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Original Article

Internal Medicine Section

Antihypertensive Prescription Pattern, Self-reported Reasons for Non adherence to Antihypertensives and Lifestyle Practices among the Elderly

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ABSTRACT

Introduction: Adherence to antihypertensives is not to be assumed just because people seek help. It is a complex issue and requires individualised care. Individuals above the age of 60 years have double the risk of cardiovascular diseases for each rise in 20 mmHg Systolic Blood Pressure (SBP) or 10 mmHg Diastolic Blood Pressure (DBP).

Aim: To identify the antihypertensive prescription pattern among elderly hypertensives and to explore the reasons for non adherence to antihypertensives expressed by the elderly hypertensive patients on assessment using the Morisky Medication Adherence Scale (MMAS-8).

Materials and Methods: The study was conducted using the cross sectional survey design. A total of 800 elderly hypertensives attending Medicine Outpatients Department (OPDs) of a tertiary care hospital, Karnataka, were surveyed using purposive sampling technique from July 2013 to July 2015. The tools used were demographic and clinical proforma, scale on lifestyle practices and MMAS-8 (r=0.83).

Results: The study findings revealed that most of the participants 205 (25.6%) were on calcium antagonists. Majority 309 (38.6%) were found to be non adherent to antihypertensives. About 59.4% were following the life style practices required for the control of BP. The majority i.e., 249 (31.1%) expressed that forgetfulness is the major factor for their non adherence.

Conclusion: With the mainstay of pharmacotherapy for hypertension, lifestyle modifications play a vital role in the management of hypertension.

Keywords: Aged, Cardiovascular diseases, Medication adherence

INTRODUCTION

Hypertension is an important risk factor for cardiovascular disease. Despite improvements in its detection and treatment since the 1970s, studies show that 60-75% of treated hypertensive patients do not reach the recommended target blood pressure of <150/90 mmHg [1,2]. Non adherence is thought to be a factor in lack of control of blood pressure and may lead to unnecessary adjustments of drug regimens and increased health care costs [3].

According to the World Health Organisation (WHO) statistics 2011, 83 million persons in India are 60 years of age and older, representing over seven percent of the nations total population. Non adherence to treatment plans and drug regimens is an impediment in managing the health of this population resulting in an estimated 8% of hospital admissions. The most commonly cited reasons for non adherence include cost, inadequate instruction and switching over to non conventional treatment [4]. Both medication use and the incidence of drug related problems increase with advancing age.

Lifestyle measures, are a crucial step in hypertension management [5]. The patient's lifestyle practices and the pharmacological management should run parallel in order to achieve the target manageable blood pressure level. Lifestyle modification therefore, has a great impact on the success or failure of therapeutic management of hypertension. Lack of knowledge related to lifestyle modifications for hypertension leads to poor understanding of its beneficial effects and what constitutes as an unhealthy lifestyle. Hence, this study has been undertaken to investigate the antihypertensive prescription pattern among elderly hypertensives and to explore the reasons for non adherence to antihypertensives expressed by them, on assessment using the MMAS-8 and also to assess the adherence to lifestyle practices among elderly hypertensives.

MATERIALS AND METHODS

The study included 800 patients aged 60 years and above with Stage I and Stage II hypertension attending the outpatient Department of Medicine in a tertiary care hospital, Karnataka surveyed using purposive sampling technique from July 2013 to July 2015.

Inclusion Criteria

Patients with or without comorbidities like diabetes mellitus, chronic Ischaemic Heart Diseases (IHD), dyslipidaemias, chronic rheumatism and any other chronic conditions; who were able to manage taking medications and were able to read, write, and converse in English/ Kannada. Also, ambulatory patients aged 60 years and above diagnosed with Stage I (systolic and diastolic Blood Pressure (BP) ranging between 140-159 mmHg and 90-99 mmHg respectively) and Stage II (SBP and DBP ranging between ≥160 mmHg and ≥100 mmHg respectively) according to the Joint National Committee-VII (JNC-VII) report were included in the study.

