

Compliance to Antihypertensive Drugs among Hypertensive Patients in Eastern Medical College Hospital, Comilla, Bangladesh

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Abstract:

Hypertension is the most widely prevalent, largely preventable risk factor for cardiovascular diseases. Recent report suggests 18% or 12 million of adults aged 25 years or older in Bangladesh suffer from hypertension. Noncompliance to blood pressure lowering agents is a major reason for poor control of hypertension worldwide including developing countries like Bangladesh. We tried to assess the level of compliance to antihypertensive medications & identified factors contributing to poor compliance among hypertensive in a Medical College Hospital Comilla, Bangladesh. A longitudinal prospective observational study was carried out among four hundred hypertensive who were interviewed using a pre tested structured & mostly close ended questionnaire. These patients were diagnosed as hypertension & followed up. Good compliance with drug treatment was observed in only 35% of the respondents & poor compliance among the remainders. Poor compliance was found to be mainly due to ignorance on need for regular treatment (26.25%), lack of funds to buy drugs (13.25%), Suggestions to stop drugs by the village doctors (12.5%). Patients on cheap & single drug regimen were more compliant than multiple drugs. Based on the findings of this study there is an urgent need for implementation a comprehensive approach involving healthcare providers, patients & the general public to educate patients on the need to take their drugs regularly & in the manner prescribed. Doctors should well explain newly detected hypertensive patients in the very first visit in terms of impact of noncompliance to drugs, regular hospital visits, cost & side effects of drugs. On the basis of this a simplified hypertensive management guideline should be explored.

Key words: Non-compliance, Non-adherence, Antihypertensive medication

Introduction:

Developing countries that undergoing epidemiological transition facing the double burden of both communicable & non-communicable diseases¹. Among non-communicable diseases hypertension is the most important treatable cause having high morbidity & mortality. Although safe, effective and cheap drugs are available in the market the management of hypertension is still far away from the optimal target in the developing countries^{1,2}.

Bangladesh has a high prevalence of hypertension. A recent report suggests 18% of adult population in Bangladesh suffer from hypertension with high prevalence in urban rather than rural population³. Earlier report also showed that 12-15% of Bangladeshi aged 20 years or older had hypertension³. The district Comilla is located in the eastern area of Bangladesh which is densely

populated but having high economic importance. Although actual data is not available but it is observed that hypertension with complications in both hospital outpatient & inpatient departments is very high. The aim of our study was to assess level of compliance to antihypertensive therapy & identify factors contributing for non-compliance in this area.

Compliance can be defined as the degree to which the patient conforms to medical advices about lifestyle & dietary changes as well as to keeping appointments for follow-up & taking treatment as prescribed⁴. This can be expressed quantitatively as the percentage of prescribed doses that have been taken⁴. Compliance can be evaluated in several ways which includes pharmacological measuring (determination of serum & urinary concentration of drugs or using biological markers integrated into the tablets), clinical measures

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(clinical judgement of the doctors, evaluation of promptness for appointments & the use of questionnaires), & physical measures (verifying prescription renewals, counting the remaining pills or pill counting system^{4,5,6}). Although there is no gold standard system which can precisely measure drug compliance. The electronic pill counter or MEMS (Medication Event Monitoring System) may be considered as the best existing system for measurement of compliance⁶. Pharmacological methods also have a higher sensitivity & specificity but remain difficult to use in standard practice⁶.

Poor compliance is specially common when a patient has poor knowledge, understanding & perception of hypertension, financial constrain or when a complex antihypertensive drug is prescribed^{7,8}.

It is usual to consider a patient to be sufficiently compliant with their medication when they take at least 80% of their prescribed antihypertensive drugs⁹. Various studies revealed out patient compliance to antihypertensive medication ranges from 20 to 80%^{9,10}.

Methodology:

Study setting: Eastern medical college hospital, Comilla is a tertiary level academic hospital in the eastern part of Bangladesh having high patients' attendance. Medicine, Pediatrics, Surgical, Obstetrics, Radiology & Laboratory services are offered in different departments of this hospital. The hypertension clinic runs twice in a week in outdoor basis. The hospital serves residents from wide range

of both urban, sub urban & rural areas.

Methods: A longitudinal prospective observational study design was used to study a population of adult patients attending the hypertension clinic of this institution from January 2015 to February 2016. A sample size of 400 patients were obtained where 200 were male & 200 were female with age range 20 to 80 years. The sample selection was done over a period of 14 months with 10 patients selected systematic sampling from a listing on each of the clinic days for male & female patients. Those patients were taken as subjects who were started antihypertensive medication for at least one month. Both primary & secondary hypertensive patients were included. Hypertension with pregnancy, multiple comorbid conditions were excluded in this study. Patients were interviewed using a pre tested, structured, mostly close ended questionnaire after obtaining informed consent from the participants. Information obtained included socio-demographic characteristics of respondents, regarding of patients attendance at the hypertension clinic, patients reported compliance with prescribed drugs & reasons for non-compliance. Patients compliance were classified using the following criteria: Good compliance included regular attendance at follow up clinics & taking all drugs for at least 6 to 7 days in a week. The next section asked about factors responsible for good & poor compliance.

Data was analyzed by using appropriate statistical software. Absolute numbers & simple percentages were used to describe categorical variables.

Results:

Table I: Level of compliance with drugs among hypertensive patients.

Compliance level	Frequency	Percentage
Poor	260	65%
Good	140	35%
Total	400	100

Table II: Regularity of clinic attendance among hypertensive patients.

Regularity	Frequency	Percentage
Regular	165	41.25%
Not regular	235	58.75%
Total	400	100

Table III: Factors responsible for poor compliance.

