

Non-Adherence To Antihypertensive Treatment in Essential Hypertensive Patients in Rajshahi, Bangladesh

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ABSTRACT

A total of 120 hypertensive patients were recruited from two sites: Rajshahi Medical College Hospital (RMCH) and a private clinic in Rajshahi. Eighty five percent of this study population were non-adherent to treatment. The clients of RMCH were more non-adherent. Additional factors determining non-adherence included: lower level of educations, low family income, duration of diagnosis, knowledge and belief of the disease, lack of accompanying person to go to the physician/hospital, and deficiencies in information from the service provider. Since hypertension is a chronic disease, patients should be encouraged to take their medication regularly and follow the lifestyle advised. Collective participation by all allied health personnel should be encouraged. Community based studies should be conducted to discover the extent of non-adherence to antihypertensive treatment.

Key words: Non-Adherence, Hypertension, Antihypertensive, Belief, Knowledge

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Non-communicable diseases, such as heart disease, hypertension, cancer, and diabetes, gradually superseded communicable diseases in the 20th century¹.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 the early epidemiological transition stage. The Bangladesh Health and Morbidity Survey (1994) found hypertension was one of the ten leading causes of morbidity². There is a close relationship between blood pressure and the risk of stroke, coronary heart disease, and other cardiovascular events^{3,4}. Clinical trials have demonstrated that treatment of hypertension helps avert cardiovascular disease and stroke^{5,6}. A study of the Prevalence, Awareness, Treatment and Control of Hypertension among Elderly in Bangladesh and India found that 45% of elderly people in these two countries suffer from hypertension, 40% of the patients are aware of their disease diagnosis and 10% of them are adhering to treatment⁷. Health perceptions, socioeconomic factors (dependence, drug cost), reduced physical mobility, attitudes

towards pill taking, low level of education, health consciousness and health-seeking behavior in the elderly may all contribute to the low level of awareness, treatment and control of hypertension⁷. Women were found to be more aware of hypertension, but due to differences in health seeking behavior they tend to seek treatment less frequently^{7,8}. In another study conducted on female hypertensives regarding target organ damage, 65% of patients knew that they had hypertension, yet half developed target organ damage due to poor control of blood pressure resulting from non-adherence to antihypertensive medicine^{8,9}. From Health Belief Model it can be concluded that, if one feels that a negative health condition can be avoided, has a positive expectation that by taking a recommended action, he/she will avoid a negative health condition and believes that he/she can successfully take a recommended health action, non-adherence to treatment can be reduced¹⁰. Many studies have been conducted to discover factors related to

noncompliance with antihypertensive treatment, but none are appropriate for the Bangladeshi people. The purpose of this study was to identify factors that influence non-adherence to antihypertensive therapy so that effective measures may be taken to solve this problem.

Methods

This cross-sectional study was conducted on hypertensive patients from 22 December 2006 to 18 February 2007 at the inpatient department of Rajshahi Medical College Hospital, and Xylia Medicare (private clinic). The criteria for inclusion in the study were patients taking antihypertensive medication for more than 6 months, age at least 35 years or having been admitted with hypertensive target organ damage based on the medical records. Patients fulfilling the criteria were informed as to the study goals and after giving consent were included in the study. In the mentioned period 501 hypertensive patients were admitted into RMCH; out of them 98 patients did not fulfill our inclusion criteria & 2 did not give consent. For the rest 401 patient, we recruited 100 patients in 4:1 ratio in a simple random sampling based on hospital registration. At the same time In Xylia Medicare 92 hypertensive patient came, among them 13 did not meet the inclusion criteria and from the rest (79 patients) we recruited 20 patients in the same way. Data were collected with a questionnaire from a total of 120 study patients; which was mostly closed and partially open 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 verify and determine the names of medications used. 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 Mahidol University, Bangkok, Thailand.

Benjamin Bloom's taxonomy¹¹ was followed for measuring knowledge levels and perceptions (as there is no scale for measuring perception). Since a negligible number of patients could answer more than 80% of questions correctly, we readjusted the groups as follows: very good answered more than 80% correctly, good 70-80%, fair 60-70% and poor less than 60%. For further analysis, we combined the good and very good groups together as having good knowledge, and combined the poor and fair groups into the category of needing improvement.

Descriptive statistics, chi-square test, and multiple logistic regression analysis were used for analysis.

Results

A total of 100 patients were included from RMCH and 20 patients from the private clinic. Their ages ranged from 35 – 90 years with a mean age of 57 (± 11) years. Approximately 69.2% of patients were males. The educational level varied greatly; 32.5% had no education, 19.2% had a primary education, 29.2% had secondary or higher secondary education level and 19.0% had a bachelor degree or higher. About one-fourth were unemployed. The occupation of those employed included office workers (34.2%), farmers and laborers (20.8%), and businessmen (18.3%). About 77.5% were poor and earning $\leq 10,000$ taka per month. The duration of disease ranged from 1 to 30 years and the antihypertensive drugs used by them were different (Table 1). Eighty five percent of patients were non-adherent to treatment. The non-adherent patients had missed taking medication for anywhere from one day to the whole month.