Exclusion Criteria

Patients with Stage III hypertension (SBP and DBP ranging between ≥180 mmHg and DBP≥110 mmHg respectively), renal failure, acute stroke, acute IHD, major psychiatric disorders and dementia or delirium were excluded from the study. The tools used for data

collection were: background information with three parts (part A: demographic proforma, part B: clinical proforma, part C: scale on lifestyle practices) and MMAS-8 (reliability coefficient value α=0.83) which is a standardised scale authorised to utilise with due norms. MMAS-8 have eight items focussing on the drug taking behaviour of the individual. The adherence level was categorised as low adherence (<6), medium adherence (6<8) and high adherence (=8) [6]. Calibrated sphygmomanometer and weighing machine was used which was purchased exclusively for this study purpose. The ethical clearance was obtained from the Institutional Review Board (IRB No. KH IEC 253/2012).

In the OPD, the patient's records were checked for identifying the patients who met the inclusion criteria. After obtaining the written informed consent from the participants, data were obtained. Demographic details were obtained through interview and the clinical proforma detail was assessed using interview as well as the case records. Baseline BP was assessed with the prerequisite that the patients did not drink coffee one hour prior to the BP recording. The repeat measurement of BP was obtained after one minute and the average BP reading was considered. Weight and height were checked separately and the Body Mass Index (BMI) was calculated. The patients were surveyed for their adherence level using MMAS-8 scale. The scale on lifestyle practices was developed by the researcher. The items included were eating vegetables, eating fruits, sprinkle salt on food, eating pickle, eating deep fried food/snacks, type of diet, smoke/chew tobacco, drink alcohol, sleep, practice of regular exercises and yoga. It had four levels such as daily, frequently (>once/week), rarely (<once/week) and never [7]. Those who were found to be practicing these lifestyles on daily basis were found to be adherent.

The pre testing of the questionnaire among five hypertensive patients showed no changes in the questions. The pretested patients were not included in the final analysis. Original tools were in English and the tools were translated to Kannada. Language validity was done by retranslation.

STATISTICAL ANALYSIS

The data were analysed using SPSS 16.0 version software. Descriptive statistics were used to analyse the data.

RESULTS

The majority 597 (74.6%) were between the age group of ≥60-70 years, 417 (52.1%) were males, 289 (36.1%) were with the educational qualification of less than seven standard and 415 (51.9%) were currently not working. Majority 652 (81.5%) were living with their spouse, 696 (87%) belonged to the nuclear family and 428 (53.5%) were having an annual income less than INR 12, 000. Most 522 (65.3%) had health insurance facility. About 408 (51%) expressed that their treatment cost was taken care of by their children and 777 (97.1%) reported no intervention with alternative medicines for hypertension [Table/Fig-1].

Majority 627 (78.4%) were taking one to four medications daily including the antihypertensives, 335 (41.9%) were taking only one antihypertensive medication and about 205 (25.6%) were on calcium antagonists for hypertension [Table/Fig-2].

Out of 800 participants, 475 (59.4%) were following the overall lifestyle practices required for the control of BP. With regard to the specific area of life style practices, it was found that 765 (95.6%) were non smokers/chewers of tobacco, 758 (94.8%) were non consumers of alcohol, 764 (95.5%) were non eaters of deep fried food/snacks, 760 (95%) reported not adding extra salt to their food and 766 (95.7%) reported eating pickle daily. Majority 635 (79.4%) reported getting sleep for minimum six hours a day and 540 (67.5%), 571 (71.4%) reported eating vegetables daily and not eating meat high in fat respectively. Majority 663 (82.8%), 601 (75.1%) and 734 (91.7%) reported not eating fruits, not practicing exercises and yoga respectively [Table/Fig-3].

Variables	Frequency	Percentage (%)
Age in years		
≥60-70	597	74.6
>70	203	25.3
Gender		
Male	417	52.1
Female	383	47.9
Education		
Illiterate	154	19.3
<7th standard	289	36.1
>7th standard-PUC	280	35
Degree	77	9.6
Occupation		
Professional	35	4.4
Non professional	91	11.4
Business	38	4.8
Retired	116	14.5
Cooli	105	13.1
Not working	415	51.9
Living with spouse		
Yes	652	81.5
No	148	18.5
Type of family		
Nuclear	696	87
Joint	104	13
Annual income of the family		
<12000	428	53.5
12000-1 lakh	278	34.8
>1 lakh-2.5 lakhs	63	7.9
>2.5 lakhs	31	3.9
Health insurance facility		
Yes	522	65.3
No	278	34.8
Finance for the treatment		
Children	408	51
Own	293	36.6
Spouse	99	12.4
Use of alternative medicines		
Yes	23	2.9
No	777	97.1

[Table/Fig-1]: Demographic characteristics of sample in frequency and percentage.

