



Original Article

Preliminary Report on Non-adherence to Antihypertensive Treatment in Essential Hypertensive Patients: A Community Based Survey

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Abstract

A cross-sectional study was conducted on 300 hypertensive patients living in urban and rural community in Rajshahi District of Bangladesh to assess the situation regarding antihypertensive drug non-adherence. Patients aged 35 years or above who are taking antihypertensive drug for at least 6 months were included in the study. About 87% of patients were found non-adherent to treatment. The non-adherent patients had missed taking medication for anywhere from one day to the whole month. The reasons for not taking the medication included forgetfulness (54.1%), busy schedule (13.9.0%), boredom, travel, reluctance to take, and reluctance to buy the medication. Almost 80% of the people know that hypertension is an incurable disease and the disease has no definite sign and symptom. Knowing all these factors why these people are non-adherent to treatment needs further exploration.

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Introduction

Non-communicable diseases, such as heart disease, hypertension, cancer, and diabetes, gradually superseded communicable diseases in the 20th century¹. According to the WHO, Bangladesh is in this early epidemiological transition stage. In 2000, among the top ten causes of death in Bangladesh hypertension was a leading one². Hypertension is an expensive disease due to its cardiovascular complications and medical treatments. In addition, the human suffering caused by hypertension to the patients and their close relatives is immeasurable. Clinical trials have demonstrated that treatment of hypertension helps avert cardiovascular disease and stroke^{3,4}.

Adherence to a medication regimen is generally defined as the extent to which patients take medications as prescribed by their health care

providers. Adherence rates are typically higher among patients with acute conditions, as compared with those with chronic conditions; persistence among patients with chronic conditions is disappointingly low, dropping most dramatically after the first six months of therapy^{5,6,7}.

To control the blood pressure to normal limit adherence to treatment is a must which is the major problem. The factors that beget non-adherence are complex and interwoven. Patients' ability to understand their treatment routines or the reasons for them, side effects, financial barriers, simple forgetfulness – or any combination of these can influence adherence to therapy and, ultimately, the potential for positive outcomes.

In our previous study 'non-adherence to antihypertensive treatment in essential hypertensive patients in Rajshahi, Bangladesh we

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have found that 85% of our hypertensive patients are non-adhering to treatment⁸. But it was a hospital based study giving no picture of the community. The purpose of this study was to explore the true extent and causes of non-adherence to antihypertensive treatment in the community.

Materials and methods

A cross-sectional study was conducted on 300 hypertensive patients living in urban and rural community of Rajshahi city and Charghat and Godagari upazilla with criteria for inclusion in the study of taking antihypertensive medication for more than 6 months prescribed by a physician and age at least 35 years. Patients fulfilling criteria were informed as to the study goals and after giving consent were included in the study. Data were collected regarding patient particulars, adherence to treatment, patient knowledge regarding the consequences of untreated hypertension, side-effects of the medication, measures for prevention, knowledge regarding the negative consequences of the disease, benefits and barriers of adhering to treatment; family support in terms of being reminded to take medication, accompanying the patient to the hospital/physician, monetary support, accessibility to treatment and services in terms of cost, travel time, and follow-up. Progress notes regarding hypertension treatment were collected and prescriptions were checked to determine correct medication use and compliance. The content validity of the questionnaire was evaluated by three experts. The reliability of measuring patient perception using the Cronbach's Coefficient of Alpha was 0.614. The study was approved by the Ethics Committee of Rajshahi Medical College, Bangladesh.

Result

A total of 150 patients were included from rural and 150 patients from the urban area from 22nd December 2006 to 18th February 2007. Their mean age was 52 (± 11) years. Approximately 59% of patients were males. The educational level varied greatly; 36% having no education or a primary education, 46% had secondary or higher secondary education level and 18% had a bachelor degree or

higher. The occupations of patients were varied including office workers (22.7%), farmers and laborers (12.7%), businessmen (18.7%), housewife (37.7%) etc. All most all the patients were married. About 70% were poor and earning \leq 10,000 taka per month.