Only 1.7% of patients had a good knowledge of the disease, side-effects of drugs and benefits of controlling blood pressure. Seventy five percent of patients knew that uncontrolled hypertension could lead to stroke and heart disease, one-third were

aware it could lead to kidney failure. A few (15.0%) knew hypertension can cause retinopathy and peripheral vascular disease (5.0%). Only 3.3% of respondents had a good knowledge of the side-effects of antihypertensive, while 81.7% were at the level of needing improvement. One-third knew that exercise helps control blood pressure. Two-thirds of patients argued to change their medication only went for follow up visits when they felt hypertensive. Only one-third felt hypertension is not a curable disease. More than half believed the disease should cause certain signs and symptoms and another third were not sure. For the rest regarding understanding the disease, and benefits and barriers to treatment, most of the beliefs were related with the level of knowledge.

Family support was associated with motivation on the part of the patient to take prescribed medicines and go to the physician. One-third were never asked by their family members to take medicines or visit their physician. Three-fifths had to depend on money from family for treatment. Eighty percent needed an accompanying person when seeking treatment. Approximately 69% patients stated that hospital was a convenient place for them to get medicine if they are provided free of charge or at low cost. Most of the patients went to the hospital by rickshaw/van (63.3%), bus (46.7%), walking (13.3%) or other transportation train, motor cycle, bicycle, hired taxi, or own taxi. About 45% of patients took less than half an hour to travel to the clinic or hospital. Upon reaching the hospital, one-third had to wait for the physician less than half an hour; three-fifths had to wait for one half to one hour and the rest had to wait from 1 to till 7 hours. Since beginning treatment, 80.8% of patient antihypertensive medicine changed. In 67.5%, the decision of changing the drug was made by their physician. 78.3% of patients were called for their follow-up visit, of them, one-third missed it. The reasons for missing an appointment were feeling well (37.0%), poverty (29.6%), no one to accompany them (11.1%), disliking husband (7.4%), busy schedule (7.4%), ashamed to ask money from others (3.7%), and living far away (3.7%). Thirty-five percent of patient never received information regarding their disease from their health care provider. Of those who received information, 63.3% were given information by

their physicians, followed by drug sellers (5.0%) and nurses (2.5%). The information provided was always understandable in only 12.5% of respondents. 38.3% of patients visited other facilities: quacks (24.2%), homeopaths (15%) and Unani (traditional medicines of the Middle-East, India, Bangladesh and Pakistan) (1.7%). Reasons stated for visiting those other facilities included lower cost (25.0%), belief in the effectiveness of the treatment (14.2%), more accessible than physicians (9.2%) and claimed to cure hypertension (4.2%). 19.5% listened to messages from other sources: television (15.8%), newspaper (4.2%), radio (1.7%), books (0.8%) and the internet (0.8%). The information obtained from these sources was about the consequences of uncontrolled hypertension.

Significant factors for determining non-adherence to antihypertensive treatment were study site, levels of education, family income, level of knowledge, beliefs and understandings regarding the disease, its consequences, side effects of the drugs and benefits of controlling their BP, an accompanying person to go to the hospital and patients education regarding hypertension and its complications by the health care provider (Table 2).

Further analysis using multiple logistic regression was carried out to evaluate the relationship between multiple factors and non-adherence. The site, monthly family income, duration of disease and knowledge level played a significant role in the study outcome. When controlling for other variables in the model, those who went to RMCH had a 30 times greater chance of being non-adherent with treatment (95% CI 5.31 – 169.10); a lower income gave a higher chance of being non-adherent, by 4.96 times. When controlling for other factors we found those with a disease knowledge which needed improvement were 23.71 times more likely to be non-adherent with the medication regimen (95% CI 3.38 – 166.46).

Discussion

Most patients came to RMCH with hypertensive organ damage (TOD). At the private clinic the patients are mostly the rich and educated, who followed the instructions and were usually adherent to the medical regimen. The population at

the highest risk for hypertension is those over age 30 years¹² and if the disease is left untreated it takes 7 – 10 years to develop TOD¹³. In our study most of the respondents age 51-60 were suffering from some sort of TOD. Generally, females are concerned more about their health than males, but less than one third of respondents who took part in this study were female, which reflects gender inequality and discriminatory treatment-seeking practices among females probably^{2,7}. Even though most people of Bangladesh are farmers, we did not have many farmers in this study because they are less often seriously ill and never seek treatment.

Eighty five percent of our study population 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-adherent⁷. One of the limitations of this study was we could not perform pill counts of the antihypertensive medication, since none of the patients brought their pills. Therefore, we recorded the days without drugs. Patients do not take their medication mainly due to forgetfulness, feeling well, being too busy and poverty. Forgetfulness was more common among those over age 60 years, which may be due to senile dementia. Those who claimed they felt well showed their lack of knowledge regarding hypertension.