Out of the 800 elderly hypertensives being surveyed, 491 (61.4%) were adherent to the antihypertensive medications. Subjects in both the low 127 (15.9%) and medium 182 (22.8%) adherence category were considered as non adherents to antihypertensives. [Table/Fig-4]. Among the 309 (38.7%) participants who were identified as non adherents, 249 (31.1%) expressed that sometimes they forget to take their BP medications. Of the total 38 (4.8%) expressed that in the past two weeks they had missed taking their antihypertensives due to reasons other than forgetting. A total of 17 (2.1%) expressed that they stopped their BP medications on their own without telling their doctor. A total of 83 (10.4%) expressed that they forget to carry their BP medications when they go on travelling. Only 4 (0.5%) participants said that sometimes they stopped taking BP medications as they felt that their BP is under control. A total of 548 (68.5%) felt that once in a while they find it difficult to remember taking all their medications [Table/Fig-5].

Variables	Frequency	Percentage (%)
Duration of treatment		
<6 months	183	21.9
6-12 months	38	4.8
>1 year	579	72.4
Number of medications		
1-4	627	78.4
5-8	159	19.9
9-12	14	1.8
BMI		
Underweight (<18.5)	35	4.4
Normal (18.5-24.9)	454	56.8
Overweight (25-29.9)	274	34.3
Obese (>30)	37	4.6
Comorbidities		
Diabetes Mellitus	426	53.3
Chronic Ischemic Heart Disease	77	9.6
Dyslipidemia	9	1.1
Chronic rheumatism	1	0.1
No comorbidities	287	35.9
More than one comorbidities	57	7.1
Number of antihypertensive medications		
1	335	41.9
2	237	29.6
3	24	3
4	4	0.5
Class of antihypertensives		
ACE inhibitors	128	16
Angiotensin II antagonists	73	9.1
ACE inhibitors+ Diuretics	21	2.6
Angiotensin II antagonists+ calcium antagonists	58	7.3
Angiotensin II antaginists+ACE inhibitors	9	1.1
β blockers	153	19.1
β blocker+ACE inhibitors	54	6.8
β blocker+ diuretic+ angiotensin II antagonists	7	0.9
β blocker+ angiotensin II antagonists	36	4.5
β blocker+Calcium antagonists	27	3.4
Calcium antagonists	205	25.6
Calcium antagonists+ ACE inhibitors+ angiotensin II antagonists	6	0.7
Calcium anatgonists+ ACE inhibitors+ β blocker	6	0.8
Angiotensin II antagonists+ calcium antagonists+diuretics	8	1
β blocker+Calcium antagonists+ Angiotensin II antagonists	6	0.8

[Table/Fig-2]: Clinical characteristics of sample in frequency and percentage.

Lifestyle practices	Practicing		Not practicing	
	f	%	f	%
Eating vegetables	540	67.5	260	32.5
Eating fruits	137	17.1	663	82.9
Do not sprinkle salt on food	760	95	40	5
Do not eat pickle	34	4.3	766	95.7
Do not eat deep fried food/snacks	764	95.5	36	4.5
Do not eat meat high in fat	571	71.4	229	28.6
Do not smoke/Chew tobacco	765	95.6	35	4.4
Do not drink alcohol	758	94.8	42	5.2
Sleep	635	79.4	165	20.6
Exercise	199	24.9	601	75.1
Yoga	66	8.3	734	91.7

[Table/Fig-3]: Lifestyle practices in frequency and percentage.

Level of adherence	Frequency	Percentage (%)
Low adherence (<6)	127	15.9
Medium adherence (6<8)	182	22.8
High adherence (=8)	491	61.4

[Table/Fig-4]: Adherence to antihypertensives in frequency and percentage.

