

Original Research Article

Assessment of patients' knowledge, attitude and practice regarding hypertension in a tertiary care hospital

Alak K. Das^{1*}, Gautam Lahiri², Aaheli Bose³, Dipak K. Sarkar¹

¹Department of Pharmacology, Medical College, Kolkata, West Bengal, India

²Department of Medicine, Diamond Harbour Govt. Medical College and Hospital, Diamond Harbour, West Bengal, India

³Department of Microbiology, Acharya Prafulla Chandra College, Kolkata, West Bengal, India

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*Correspondence:

Dr. Alak K. Das,

E-mail: alakdas1984@gmail.com

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ABSTRACT

Background: Hypertension is an important risk factor for cardiovascular complications. This can be described as the 'sleeping snake' which bites when it wakes up. We aimed to determine the knowledge (K), attitude (A) and practice (P) [KAP] regarding hypertension among hypertensive patients taking antihypertensive medication in Medical College, Kolkata.

Methods: A cross-sectional study was conducted among the hypertensive patients from July 2017 to September 2017 using random sampling technique. Suitably designed and validated questionnaire of knowledge, attitude and practice on hypertension consisting of 20 questions were used to determine the KAP scores. The difference in the median KAP scores between sex, level of education and duration of hypertension were assessed using Mann-Whitney U test.

Results: A total of 318 patients met the inclusion criteria and majority of them were male (53.15%), had received secondary level of education (43.08%) and had hypertension for <5 years (56.91%). The blood pressure ranged from 110-240/70-120 mmHg. The median K, A and P scores were 4 (5), 5 (0) and 3 (1) respectively. Practice was statistically associated with sex ($p < 0.007$). Significant differences were found between patients with below and above secondary educational level regarding knowledge ($p = 0.0001$), attitude ($p = 0.02$) and practice ($p = 0.001$). Patients with duration of hypertension more than five years had better knowledge compared to those with duration less than five years ($p = 0.0001$).

Conclusions: Our study showed that there are scopes for improving knowledge, attitude and practice among hypertensive patients for better management of hypertension.

Keywords: Attitude, Hypertension, Knowledge, Practice

INTRODUCTION

Hypertension can be defined as a condition where blood pressure (BP) is elevated to an extent where clinical benefit is obtained from blood pressure lowering.¹ Hypertension has emerged as a disease of significant importance in many developing nations, including India,

which are in a transitional phase from communicable diseases to noncommunicable diseases.²

Approximately 77.9 million American adults (1 in 3 people) and one billion people worldwide have high blood pressure. It is estimated that by 2025, 1.56 billion adults will be living with hypertension.³ Hypertension is

one of the major contributors to the global burden of diseases causing 9.4 million deaths worldwide globally which comprises one-third of global preventable premature deaths.⁴

In India, 23.10% of men and 22.60% of women over 25 years suffer from hypertension.⁵ A survey in 2004 revealed that the prevalence of hypertension in India was 25% in urban and 10% in rural population, and it leads to 57% of all stroke deaths and 42% of deaths due to cardiovascular disease.⁶

Hypertension globally affects a huge population, mostly in low and middle income countries, with its consequences like heart disease, stroke, peripheral vascular diseases, kidney failure, and premature disability.^{7,8}

Several factors like aging of the populations, rapid urbanization along with lifestyle factors those favor sedentary habits, obesity, alcohol consumption, and increased salt intake have been incriminated for the emergence of hypertension and other coronary vascular diseases.^{9,10}

Hypertension has been labeled as ‘silent killer’ because it progressively and permanently damages organs before occurrence of any diagnosable external presentation. Consequently, the patients should remain alert of the preventive strategy of hypertension management and therefore should strictly adhere to the therapy.¹¹