Patient knowledge is critical in the management of hypertension and yet is an area that is frequently neglected. 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 avoid side effects), and the consequences of poor adherence and inadequate BP control tended to be more adherent with the medical regimen¹⁵. The patient’s understanding of their own illness was an important factor in non-adherence, the poorer the understanding, the more likely to be non-adherent. Many patients stopped their medication due to the belief that hypertension is a curable disease¹⁵. Only 34.2% of patients believed that hypertension is a non-curable disease, which may explain the

non-adherence. Only a few patients were aware of the side-effects of antihypertensives. Patients need to be made aware medications can be changed by the physician to avoid side-effects.

Patient adherence to treatment is directly linked to family support. In Bangladesh, especially in Rajshahi family cohesion is very high still less than half of the patients were supported by their family members in different aspects may be due to lack of knowledge of the family members about the disease process. This study reflects for most of the patients the present facility is neither affordable nor accessible. Thirty-seven percent missed their appointment because they felt well; this points to a need for improved education regarding the disease. Only 3.3% of patients were given information regarding their disease which was incomplete and inadequate. 38.3% of patients had gone to people other than physicians which emphasizes illegal practices should be discouraged and public services should be made more accessible.

Those patients who went to RMCH were more non-adherent to treatment. This may be due to socio-economic problems or fewer interactions with the physician. If treatment cost could be reduced, non-adherence must be decreased. Patients should be motivated to take their medication regularly and follow the lifestyle advised. Patients’ beliefs are related to their knowledge¹⁶, therefore improving knowledge should help to decrease non-adherence. With increasing demands on physicians’ time it has become increasingly difficult for physicians to adequately educate patients. Nurses, pharmacists, social workers, health workers and other paramedical staff should play a more active role in education and home monitoring of patients. Improving knowledge should be a collective effort throughout the health sector. An accompanying person is another factor in non-adherence, which can be managed if more participation of females can be assured.

So far in our knowledge, it is the first endeavor to explore the various factors of non-adherence in Bangladesh. We have certain limitation to this study like; we could not focus on some specific issues which are the main contributory factors to

non-adherence rather we made generalized questions, we could not enroll patients from more than two sites for the time constrain etc.

To discover the true extent of non-adherence to antihypertensive treatment further community based research should be performed. Research emphasizing the cost effectiveness of controlling blood pressure and treating TOD should be performed to find out the extent of economic loss due to treatment and rehabilitation of hypertensive TOD.

Table I: Adherence to treatment by 120 hypertensive patients.

	Number	Percent
Duration of having hypertension		
1-5 years	48	40.0
6-10 years	56	46.7
>10 years	16	13.3
mean ± sd	7.2 ± 5.5 years	
min-max (years)	1 - 30 years	
Types of drugs taken^a		
Calcium channel blocker	54	45.0
Beta blocker	48	40.0
Diuretic	37	30.8
ACE inhibitor	30	25.0
ARB	29	24.2
Centrally acting drugs	3	2.5
Adherence to medication		
Adherent	18	15.0
Non-adherent ^b	102	85.0
1-5 days/m	29	24.2
6-10 days/m	45	37.5
11-20 days/m	18	15.0
>20 days/m	10	8.3
Reasons for not taking medication^b		
Forgetfulness	46	38.3
Feeling well	44	36.7
Busy schedule	30	25.0
Poverty	27	22.5
Boredom	17	14.2
Travel	4	3.3
Other reasons to forget	3	2.5
Other specific causes		
Side effects of drugs	1	0.8
Reluctant to take	1	0.8
Reluctant to buy	1	0.8
Place of getting antihypertensives		
Hospital	2	1.7
Drug store	118	98.3

^a May include more than one. ^b Number of days medication missed per month.

Table II: Association between non-adherence and other factors in 120 hypertensive patients

	Total response	Adherence to treatment		OR	95% CI	
		Yes	No		L.L	U.L
Study site						
RMCH	100	5	95	35.29	9.76	127.63
Private clinic	20	65	35			
Education						
Primary education level or below	62	6.5	93.5	6.34	1.65	24.41
Secondary education level and higher	35	20.0	80.0	1.75	0.52	5.90
Graduate education level and higher	23	30.4	69.6			
Monthly income^a						
≤10,000 taka	93	6.5	93.5	11.60	3.77	35.65
>10,000 taka	27	44.4	55.6			
Knowledge level^b						
Good	13	69.2	30.8			
Needs improvement	107	8.4	91.6	24.50	6.28	95.58
Believes and understanding^b						
Good	75	22.7	77.3			
Needs improvement	45	2.2	97.8	12.90	1.65	100.63
Needs accompaniment to see the physician						
No	15	33.3	66.7			
Always and sometimes	105	12.4	87.6	3.54	1.04	11.99
Information provided regarding hypertension						
No	42	4.8	95.2	5.16	1.13	23.66
Yes	78	20.5	79.5			

^a 1 US \$ = 65 taka

^b after combining very good and good as good and fair and poor as need improvement

^c age, sex, occupation, duration of disease, reminder regarding the significance of taking medication, monetary support, money needed to buy medication, time required to seek treatment, and called for a follow-up visit were not statistically significant.

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