

PATTERN OF COMPLIANCE TO ANTI-HYPERTENSIVE MEDICATIONS IN HYPERTENSIVE PATIENTS IN A TERTIARY CARE HOSPITAL IN BANGLADESH

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Abstract

Background: Non-adherence to anti-hypertensive medications can have a negative impact on long term cardiovascular outcome. Various studies have been conducted on this issue but factors are not yet explored properly, particularly in Bangladesh. This study was conducted to find out the prevalence and factors associated with pattern of compliance to anti-hypertensive medications in a tertiary level hospital.

Methods: This descriptive study was done on 146 indoor hypertensive patients, included by purposive sampling in July 2015 who were taking anti-hypertensive for last 6 months. Data were collected through a questionnaire after obtaining informed consent.

Results: This study revealed that 55.47% patients were compliant and 44.53% were non-compliant. Age >60 yrs. are more non-compliant (56.6%). Female (65.11%), house wife and urban population are more compliant. Population, with longer duration of hypertension are more non-compliant. Among the co-morbidities diabetic patients are more non-compliant. Population taking two anti-hypertensive are more compliant (76.47%).

Conclusion: In our study most of the populations are compliant but yet significant number of populations are non-compliant. Collective participation of physician, patient and health care delivery system can improve the situation more. As consequence of non-compliance to anti-hypertensive is grave, community based studies should be conducted to explore the extent of non-compliance.

J Dhaka Med Coll. 2015; 24(1) : 62-66.

Introduction:

Compliance is an approach to maintain or improve health as well as managing symptoms and signs of disease. It is also known as adherence. It is a complex behavioral process strongly influenced by the environments in which patients live, healthcare providers practice and health care system delivery care.¹ The main goal in the treatment of hypertension is to reduce the hypertension induced complications. In this regard, most of the physicians would agree that patient compliance with their antihypertensive medications play a major role. Study from the

National Health and Nutritional Examination Survey (NHANES)² and from World Health Organization (WHO)³ have mentioned that less than one quarter of hypertensive worldwide achieve blood pressure at the goal of 140/90 mm Hg.⁴ Such inadequately controlled hypertension may contribute to the disappointing reduction rate of coronary artery disease.⁵ As the other countries of Asia, in Bangladesh, the prevalence of hypertension is increasing at a quick pace. The 'Bangladesh Health and Morbidity Survey' done in the year 1994 revealed that hypertension was one of the ten leading causes of morbidity. So it can be

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easily assumed that the condition has been getting worse in the last 20 years. A multicentre study done by WHO in the year 2001, revealed that 45% of elderly people in Bangladesh and India suffered from hypertension. 40% of them are aware of their disease and only 10% are compliant to treatment.⁶ In the year 2007 a study done by SM Hussain et al in Rajshahi, Bangladesh revealed that 85% of the hypertensive population were non adherent to their antihypertensive medications⁷. As prevalence of hypertension is increasing, so we planned to conduct the study in the capital to assess the present status of compliance to antihypertensive treatment and to find out the reasons behind it; so that appropriate measures can be taken in an urgent manner.

Methods:

This cross sectional study was done on hypertensive inpatients of Medicine ward of Dhaka Medical College from 1st July to 31st July. All the antihypertensive admitted patients who were taking antihypertensive medications for at least last 6 months were included in this study. Consent was taken from each participant. A structured questionnaire was provided to the participant to collect information; verbal communication was done also. Prescriptions were collected as far as possible to verify the treatment history.

Results:

A total number of study populations were 146. In this study we found that maximum patients were from 45 to 59 years age group (N=71). Compliance was best in this group (64.78%). Compliance was also better in 30 to 44 years age (54.54%) but in patients aged more than 60 yrs were predominantly noncompliant (56.60%). Female were more compliant (65.11%) than male. Educated populations were more compliant. Occupational variations had different compliance rate with higher in housewives and least in farmers. Urban people (65.59%) are more compliant than rural people (37.73%). Financially stable patient were found more compliant (65%). Table-1

Table-I
Relationship of study populations with demographic variable.