Hypertension can also be described as the ‘Sleeping snake’ which bites when it wakes up.¹² In this context, hypertension presents a major area of intervention because it is amenable to control through both non pharmacological lifestyle factors and pharmacological treatment. Lifestyle measures for lowering BP include reduced alcohol intake, reduced sodium chloride intake, increased physical activity, and control of overweight.¹³ The advantage of lifestyle modifications lies in the collateral benefit of controlling other cardiovascular risk factors like increased cholesterol levels, cessation of smoking, control of blood sugar in diabetic patients, thereby emphasizing the importance of multi-factorial approach to effective risk reduction in hypertensive.¹⁴⁻²² On the other hand, pharmacological management for treating hypertension gives twin benefit of decreasing blood pressure and subsequent adverse cardiovascular events.²³

However, poor compliance with prescribed drugs and lifestyle modification is a common as well as important problem in clinical practice which may result in treatment failure and poor outcomes. The knowledge and attitudes of the patients have an impact on the management of the disease condition which helps in improving the medication adherence, the blood pressure control, morbidity and mortality of the patients. Obtaining information regarding the level of awareness is the first

step in formulating a preventive program for the disease. There is always a need to investigate knowledge, attitude and practice (KAP) among the hypertensive patients for future development of programs and techniques for effective health education and disease management. These surveys are effective in providing a baseline for evaluating intervention programs. A proper assessment and understanding of KAP factors among patients is helpful in hypertension, for which prevention and control necessitate a lifelong adoption of healthy lifestyles.²⁴ Undoubtedly improving knowledge and attitude is known to improve adherence with treatment in condition like hypertension.²⁵ Various studies in this field have demonstrated that good knowledge on hypertension is associated with better control of hypertension.^{25,26}

However, community based studies have shown inadequate knowledge and, poor attitude and practice among patients with hypertension in various countries like Nepal, Pakistan and USA.²⁵⁻²⁸ In these studies it have been shown that such level of knowledge, attitude and practice affect the control of high blood pressure despite appropriate treatment.²⁶ In India, various studies were conducted to assess KAP regarding hypertension. In such a study conducted urban slum of Mumbai, India, the authors concluded that hypertensive patients had very poor awareness, attitude and practices towards hypertension.²⁹ In another study in Haryana it was found that the attitude of patients towards hypertension was poor.³⁰ In another KAP study conducted in Andhra Pradesh, India, it was found that the attitudes and practices scores of the study participants were low. The authors concluded that the motivation and counseling stressing the importance of lifestyle modifications and self-management would be required for the patients suffering with chronic diseases like hypertension and diabetes. The authors also suggested that patient counseling by the clinical pharmacist can play a vital role in imparting education to the hypertensive patients.³¹

From the above discussion, it is clear that global published data till date indicate poor KAP towards hypertension. Secondly, a PUBMED search did not yield any published research in this field from Kolkata. Therefore, we conducted this study to assess the patients’ knowledge, attitude and practice regarding hypertension in Medical College, Kolkata.

METHODS

Our study was a hospital based descriptive study on knowledge, attitude and practice of hypertensive patients under antihypertensive medication. This was carried out in the Department of Medicine and Department of Pharmacology, Medical College, Kolkata from July 2017 to September 2017. Prior approval for this research was obtained from the Institutional Ethics Committee, Medical College, Kolkata. Written consent was taken from each patient before participating them for the study.

Adult hypertensive patients of both sexes with or without comorbidities (age between 18 and 70 years) on antihypertensive medications for more than six months, willing to participate in the study were included in the study. Patients were recruited from General OPD and Medicine OPD. Pregnant women and unresponsive participants were excluded.