Table 1: General characteristics of 300 hypertensive patients

	Number	Percent
Study site		
Rural	150	50
Urban	150	50
Age distribution of the participants		
<50 years	177	59.0
51 - 60 years	71	23.7
61 - 70 years	38	12.7
>70 years	14	4.7
mean \pm sd	52 \pm 11 years	
min-max	30 - 90 years	
Sex		
Male	177	59.0
Female	123	41.0
Religion		
Muslim	289	96.3
Hindu	11	3.7
Education		
No education	53	17.7
Primary	55	18.3
Secondary	96	32.0
Higher secondary	42	14.0
Bachelor	37	12.3
Master and over	15	5.0
Other	2	0.7
Occupation		
Office worker	68	22.7
Farmer and laborer	38	12.7
Business man	56	18.7
House wife	113	37.7
Other	25	8.3
Marital status		
Married	297	99.0
Unmarried	2	0.7
Widowed	1	0.3
Monthly income		
0-10,000 taka	210	70.0
10,001-20,000 taka	81	27.0
20,001-30000 taka	5	1.7
>30000 taka	4	1.3
mean \pm sd(TK)	10271.67 \pm 8142.15	
min-max(TK)	1500.00 - 100,000.00	

The duration of disease ranged from 1 to 30 years, with an average of 7.2 ± 5.5 years. About two-fifths

of patients had hypertension for 1 – 5 years, another two-fifths of 6 - 10 years and the rest for greater than 10 years. The antihypertensive medication included; calcium channel blockers (44.3%), beta blockers (62.3%), Diuretics (29.3%), ACE inhibitors, ARBs and centrally acting agents. About 87% of patients were non-adherent to treatment. The non-adherent patients had missed taking medication for anywhere from one day to the whole month. The reasons for not taking the medication included forgetfulness (54.1%), busy schedule (13.9.0%), boredom, travel, reluctance to take, and reluctance to buy the medication. Nearly all the patients (98.3%) had to buy their drugs from a drug store.

Table 2: Adherence to treatment of 300 hypertensive patients

	Number	Percent
Duration of diagnosis of hypertension		
1-5 years	117	39
6-10 years	141	47
>10 years	42	14
mean ± sd	7.2 ± 5.5	
min-max(year)	1-30	
Types of drugs taken*		
Calcium channel blocker	133	44.3
Beta blocker	187	62.3
Diuretic	88	29.3
ACE inhibitor	43	14.3
ARB	67	22.3
Centrally acting drugs	1	0.3
Adherence to medication		
Adherent	40	13.3
Non-adherent	260	86.7
1-2 days/m	192	74.1
3-4 days/m	55	21.2
5-6 days/m	11	4.2
>7 days/m	1	0.4
Reasons of not taking medication*		
Forgetfulness/absent minded	140	54.1
Busy schedule	36	13.9
Boring	24	9.3
Traveling	1	0.4
Other reasons to forget	58	22.4
Place of getting anti-hypertensives		
Get drug from Hospital	3	1.0
Get drug from Drug store	295	98.3
Other place	2	0.7
How often the participants buy antihypertensive drugs		
Always	291	97.0
Sometimes	7	2.3
Never	2	0.7

*_ not mutually exclusive

Three fourth patients knew that uncontrolled hypertension could lead to stroke and heart disease, one-fourth were aware it could lead to kidney failure. A few (20.5%) knew hypertension can cause retinopathy and peripheral vascular disease (2.7%). Most of the respondents had a poor knowledge of the side-effects of antihypertensive. Most of the respondents correctly answered questions regarding important lifestyle behavior, such as avoiding a salty diet and restricting fatty food. Three-fifth of patients knew that exercise helps control blood pressure. All most all the study participant went follow up visits when they felt hypertensive.

Table 3: Knowledge on each item of 300 hypertensive patients

	Correct answers	
	Number	Percent
Complication		
Brain stroke	228	76.0
Kidney failure	77	25.8
Heart disease	191	63.9
Retinopathy	61	20.5
Diseases of peripheral vessels	8	2.7
Side effect of the drugs		
Anorexia, nausea	246	82.0
Hypotension	144	48.0
Leg swelling	54	18.0
Dry cough	25	8.3
Severe weakness	159	53.0
Impotency	104	34.7
Others	1	0.3
Some helpful life styles		
Restricting salt and salty diet	233	77.7
Regular exercise	197	65.7
Restricting fatty food	261	87.0
Eating sweet dishes	233	77.9
Drinking tea	285	95.6
Knowledge about adherence to treatment		
Necessity of taking medication according to prescription	290	96.7
When BP is under control stop taking drug	216	72.0
Only when you feel hypertensive go for follow-up	14	4.7
Change medication according to wish	298	99.3

Three fourth patients felt hypertension is not a curable disease. More than 80% study subjects believed the disease should cause certain signs and symptoms and another 18% were not sure. Most of patients had no idea about the side-effects of anti-hypertensives.