Variables	Compliance	Non-compliance
	n(%)	n(%)
Age:30-44 yrs (N=22)	12(54.54%)	10(45.45%)
45-59 yrs (N=71)	46(64.78%)	25(35.21%)
>60 yrs (N=53)	23(43.39%)	30(56.60%)
Gender:		
Male (N=103)	53(51.45%)	50(48.54%)
Female(N=43)	28(65.11%)	15(34.88%)
Education:		
Primary (N=31)	16(51.61%)	15(48.38%)
Secondary (N= 40)	23(57.5%)	17(42.5%)
Higher secondary & above (N=42)	28(66.66%)	14(33.33%)
None (N =33)	14(42.42%)	19(57.57%)
Occupation:		
Service(N= 27)	17(62.96%)	10(37.03%)
Farmer (n= 12)	03(25%)	09(75%)
Businessman(N=38)	20(52.63%)	18(47.37%)
House wife (N=44)	30(68.18%)	14(31.81%)
Others (N= 25)	11(44%)	14(56%)
Settings:		
Rural (N= 53)	20(37.73%)	33(62.26%)
Urban (n= 93)	61(65.59%)	32(34.40%)
Monthly income:		
<10000 Tk. (N= 87)	44(50.57%)	43(49.42%)
10000-19999 Tk. (N= 42)	24(57.14%)	18(42.85%)
20000-24999 Tk. (N= 14)	11(78.57%)	03(21.42%)
>25000 Tk. (N= 3)	02(66.66%)	01(33.33%)

Majority populations in study group had knowledge on hypertension. Those who had knowledge about hypertension are more compliant (66.66%). Maximum respondents (n=132) stated that they were counseled regarding lifestyle modifications. Counseled populations were more compliant (56.81%). Majority patients (N=82) were monitored

following diagnosis of hypertension and this group found more compliant (75.6%). Patient's awareness of daily intake of anti-hypertensives were higher (N=95) and among respondent and found to be more compliant (76.84%). Table-II

Table-II
Relationship of study populations with physician related factor.

Variables	Compliance n(%)	Non-compliance n(%)
Pt. knowledge on HTN :		
Yes (N= 105)	70(66.66%)	35(33.33%)
No (N= 41)	11(26.82%)	30(73.17%)
Counsel by doctor regarding life style modification:		
Yes (N= 132)	75(56.81%)	57(43.18%)
No (N= 14)	06(42.85%)	08(57.14%)
Monitoring of pt. following diagnosis of HTN:		
Yes (N= 82)	62(75.60%)	20(24.39%)
No (N= 64)	19(29.68%)	45(70.39%)
Pt. awareness of daily taking of anti-hypertensive medication:		
Yes (N= 95)	73(76.84%)	22(23.15%)
No (N= 51)	08(15.68%)	43(84.31%)

Regarding duration, results showed that prolong duration of hypertension made study populations more non-compliant. Among co-morbidities, CKD, IHD, dyslipidemia and stroke patients were relatively more compliant than who had diabetes. Regarding smoking, non-smokers (66.07%) were more compliant than ex-smokers (56.75%) and smokers (43.39%). Those who didn't take extra-salt were more compliant (67.74%) than who took extra-salt (33.96%). Majority patients (N=111) were taking single anti hypertensive medication. Those who took two anti-hypertensives were more compliant (76.47%) than those who were taking single (48.64%) drug. Table-III

Table-III
Relationship of study populations with patient and medication related factors.