Considering prevalence of hypertension in India: 29.8% standard normal variate at 5% Type 1 error: 1.96 and absolute error/precision: 5%, the required sample size was 318.³² Subjects were selected by employing simple random sampling method. Suitably designed and validated questionnaire consisting of 20 questions to assess knowledge, attitude and practice regarding hypertension were used to determine the KAP scores. Ten questions were used for assessment of Knowledge. To assess the Attitude and Practice five questions were used in each case. Each correct and incorrect answer was scored one and zero respectively. A standard patient profile form was built for collecting data on socio-demographic information. The English form of the questionnaire was translated into Bengali and Hindi. Before conducting the main study a pilot study was conducted on 20 hypertensive patients (10 males and 10 females) who met our inclusion and exclusion criteria. Patients involved in pilot were not included in the main study. Necessary changes were done based on pilot study and the interview schedule was finalized. This questionnaire was filled in at face to face interview. Blood pressure was measured using sphygmomanometer and stethoscope. The information was collected about various socioeconomic factors, family history, marital status and addiction, duration of disease, exercise, associated disorders, life style, self-care and educational and professional status.

The total score for each outcome variable was obtained by adding the score obtained from each question and entered in Microsoft Excel 2007. The study specific data were collected in a case record form (CRF). The data from the CRF were transcribed onto an excel database and analyzed using SPSS statistical software and Graph Pad Prism software. All variables were tested for their distribution. Non-parametric data were summarized as median and IQR (interquartile range). Between groups comparison of nonparametric variables were done using Mann Whitney U test. Alpha of <0.05 was considered as significant.

RESULTS

There were total of 318 hypertensive patients including 169 (53.15%) males and 149 (46.85%) females. Age ranged from 30 to 78 years [mean±standard deviation (SD)=53.08±11.2 years], systolic blood pressure (SBP) of 110 to 240 mmHg [median (interquartile range or IQR) = 140 (20) mmHg], and diastolic blood pressure (DBP) of 70 to 120 mmHg [median (IQR) = 90 (10) mmHg]. Most of the patients (37.42%) were between the age group of 41- 50 years, followed by 25.78% between 51- 60 years, 20.44% between 61- 70 years and 11.94% between 30- 40

years. Remaining 4.4% were above 70 years. 56.91% of hypertensive patients were with duration of 1- 5 years. 16.04% of the subjects were smoker and 11% of the patients had the history of drinking alcohol.

Table 1: Co-morbid conditions along with hypertension.

Co morbid conditions	Number of subjects (n=318)	Percentage (%)
Diabetes Mellitus	89	27.98
CKD	22	6.91
IHD	29	9.11
Osteoarthritis	15	4.71

Table 2: KAP scores of the participants.

Variable	Median (IQR) score	Minimum score	Maximum score
Knowledge	4 (5)	0	10
Attitude	5 (0)	2	5
Practice	3 (1)	0	5
Total	12 (7)	3	20

Table 3: Correct response of the subjects towards knowledge (n=318).

Questions	Number of correct responder	Percentage (%)
Do you know the normal BP reading?	91	28.62
Do you know what the high BP is?	90	28.3
Do you know what complications can arise if BP is not controlled?	174	54.72
Is excessive salt intake one of the risk factors for developing high BP?	202	63.52
Is excessive alcohol intake one of the risk factors for developing high BP?	173	54.4
Is being overweight one of the risk factors for developing high BP?	135	42.45
Do you know about the symptoms of high BP?	165	51.89
Do you know about the symptoms of low BP?	82	25.79
Do you have to take antihypertensive medicines for life long?	171	53.77
Is regular BP measurement necessary for high BP patients?	232	72.96

Among the total participants, 7.23% had never gone to school and majority of the patients (43.08%) had received secondary level of education. More than three fourth (94.33%) of the participants were married. 55.35% were employed. Most of the patients in our study had diabetes (27.98%) followed by Ischemic Heart Disease (9.11%), Chronic Kidney Disease (6.91%) and Osteoarthritis (4.71%) (Table 1). The median (IQR) knowledge (total score 10), attitude (total score=5) and practice (total score=5) scores were 4(5), 5(0) and 3(1) respectively (Table 2).

Table 4: Correct response of the subjects towards attitude (n=318).