Factors responsible for poor compliance	Frequency	Percentage
No symptoms after taking drugs, so stopped drugs	105	26.25%
Lack of funds	53	13.25%
Side effects of drugs	10	2.5%
Non available of drugs	33	8.25%
Exhaustion of prescribed drugs	60	15%
Forgetfulness	20	5%
Busy schedule	12	3%
Suggestion from unqualified doctors that now BP is under control, no need to take drugs	50	12.5%
Idea that once anti-hypertensive drug started it has to continue life long	32	8%
Complementary and alternative medicine	30	7.5%

The age of the study respondents ranged between 20-85 years with a mean age 51 years. The majority of the respondents 52.5% were between the ages of 41-60 years. There were equal number of male & female patients enrolled in this study. 70% of study subjects from rural & suburban area & 30% from urban area. Only 35% respondents had formal education (Primary, secondary & tertiary education). 40% had monthly family income 10000 BDT.

Table I showed that 35% of respondents had good compliance whereas remaining 65% had poor compliance.

Table II showed that 41.25% were regular clinical attendees where 58.75% were irregular.

Table III showed poor compliance was found to be mainly due to ignorance on need for regular treatment (26.25%) & lack of funds to purchase drugs (13.25%). Other important factors responsible for poor compliance are, exhaustion of prescribed drugs (15%), non-availability of drugs in their neighboring pharmacy (8.25%), Idea that once anti-hypertensive drugs started it has to continue lifelong (8%), suggestion from village doctors who are mostly unqualified (12.5%), Complementary & alternative medicine like Homeopathy, Herbal (7.5%), forgetfulness (5%), busy schedule (3%), side effects of drugs (2.5%).

Discussion:

This study revealed that more than half of the hypertensive patients attending in Eastern Medical College Hospital had poor compliance with respect of

drug treatment. District wise medical college based study on antihypertensive drug compliance in Bangladesh is rare but burden of hypertension in this country is very high. A recent report suggest 18% or 12 million of adults aged 25 years or older in Bangladesh suffer from hypertension with higher prevalence in the urban rather than in the rural area³. Hossain et al in his study among the population in Rajshahi district revealed similar result, where he found 85% of the study population were non-compliance to the treatment¹¹, whereas our study revealed 65% of study population non-compliance to drug. Alam et al revealed in his study poor awareness of using antihypertensive medication both rural & urban people¹². Kabir et al in a study conducted in Nigeria found good compliance with drug treatment with 54.2% of respondents & poor compliance with the remainder¹⁰. This good compliance may be due to educated study subjects upon which the study was carried out. Our study population had both formal & informal education. Regular attendance among hypertensive patients in our study is also poor.

A lot of factors responsible for poor compliance worldwide. It depends upon socioeconomic, cultural & religious background also¹³. It also differs between developed & developing countries. 26.25% respondents were ignorant regarding antihypertensive medication in our study which occupies most of the study subjects. These group of people stopped drugs as soon as the symptoms resolved. 13.25% stopped drugs due to lack of funds. In many situation unqualified village doctors also influence the patients to take decision about drugs which was found important factors in our study. Less important factors

were forgetfulness, busy schedule, side effects of drugs, multiple drugs, taking complementary & alternative medicine. Some people also have some idea that once drugs started it has to continue lifelong. Some religious factors also responsible for giving up drugs, as some believers think that disease is given by the God so he will also cure it. In a study carried out in university hospital in Switzerland, poor compliance was observed in only 20.2% of patients¹⁴. Similarly a Japanese study found that 63.8% of their patients reported taking 95-100% of prescribed drugs¹⁵. Once daily regimen was found to have better compliance than three times daily¹⁶. Furthermore medication compliance was greater for morning dosing, second greater for evening dosing & least for noon¹⁶. This could be explained by the fact that patients are usually at home & less busy at morning although in our study busy schedule was less important factors for poor compliance.

In Bangladesh & India on the other hand a WHO study found satisfactory compliance in only 25% of patients¹⁸. Regular clinical attendees were more compliant as they follow instructions which is also true for our study. Study carried out African country like Nigeria identified economic constrain, use of alternative treatment, frustration of daily drug ingestion & feeling of wellbeing as impediment to compliance¹⁹. The same scenario is also true in our study. Schroeder & colleagues found during a systematic review of effective interventions for improved compliance that simplifying dosages regimen, improved doctor patients communication & motivational strategies in combination were more effective than patient education alone²⁰. Similarly, Moore reported that optimal control of hypertension was impeded by poor patient- physician communication, excessive dietary sodium & cost of antihypertensive drugs²¹.

Although this study carried out on small group of hypertensive patients, both from rural, suburban & urban area, the message from this study is that, there is urgent need for launching a comprehensive approach involving qualified health care providers, patients & general public especially with the aim of educating patients on the need to take their drugs regularly & in the manner prescribed. Doctors should consider the financial status of the patients before prescribing drugs to enable affordability. Doctors should spend more time to the newly detected hypertensive patients regarding the consequence of the non-treated hypertension. Prescribing an effective, inexpensive, once daily medication with minimal side effects will improve patients compliance considerably.

Limitations:

We have some limitations in this study like we could not focus on large & homogenous group of patients. Degree of drug compliance was mostly on clinical judgement. We could not identify specific issues which are the main contributory factors to non-compliance.

Recommendation:

To discover the true extent of non-compliance to anti-hypertensive treatment further community based research should be carried out in multiple centers.

Conclusion:

As the result of the study in terms of non-compliance to antihypertensive medications is alarming & factors responsible behind this also diverse, appropriate training on simplified hypertension management guideline should be explored.

Conflict of interest:

The authors have no conflict of interest to declare.

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