Variables	Compliance n(%)	Non-compliance n(%)
Duration of HTN:		
6 month-1 Yr. (N= 25)	15(60%)	10(40%)
>1Yr.- < 5Yr. (N= 87)	50(57.47%)	37(42.52%)
> 5Yr. (N= 34)	16(47.05%)	18(52.94%)
Co-morbidities:		
DM (n= 49)	23(42.59%)	26(57.40%)
IHD (n= 72)	37(51.38%)	35(48.61%)
CKD (N= 42)	24(57.14%)	18(42.85%)
COPD (N= 7)	03(42.85%)	04(57.14%)
DL (2)	02(100%)	00
Stroke (N= 25)	14(56%)	11(34%)
Others (N=6)	04(66.66%)	02(33.33%)
Smoking status:		
Smoker (N= 53)	23(43.39%)	30(56.60%)
Ex-smoker (n= 37)	21(56.75%)	16(43.24%)
None (N= 56)	37(66.07%)	19(33.92%)
Added salt intake:		
Yes (n= 53)	18(33.96%)	35(66.03%)
No (N= 93)	63(67.74%)	30(32.25%)
Taking anti-hypertensive Medication regularly:		
Yes (N = 81)	72(88.88%)	09(11.11%)
No (N= 65)	09(13.84%)	56(86.15%)
No. of anti-hypertensive medications		
01 (n= 111)	54(48.64%)	57(51.35%)
02 (N= 34)	26(76.47%)	08(23.52%)
>03 (n= 1)	01(100%)	00
Financial constraints		
Yes (n= 46)	16(34.78%)	30(65.21%)
No (N= 100)	65(65%)	35(35%)

Discussion:

We have conducted the study in Dhaka Medical College in 2015. We found 55.47% patient was compliant to anti hypertensive medicine. Regarding the compliance issue, SM Hussain

et al⁷ conducted the study in Rajshahi Medical College in 2006 to 2007 and found 85% of the hypertensive patients were non-compliant to anti-hypertensive. Rao CR et al⁸ conducted a large study in southern part of rural India in 2006 to 2008 and found compliance rate is 82.2%. In Bangladesh, compliance rate is gradually increasing possibly because of improvement of health care facilities, increased awareness in the community and improvement of financial status of the family.

In age distribution, among the young and middle age group compliance rate is high 54.54% and 64.78% respectively while, 56.7% elderly persons more than 60 years of age are non-compliant. Demoner MS et al⁹ oppose this. Possibly awareness in early life regarding consequences of non-compliance to anti-hypertensive lead young and middle age group to become compliant. Among females, compliance was significantly higher in relation to male which is consistent to Hashmi SK et al¹⁰ and Rao CR et al⁸ but gender was not identified as a significant variable in other studies^{11,12,13}. Educated, service holder, patient from urban area and those who income more has better compliance to anti-hypertensive. This is possibly because of knowledge attitude and financial capability. SM Hussain et al⁷ also found similar type of findings in their study.

Good knowledge about hypertension is an essential part of its management. Patient knowledge on hypertension, counseling by physician, patient monitoring and patient awareness of daily intake of antihypertensive has increased the compliance rate. The finding is in line with other studies done in Gondar, Ethiopia and Pakistan^{14,10}.

For the proper management of hypertension regular antihypertensive intake is a must. In our study, shorter the duration of hypertension more is the compliance rate. Sunil Kale et al¹⁵ also found the declining compliance with duration of antihypertensives. Hypertensive patients have different type of co-morbidities. During management of hypertension co-morbidities are also taken into account. Patients having IHD, CKD and stroke with

hypertension found to be more compliant. This finding is in line with other study¹⁶. In our study those who have DM found to be non-compliant to antihypertensive medications which is consistent with other study^{17,18}. Patients who take two drugs found more compliant than who took one drug. These findings are not consistent with other studies¹⁹⁻²¹. In our study, number of patients who enrolled with having two drugs is low. This might play a role in this result. Larger study in this issue may reveal different outcome. Financial constrain also reduces compliance which is consistent with other studies^{22,23}.

Conclusion:

In our study most of the populations are compliant but yet, significant number of populations are non-compliant. Collective participation of physician, patient and health care delivery system can improve the situation more. As consequence of non-compliance to anti-hypertensive is grave, community based studies should be conducted to explore the extent of non-compliance.

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