Questions	Number of correct responder	Percentage (%)
Should we reduce salt intake to prevent hypertension?	289	90.88
Do you think regular checking of BP is important?	310	97.48
Should we keep in touch with the physician regularly?	311	97.8
Do you think regular medication is important in hypertension?	304	95.6
Should we exercise regularly for healthy life?	273	85.85

The statistics showed that none of the patients gave 100% correct answer in each of the question. Most of the patients (71.38%) did not have the knowledge of normal BP reading. However most of them (72.96%) had knowledge that regular BP measurement was necessary for hypertensive patients.

Most of them (63.52%) had knowledge that excessive salt intake was one of the risk factors for developing high BP (Table 3). More than 50% patients gave correct answer to all the attitude questions (Table 4). Regarding practice towards hypertension, most of the patients followed good practice except doing regular exercise, where only 29.87% patients followed this (Table 5).

Table 5: Subjectss following good practice (n=318).

Questions	Number of subjects following good practice	Percentage (%)
Are you taking regular prescribed medicine?	266	83.65
Do you go for follow up regularly?	288	90.57
Are you avoiding extra added salt in your daily diet?	245	77.04
Are you doing any physical exercise daily?	95	29.87
Do you follow a healthy diet? (fat restricted, vegetables and fruit rich)	159	50

There were no significant difference between male and female subjects regarding knowledge and attitude towards hypertension, however significant difference was found regarding practice ($p < 0.007$). Significant differences were found between patients with below and above secondary educational level regarding knowledge ($p = 0.0001$), attitude ($p = 0.02$) and practice ($p = 0.001$). Patients with duration of hypertension more than five years had better knowledge compared to those with duration less than five years ($p = 0.0001$). However they were comparable regarding attitude and practice towards hypertension. (Table 6).

Table 6: Association between different variables with KAP score.

Variables		Knowledge		Attitude		Practice	
		Score	P value	Score	P value	Score	P value
Sex	Male	4 (5)	0.08	5 (1)	0.07	4 (2)	0.42
	Female	5 (5)		5 (0)		3 (2)	
Address	Urban	4 (7)	0.09	5 (1)	0.17	4 (3)	0.4
	Rural	4 (4)		5 (0)		3 (1)	
Family history	Positive	6 (4)	0.004	5 (1)	0.44	3 (1)	0.04
	Negative	3.5 (6)		5 (0)		4 (2)	
Education	≥ class 10	7 (6)	0.0001	5 (0)	0.02	4 (2)	0.0001
	< class 10	3 (2)		5 (1)		3 (1)	
Duration of hypertension	≥ 5 years	5 (5)	0.0001	5 (0)	0.42	3 (1)	0.001
	< 5 years	4 (6)		5 (0)		4 (2)	

Amlodipine was the most frequently prescribed antihypertensive medicine (76.41%) followed by losartan (42.13%). Other anti-hypertensive medicines prescribed were telmisartan (14.15%), cilnidipine (4.71%), metoprolol (4.4%), atenolol (2.51%) and fixed dose combination of telmisartan with hydrochlorothiazide (4.71%) (Table 7). Average number of anti-hypertensive medicines prescribed per patient was 1.49.

Table 7: Antihypertensive medications prescribed.

Name of the drug	Frequency	Percentage (%)
Amlodipine	243	76.41
Losartan	134	42.13
Telmisartan	45	14.15
Cilnidipine	15	4.71
Telmisartan + Hydrochlorothiazide	15	4.71
Metoprolol	14	4.40
Atenolol	8	2.51

DISCUSSION

Our study showed that score regarding knowledge of hypertension was poor compared to other two scores, i.e. scores of attitude and practice. A cross-sectional study conducted in South India showed poor attitude scores like our study. The variation in the findings among different studies might be due to various reasons like educational level, influence of education and awareness available to them.