S.No.	Factors leading to non-adherence	Yes		No	
		f	%	f	%
1.	Do you sometimes forget to take your BP medications?	249	31.1	551	68.9
2.	Have you missed taking your BP medications in the last two weeks for reasons other than forgetting?	38	4.8	762	95.3
3.	Have you ever stopped taking your BP medications without telling your doctor because you felt worse when taking it?	17	2.1	783	97.9
4.	Do you sometimes forget to carry your BP medications while travelling?	83	10.4	717	89.6
5.	Did you take your BP medicine yesterday?	786	98.3	14	1.8
6.	Do you sometimes stop taking your BP medications because you felt your BP is under control?	4	0.5	796	99.5
7.	Do you ever feel hassled about sticking to your BP treatment plan?	2	0.3	798	99.7
8.	How often do you have difficulty remembering to take all your medications?				
	Never/rarely	77	9.6	0	0
	Once in a while	548	68.5	0	0
	Sometimes	154	19.3	0	0
	Usually	18	2.3	0	0
	All the time	3	0.4	0	0

[Table/Fig-5]: Self-expressed factors leading to non adherence among elderly hypertensives (n=800).

DISCUSSION

In this study it was found that among 800 patients, only 491 (61.4%) were adherent to antihypertensives and forgetfulness was one of the major factor for their non adherence as expressed by 249 (31.1%) out of 309 (38.7%) who were found to be non adherents.

The present study findings were supported by several other previous studies such as a systematic review and a meta-analysis carried out on non adherence to anti hypertensive medication in low and middle income countries by Nielsen J et al., with the identified non adherence rate of 63.35%; systematic review and meta-analysis by Abegaz TM et al., with 83.7% of non adherents, Kang CD et al., reporting 44.8% non adherence, Mugwano I et al., stating 77% non adherence, Hossain SZ et al., with 56.6% non adherence and Lo SH et al., revealing the non adherence rate of 55.9% each [8-13].

Many studies reported forgetfulness as the major barrier for the non adherence to antihypertensives among elderly such as Lo SH et al., Mallya SD et al., Khan MU et al., Kumaraswamy R et al., Varleta P et al., Mathew A et al., Nguyen TP et al., and Gelaw BK et al., [13-20].

In the present study, it was found that 765 (95.6%) were non-smokers/chewers of tobacco, 758 (94.8%) were non consumers of alcohol, 764 (95.5%) were non eaters of deep fried food/snacks and 760 (95%) reported as not adding extra salt to their food.

Similar finding was obtained from a study by Gore AD and Kadam YR which revealed the adherence to non pharmacological therapy like reduction of salt (79.5%) and reduction of oil (80.9%) among hypertensive patients [21].

The study conducted by Uche G et al., found that, adherence was highest with the non chewers of tobacco (100%) followed by non use of excessive dietary salt (94.3%) and non consumers of alcohol (90.7%) [22].

In the present study, most 205 (25.6%) of the participants were found to be receiving calcium antagonists.

The results of the study conducted by Khan GM et al., confirms the present study. Findings revealed that 80% of the patients were on monotherapy and calcium channel blockers were the mostly prescribed medication [23].

LIMITATION

This study was conducted in a tertiary care hospital where patients can get benefited by receiving health information from students and also get better opportunity to interact with their physicians. Thus, it cannot be assumed that the responses expressed by respondents in this study would be similar to those attending healthcare setting. Only diagnosed hypertensive patients who were registered at the study setting participated in the study. The sample was representative of the patients with regards to the inclusion criteria mentioned in the study.

CONCLUSION

Non adherence to antihypertensives may result in worsened clinical outcomes, which may lead to the addition of a more complex medication regimen to the therapy and increase the overall healthcare expenditures. The findings of this study shows that all the participants are on second line medications where the management is quiet challenging. So, the primary care strategies to control blood pressure should focus not only on antihypertensive medications but also on the benefits from lifestyle modifications. This will invariably guide the patients to improve their quality of life. The findings of the present study supports the importance of lifestyle modification and stresses the need for further interventions to target the non adherent population and continuous motivation of adherents by the healthcare team members.

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