Table 4: Perception on each item of 300 hypertensive patients

Perception on each item	Agree		Not sure		Disagree	
	Number	Percent	Number	Percent	Number	Percent
Hypertension is a curable disease.*	3	1.0	67	22.4	229	76.6
The disease has no definite signs and symptoms	5	1.7	53	17.7	242	80.7
If not treated with drugs according to the physician, BP will be uncontrolled	294	98.0	5	1.7	1	0.3
Perception about the complication						
Brain stroke	228	76.0	72	24.0	0	0.0
Kidney failure	77	25.7	207	69.0	16	5.3
Heart disease	192	64.0	103	34.3	5	1.7
Retinopathy	61	20.3	224	74.7	15	5.0
Diseases of peripheral vessels	8	2.7	286	95.3	6	2.0
Perception on side effects						
Anorexia, nausea*	47	15.7	84	28.0	169	56.3
Hypotension	122	40.8	130	43.5	47	15.7
Leg swelling	48	16.1	216	72.2	35	11.7
Dry cough	18	6.0	244	81.6	37	12.4
Severe weakness	119	39.8	58	19.4	122	40.8
Impotency	95	31.8	159	53.2	45	15.1
Perception on important lifestyle						
Only regular anti-hypertensives can control BP*	4	1.3	6	2.0	290	96.7
Only regular anti-hypertensives can prevent complication*	5	1.7	60	50.0	286	95.3
Preserving prescriptions help to understand HTN status	297	99.3	0	0.0	2	0.7
Going to hospital/physicians kills time*	84	28.0	1	0.3	215	71.7
Buying drugs is wastage of money*	66	22.0	0	0.0	234	78.0
Hypertensive patients cannot eat salty diet as usual	235	78.3	65	21.7	0	0.0
Daily exercise increases BP*	0	0.0	101	33.7	199	66.3
Fatty food has no effect on HTN status*	0	0.0	38	12.7	262	87.3

*_ negative questions

Family support was associated with motivation on the part of the patient to take prescribed medicines and go to the physician. Families provided monetary support when needed and accompanied the patient to the hospital. One-third was never asked by their family members to take medicines or visit their physician. Around half of the respondents had to depend on money from family

for treatment. Almost ninety percent needed an accompanying person when seeking treatment. Children and spouses were the primary family members involved regarding reminders of the importance of treatment, providing monetary support and accompanying to the doctor; followed by brothers, nephews, relatives and friends.

Table 7: Family support of the 300 hypertensive patients

	Number	Percent
Family members telling the significance of taking medication and seeking treatment		
No	89	29.7
Sometimes	61	20.3
Always	150	50.0
Those persons suggested significance to the patients*		
Spouse	90	42.5
Children	110	51.9
Brother/ sister	9	4.2
Nephew/niece	1	0.5
Relatives/friends	2	0.9
Need monetary support for seeking antihypertensive treatment		
No	175	58.3
Sometimes	8	2.7
Always	117	39.0
Persons who have provided monetary support*		
Spouse	87	69.6
Children	35	28
Brother/ sister	1	0.8
Nephew/niece	2	1.6
Persons accompanied at the time of seeking treatment		
No	32	10.7
Sometimes	91	30.3
Always	177	59.0
Persons need accompany to go to hospital/physician*		
Spouse	99	35.9
Children	162	58.7
Brother/ sister	13	4.7
Nephew/niece	1	0.4
Relatives/friends	1	0.4

* _ not mutually exclusive

Discussion

In this community based study, the rate of non-adherence to antihypertensive treatment was almost 87% which is a bit more than the hospital based study where the non-adherence rate was 85%⁸. Like the previous study the main reason of missing drug was forgetfulness. Generally, females are concerned more about their health but only 41.0% female respondent took part in this study, which reflects gender inequality⁹. Moreover in this study, two thirds of the respondents were poor which is similar to the previous study revealing hypertension is not only the disease of rich people.

The respondents were using different types of antihypertensive namely - Calcium channel blocker, beta blocker, diuretic, ACE inhibitor,

ARB etc. Beta blockers are the first line, single use and the cheapest drug for the treatment; and most of the patients (62.3%) of this community based study were prescribed this drug which is different than the hospital based study. The days without drugs were recorded, and it was found that most of the non-adherent patients (74.1%) were without the drug, for 1-2 days, which is totally different than the hospital based study where most of the patients were missing their drugs from 6 days to whole month⁸. And this was the reason of the TOD of those patients.

Almost 80% of the people know that hypertension is an incurable disease and the disease has no definite sign and symptom. Knowing all these factors why these people are non-adherent 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 significance of treating hypertension etc. In this study the overall family support for the hypertensive patient was not satisfactory. In Bangladesh, specially in Rajshahi, the family cohesion is very high; in spite of that one thirds of the patients had never been reminded is a matter of question.

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