Majority of the participants had knowledge that excessive salt intake was one of the risk factors for developing high BP. They had also knowledge regarding the symptoms and possible complications of high BP. They also knew that regular BP measurement was necessary for hypertensive patients. Majority of the participants in our study had a better understanding and attitude towards the risk of excessive salt intake to prevent hypertension. Salt reduction had been suggested as a possible measure to pharmacologic treatment to reduce high BP. Several studies investigated this issue and found that, for hypertensive patients receiving antihypertensive medications, salt restriction provides additional benefits in terms of BP control.³³ The practice of salt moderation of our study population was also impressive. Majority of them had the good practice of moderation of salt intake. Half of the patients had the practice of consuming healthy food in their diet.

Medication adherence was found to be good. Most of the patients took anti-hypertensive medicines regularly. However medication non-adherence had been found to be higher in males due to side effect of impotence caused by some antihypertensive medication like thiazides, beta-blockers and alpha-blockers.^{34,35}

Polypharmacy can have an impact on the medication non-adherence and hence contribute to hypertension prevalence. However, in our study average number of medicines prescribed per patient was 1.49. Medication adherence in ambulatory patients can be improved by decreasing the frequency of dosing and prescribing at the same time without altering the efficacy.³⁶ Cost of the medicines may also have an impact on the medication non-adherence contributing to hypertension prevalence. However, in our hospital, all the medicines were provided free of cost to the patients and this might be a reason of good adherence.

The attitude and practice of exercise was found poor in our study. Majority of the patients had not the practice of doing exercise regularly. There is evidence that regular dynamic physical exercise (including walking, cycling, non-competitive swimming and other equivalent leisure activities) decreases both systolic and diastolic blood pressure by 5-7 mmHg independent of weight loss, alcohol or salt intake. Evidence also suggested that moderate intensity exercise, in sessions of 50-60 minutes, 3 or 4 times per week, may be more effective than vigorous exercise in decreasing blood pressure in hypertensive patients. Physical activity had often been used in conjunction with weight reduction strategies for the treatment of hypertension. Increased physical activity, together with a reduction in caloric intake alone or in combination with a reduction in alcohol intake and with or without a reduction in sodium intake reduces the relative risk of hypertension.³⁷

We found statistically significant ($p < 0.007$) differences in the practice scores between male and female. However they were comparable regarding knowledge and attitude scores.

A cross sectional study in Pakistan had shown that men had better knowledge than female at $p = 0.03$.²⁶ The reasons of better scores in men might be due to limited opportunities available to women with deep rooted gender bias against female.³⁸ However, a KAP study on hypertension by Sharma et al suggested that gender was not associated with awareness and practice of patients.²⁵

No significant difference was found in KAP scores among people living in rural and urban areas. Level of education had an impact on KAP scores. We found that people with education level of class 10 and above had higher KAP scores compared to those with lower education level. A similar community based study in Nepal also showed influence of education on knowledge and practice score ($p = 0.01$) indicating that literate patients scored better than their illiterate counterparts.²⁵

We found that patients with positive family history of hypertension had significantly better knowledge of hypertension compared to those with negative family history. However family history did not have the impact on attitude and practice towards hypertension. We also

found that duration of hypertension also had impact on knowledge of hypertension. People with duration of hypertension five years and above had better knowledge compared to people with less duration of hypertension.

CONCLUSION

Prevalence of hypertension is increasing globally. Problem regarding poor medication adherence and inadequate blood pressure control is largely due to the poor knowledge, attitude and practice of patients regarding their disease and treatment. The status of overall KAP on hypertension among hypertensive patients needs to be improved to reduce the burden of the disease. Thus we conclude that a proper educational intervention is necessary that may create the awareness among the patients on the aspect of knowledge that would rather improve their practice. There may be provision for a clinical pharmacist who may play an important role as patient educator in this regard. Activities like patient counselling, home medication review, pharmaceutical care program may help to improve the patients practice in disease management.

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