Factors Affecting Compliance to Antihypertensive Treatment among Adults in a Tertiary Care Hospital in Mumbai

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Abstract

Background: Compliance to antihypertensive therapy reduces the risk of complications. It is important to understand the factors affecting compliance in patients so that the goal of successful treatment is not jeopardized. Objectives: To determine the proportion of participants’ compliant to treatment and various factors associated with compliance of antihypertensive treatment. Settings and Design: A cross-sectional study of 330 hypertensive patients on treatment attending the outpatient department of a tertiary care hospital in Mumbai. Subjects and Methods: It was conducted over 8 weeks using a validated, pretested questionnaire including information on the individual’s sociodemographic profile, compliance to antihypertensive therapy and lifestyle advice assessed using a 4-point Likert scale. Statistical Analysis: Data were entered into MS Excel 2007 and analyzed using SPSS 20. Results: Participants’ mean age was 55.2 ± 12.6 years. 39.4% were compliant to their treatment. Common reasons for frequently skipping the dose – forgetfulness (41.2%) and discontinued the medication when feeling well (30.3%). Factors positively associated with compliance were gender and illiteracy. The proportion of noncompliance among smokers and alcoholics was statistically significant. Conclusion: Forgetfulness and subjective feeling of wellness were the prevalent reasons for noncompliance. Controlling habits such as smoking and alcohol may prove as key factors for compliance.

Keywords: Antihypertensive therapy, compliance, socio-demographic factors

INTRODUCTION

The World Health Report 2002 has revealed that about 62% of cerebrovascular disease and 49% of ischemic heart disease burden worldwide are attributable to suboptimal blood pressure levels (systolic blood pressure >115 mm Hg).\(^1\) Patients’ noncompliance with treatment is a predominant reason for failing to control hypertension.\(^2\) Healthcare professionals need to be aware of the various issues affecting compliance to counsel the patient. Compliance is a behavior-related dynamic phenomenon, and its degree may vary over time, place, and population. Hence, this study aims to provide a perspective about factors related to compliance to antihypertensive medication in an urban cohort. The objectives were to determine the proportion of treatment compliance among hypertensive study participants, identify sociodemographic factors associated with treatment compliance, and compare compliance among participants on monotherapy and those on polytherapy.

SUBJECTS AND METHODS

A hospital-based cross-sectional study was conducted over 8 weeks from July to September 2015 covering 330 patients having primary and/or secondary hypertension and on antihypertensive treatment attending the medicine outpatient department of a tertiary care hospital. The study was granted ethical clearance by the Institutional Ethics Committee. Considering proportion of compliance = 0.73,\(^3\) margin of error of 5% (\(e\)), and a 95% confidence level (\(Z = 1.96\)), the minimum required sample size was 303.

A diagnosed case of hypertension, with or without coexisting medical conditions, on treatment for at least 1 month, above the

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age of 18 years and consenting to participate was the eligible for inclusion in the study. Individuals who were unable to respond, too sick to respond, dementia, and pregnant state were excluded from the study. Participants were selected by convenience sampling. Written informed consent was obtained. A pilot study was conducted with 20 hypertensive patients to validate the questionnaire. Patients included in the pilot study were not included in the final study. Data were collected using a questionnaire which included questions on sociodemographic profile, medication regimen compliance, and compliance to lifestyle modifications.

Data analysis

Treatment compliance comprised of medication regimen compliance and lifestyle modifications. Operational definition of noncompliance to antihypertensive therapy is skipping even one prescribed dose daily for >3 days in a week, lifestyle habits such as smoking, consumption of alcohol >2 standard drinks for men and 1 standard drink for women, table salt of >1 teaspoon (2400 mg) per day over and above normal use and meat consumption frequently (≥3 days in the week). Data were analyzed using percentage and proportions. Chi-square test was applied to each factor using MS Excel 2007 and SPSS 20, (IBM, Armonk, NY, United States of America). \( P \leq 0.05 \) was considered statistically significant.

RESULTS

A total of 330 individuals were interviewed. A total of 189 females (57.3%) and 141 (42.7%) males participated in the study. Mean age of the participants was 55.2 ± 12.6 years (range 19–85 years). Compliance to antihypertensive treatment (prescribed medication regimen and lifestyle modifications) was seen among 39.4% of the participants.

Association between sociodemographic factors and compliance is as observed in Table 1. The proportion of compliance in the younger age group, i.e., below 40 years was the highest (80.6%). It was observed that as age increases, compliance to treatment decreases although no statistically significant difference was noted. Compliance was significantly more among females and those individuals who never went to school. Among the employed, 75% individuals were compliant to treatment, and among the unemployed, 68.5% were compliant.

More patients were compliant on monotherapy (75.1%) as compared to polytherapy (69.2%).

