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Original Research Article

Non Compliance to Anti-Hypertensive Medications and Associated Factors in a rural population of Barabanki District, Uttar Pradesh: A Cross-sectional study

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Abstract: Although hypertension is one of the most prevalent health problem among adult primary care patients, but still its recognition and treatment level are quite suboptimal. The present cross-sectional study was undertaken to study the prevalence of non- compliance to anti-hypertensive medications and factors associated with it. The present cross-sectional study was study was conducted in a rural population of Barabanki, Uttar Pradesh over a period of six months (December 2015 to May 2016) using a pre-designed semi structured and validated questionnaire. All known cases of hypertensive adults (≥ 18 years) were approached by a house-to-house survey with the help of village level health workers and those known hypertensive individuals who were not available on three consecutive visits were excluded from the study. Prevalence of non-compliance to anti-hypertensive medication was 12.5%. History of adverse drug reaction (p=0.01) and use of private health care facility (p=0.00) were found to be significantly associated with non-compliance. Those hypertensive subjects who gave history of any perceived side effects were about five times more prone to non-compliance (unadjusted odd ratio of 5.0,95% CI:1.3-18.2). Apart from that, those using private health care facility for health seeking were about seven times more susceptible to get non-compliant to hypertensive medication (unadjusted odd ratio of 7.4,95%CI:1.5-36.89). Prevalence of non-compliance reported in the present study is quite lower. Building a good doctor patient relationship along with integrated counselling session could help to achieve better compliance to the medications.
Keywords: Compliance, Hypertension.

INTRODUCTION

Hypertension or high blood pressure is defined as having persistent, elevated systolic blood pressure of 140 mmHg or above and /or diastolic blood pressure of 90 mmHg or above [1]. Hypertension is an emerging global challenge and third leading cause in disability-adjusted life-years [2]. Out of one billion people worldwide, almost 340 million reside in economically-developing countries indicating the existence of phase of epidemiological transition of disease over the past few decades [3]. Increasing burden of NCDs (Non-communicable disease) and their associated risk factors are quite a cause of concern and one of the most feared situations being faced by India. Over past two decades, the prevalence of hypertension has increased in India from 15% and 8% to 25% and 15% among rural and urban areas respectively [4]. High blood pressure is attributed to cause about 7.1 million deaths annually, accounting for 13% of all deaths globally [5]. Although a number of effective drugs are available for its management, but hypertension still remains poorly controlled in developing countries both in urban and rural areas. Uncontrolled blood pressure has been attributed to patients' failure to follow properly a prescribed medication regimen in most of the cases [6]. The compliance to antihypertensive medications is known to be associated positively with effective control of blood pressure thereby improving the quality of life and preventing the forthcoming complications of hypertension. Therefore the present study was conducted to assess the non-compliance to anti-hypertensive drugs among known cases of hypertensive individuals and factors associated with it.

MATERIAL AND METHODS

A community based cross-sectional study was conducted from December 2015 to May 2016, in three randomly selected villages under field practice area of

Rural Health and Training Centre, Hind Medical College, Barabanki. A total 88 individuals (≥ 18 years) diagnosed with hypertension and who were prescribed antihypertensive drugs over past one month were approached with the help of ASHA (Accredited Social Health Activist), Anganwadi worker and Medico-Social Worker and were interviewed after taking voluntary written informed consent from them. The information on bio-social characteristics which include age, sex, education, family type, marital status etc., treatment profile, adherence to hypertensive medication and basic life style was collected using pre-designed semi structured and validated questionnaire.

Assessment of Non Compliance

All individuals who consumed less than 86% of the prescribed anti-hypertensive drugs were denoted as 'non-compliant'. The compliance was considered satisfactory when the mean compliance was more than or equal to 86 percent, which corresponded to taking medication for six or seven days per week on an average [7].

STATISTICAL ANALYSIS

Data was entered in Microsoft excel and analysed in SPSS version 16. *P* value <0.05 was considered statistically significant.

RESULTS

Out of 722 households that were approached, 88 diagnosed cases of hypertension were found, who were prescribed anti – hypertensive medication over past one month. Majority of them were male (66.3%) and more than 90% were married. Majority of them belonged to Hindu religion and resided in nuclear family (81.8% and 90.9% respectively). Almost one-fourth belonged to upper-lower and below lower socio-economic status. The proportion of hypertensive subjects who were non-compliant to anti-hypertensive medication was 12.5%. Majority of study subjects were on treatment for more than one year (81.8%) and about 83.0% were taking one pill each day. However about one fifth of the subjects (18.2%), gave history of perceived adverse drug reaction. Various bio-social and treatment profile related factors were analysed for association with non-compliance. History of adverse drug reaction (P=0.01) and use of private health care facility (P=0.00) were found to be significantly associated with non-compliance. Those hypertensive subjects who gave history of any perceived side effects were about five times more prone to non-compliance (unadjusted odd ratio of 5.0,95% CI:1.3-18.2). Apart from that, those using private health care facility for health seeking were about seven times more susceptible to get non-compliant to hypertensive medication (unadjusted odd ratio of 7.4,95%CI:1.5-36.89). Other than that no other biosocial or treatment related factor was found to be associated with non-compliance.

