment. In a hospital-based study the non-adherence rate was 85%.¹⁵ Among the studies conducted on various populations of the world, the adherence observed reported in a similar study in Malaysia (44.2%),¹⁶ comparable to a study in Egypt (74.1%)¹⁷ and lower than what a study in the Western population (Scotland) reports (91%)¹⁸. In this study, reasons for not taking the medication included forgetfulness (48.2%), busy schedule (15.9%), side effects (10%), boredom, travel, reluctance to take, and inability to buy the medication. Egan et al. found forgetfulness, adverse effects, and not liking to take medication among the reasons for poor adherence in a nationally representative sample in the United States.¹⁹ More than half of the non-

compliant patients in *the Al Mahza et al.*²⁰ study reported forgetfulness and absence of symptoms of hypertension as reasons for their noncompliance. In one study, almost one-half of the non-compliant patients reported the absence of symptoms of hypertension and forgetfulness as reasons for their non-compliance²¹. Negative attitude to drugs, lack of knowledge on the effect of noncompliance, busy lifestyle, and lack of family members' cooperation contribute to forgetfulness. This calls for more focus and care regarding the behavioral aspects of managing hypertension²² rather than restricting doctors' attention to choosing one type of drug or another.

Regarding the knowledge of the complication of uncontrolled HTN, about eighty percent of the patients knew that uncontrolled hypertension could lead to stroke, and a half (54%) of the patients knew that it might lead to heart disease. Ekram et al.¹² reported that three-fourth of the patients knew that uncontrolled hypertension could lead to stroke and heart disease. That was similar to our study. Knowledge of hypertension significantly affected adherence in Hashmi et al.²³ study sample. Studies from the developed world, however, indicate no association between patients' knowledge and adherence.^{24, 25}

Most of the (87.5%) participants went for follow-up when they felt hypertensive, 94% of them missed their follow-up in their course of illness, 35% changed medicine for expenses, and 27% stopped taking the drug when BP was under control which indicates poor knowledge on adherence.

Regarding perception, about 63% of patients felt hypertension is not a curable disease, and 77.5% of the respondent said that preservation of the previous prescription is essential to understand the status of blood pressure. 62% of the respondents did not think buying drugs is a waste of money. Knowing all these factors why these people are nonadherent to treatment needs further investigation. Whether a patient will adhere or non-adhere to treatment is directly linked to the support that family members provide to him, by reminding dosages, telling the patient about the

significance of treating hypertension, etc. In this study, One-third of the respondent said that they were never asked to take medicines or visit a physician by their family members and half of the respondents had to depend on the monetary support of the family member for treatment. In Bangladesh, family cohesion is very high; despite that, one-third of the patients had never been reminded is a matter of concern.

Conclusion

Most patients are noncompliant with their medication, and factors are patients, physicians, medicine, and health care system-related. So, Noncompliance can be prevented with simple measures like proper counseling of the patients and family members, comprehensive prescription, and an efficient health care delivery system.

Conflict of interest: None declared

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