The compliance rates were significantly lower among smokers (21%) and alcohol consumers (16%) as compared to nonusers (81.1% and 80%, respectively).

Predominant reasons for frequently skipping medication – 42.1% reported that they used to forget to take medication, 30.3% discontinued the medication when feeling well, and 12.1% skipped the medication due to the expenses incurred on it.

About 80.6% of the participants engaged in physical exercise daily or frequently. Nearly, 50% of the participants frequently had table salt. The current study shows that 11.5% were smokers and 13.3% were consuming alcohol.

DISCUSSION

In this study, the proportion of individuals who were noncompliant to antihypertensive treatment was 60.6%. In a similar study done in Mangelore[4] and Pakistan,[3] it was 45.8% and 51.7%, respectively. This may be due to a difference in the sociodemographic profile of the study area.

Females were found to be significantly more compliant than males. A study in Vietnam[6] also showed that compliance was low among males. This may be due to the side effects of antihypertensive medication, mainly, thiazide diuretics and beta-blockers except nebivolol such as impotence, affecting particularly males, as shown in meta-analysis.[7]

Decreased proportion of compliance with antihypertensive medication among smokers and those who consumed alcohol was consistent with the findings of a study conducted in Mangalore.[4]

The proportion of treatment compliance (80.6%) was better in the younger age group, i.e., below 40 years. It was observed that as age increases, compliance to treatment decreases although no statistically significant difference was noted.

Table 1: Association between sociodemographic factors and compliance

| Variables          | Compliant, n (%) | Total | \( P \) |
|--------------------|------------------|-------|--------|
| **Age**            |                  |       |        |
| ≤40                | 25 (80.6)        | 31    | 0.396  |
| 41-50              | 65 (75.5)        | 86    |        |
| 51-60              | 75 (75)          | 100   |        |
| 61-70              | 70 (73.6)        | 95    |        |
| ≥71                | 10 (55.5)        | 18    |        |
| **Total**          | 245              | 330   |        |
| **Sex**            |                  |       |        |
| Male               | 54 (38.2)        | 141   | 0.003  |
| Female             | 76 (40.2)        | 189   |        |
| **Education**      |                  |       |        |
| Illiterate         | 124 (80.5)       | 154   | 0.048  |
| Primary school     | 51 (66.2)        | 77    |        |
| Secondary and higher | 70 (70.7)     | 99    |        |
| **Marital status** |                  |       |        |
| Married            | 116 (75)         | 295   | 0.417  |
| Not married        | 21 (68)          | 35    |        |
| **Employment status** |           |       |        |
| Employed           | 108 (75)         | 262   | 0.088  |
| Unemployed         | 22 (68.5)        | 68    |        |
| **Smoking**        |                  |       |        |
| Yes                | 8 (21)           | 38    | 0.000  |
| No                 | 237 (81.1)       | 292   |        |
| **Alcohol intake** |                  |       |        |
| Yes                | 16 (21.6)        | 44    | 0.000  |
| No                 | 57 (20)          | 286   |        |
This is similar to a study conducted in Tanzania.\textsuperscript{[8]} Younger individuals are employed, and thus, they can afford to buy their medication regularly. In this study, forgetfulness was found to be a predominant reason for skipping medication. Elderly participants are likely to forget their dose as compared to younger participants.

Compliance was significantly more among those who never went to school, i.e., 80.5\% than those who received school education (68.75\%). This is consistent with a study done on factors affecting compliance in Tanzania\textsuperscript{[8]} and England\textsuperscript{[9]} who found that patients without formal education had better compliance to medication. This may be because patients with lower educational level might have more trust in the physicians' advice.

The relation between type of therapy and compliance did not show any statistically significant relation. Patients on monotherapy (75.1\%) had a higher proportion of compliant participants compared to those on polytherapy (69.2\%). This is consistent with a study in Mangalore, India.\textsuperscript{[4]} The participants on polytherapy may develop adverse drug reactions due to several drugs at a time, leading to noncompliance with the medication.

\textbf{Conclusion}

The compliance to antihypertensive medication was poor, only 39.4\% in the study population. Patients are predominantly noncompliant to lifestyle modifications such smoking, alcohol, and having table salt and to antihypertensive medication due to reasons such as forgetfulness and avoidance of medication when feeling better. To discover the true extent of noncompliance, community-based research should be done.

\textbf{Limitations}

The study used a subjective method, based on the patient’s answers, to assess compliance. Further studies can be done using an objective assessment such as using blister packs that electronically record the opening of compartments. Little attention has been paid to patients’ perceived understanding of their illness and medication. Insight into their perception rather than the expectations and perception of the healthcare professionals may have relevance for understanding noncompliance to medication in a better manner.

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\textbf{Conflicts of interest}

There are no conflicts of interest.

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