Table 1: Background characteristics of the hypertensive subjects (N=88)

Variable	Category	Frequency	Percentage (%)
Age (years)	≥50	48	54.6
	18-50	40	45.4
Gender	Male	56	63.6
	Female	32	36.4
Marital status	Married	81	92.0
	Others*	7	8.0
Religion	Hindu	72	81.8
	Non-Hindu	16	18.2
Caste	General	40	45.5
	OBC	40	45.5
	SC/ST	8	9.1
Educational Status	Literate	64	72.7
	Illiterate	24	27.3
Type of family	Joint	80	90.9
	Nuclear	8	9.1
Socio-economic status**	Lower middle and above	65	73.9
	Upper lower and below	23	26.1

*Unmarried/divorced/widow/separated

**Modified B G Prasad Socioeconomic scale 2015

Table 2: Treatment profile of hypertensive subjects (N=88)

Variable	Category	Frequency	Percentage (%)
Compliance to treatment	Non- compliant	11	12.5
	Compliant	77	87.5
Duration of treatment (in years)	≤ 1	16	18.2
	>1	72	81.8
Number of anti-hypertensive medications	1	73	83.0
	>1	15	17.0
History of Perceived Adverse Drug Reaction	Yes	16	18.2
	No	72	81.8

Table 3: Factors associated with non-compliance to antihypertensive treatment (N=88)

Factors associated with non-compliance		Compliance to treatment		Chi square (χ^2)	p value
		Non-compliant (%)	Compliant (%)		
Age (years)	18-50	3 (27.7)	37 (48.0)	1.98	0.19
	≥50	8 (72.3)	40 (52.0)		
Gender	Male	9 (81.2)	47 (61.1)	1.71	0.18
	Female	2 (18.8)	30 (38.9)		
Marital status	Married	9 (81.8)	72 (93.5)	1.79	0.18
	Others*	2 (18.2)	5 (6.5)		
Religion	Hindu	8 (72.7)	64 (83.1)	0.69	0.40
	Non-Hindu	3 (27.3)	13 (16.9)		
Caste	General	6 (54.5)	34 (44.2)	0.41	0.51
	OBC/SC/ST	5 (45.5)	43 (55.8)		
Socio-economic status**	Lower middle and above	9 (81.8)	56 (72.7)	0.41	0.52
	Upper lower and below	2 (18.2)	21 (21.3)		
Duration of hypertension	≤1 year	1 (9.1)	15 (19.5)	.69	0.40
	>1 year	10 (90.5)	62 (80.5)		
History of Perceived Adverse Drug Reaction	Present	5 (45.5)	11 (14.3)	6.28	**0.01**
	Absent	6 (54.5)	66 (85.7)		
Healthcare facility	Government	2 (18.2)	48 (62.3)	7.64	**0.00**
	Private	9 (81.8)	29 (37.7)		
Distance to healthcare facility	<2km	8 (72.7)	64 (83.1)	0.69	0.40
	≥2km	3 (27.3)	13 (16.9)		

*Unmarried/divorced/widow/separated

**Modified B G Prasad Socioeconomic scale 2015

DISCUSSION

The results of the study showed that about 12.5% of the participants were non-compliant to hypertensive medications over past one month. The result was much lower as compared to other Indian studies [8, 9, 10, 11]. Apart form that the non-compliance level reported in the present study was also quite lower than studies in other south-east Asian countries like Malaysia and Pakistan. These differences in non-compliance level might be attributed to variation in base line characteristics of the study population or the criteria used for the assessment as the definition used for non-compliance varied within different settings. In relation to socio-demographic and treatment related variables, similar to other studies, subjects with age > 50 years were found to be more susceptible to non-compliance, [8, 10]; but the association was statistically insignificant. In contradiction to that Venkatachalam *et.al;* reported lower non-compliance level in elderly subjects. Males were found to be more non-compliant to medication than females. Similar findings were also reported in other studies [8, 10, 12, 14]. In line with the finding reported by Kale et.al, a decrease in compliance was seen among the subjects who were on treatment for more than one year [11]. Also non-compliance levels were higher among those subjects, where distance of health care facility was comparatively more. Similar findings were also reported in other studies [9, 15]. The association between non-compliance and positive history of perceived side effects was found to be statistically significant. This emphasized the need towards proper counselling for the management of side-effects and importance of medication compliance during consultation time of patients. Apart from that private

consultation for health seeking was found to be more often associated with non-compliance level. This might be due to higher out-of-pocket expenditure in relation to consultation and management of hypertension at these private institutions.

CONCLUSIONS

The study concludes that although the prevalence of compliance to hypertension was about 87.5%, but still a non-compliance level of 12.5% is a matter of concern. The study emphasized the need of Information Education Communication (IEC) based programmes at community level and provision of comprehensive package of services at gross-root level. Timely detection of non-compliance behaviour may improve the treatment outcome on long term basis. Patient should be aware about the need of complying with right dose at right time so as to improve the compliance level.

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