



Original article

Assessment of Extent of Lifestyle Modification among Diagnosed Patients of Hypertension Attending Tertiary Care Hospital

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ABSTRACT

Background: Hypertension is an important public health- challenge in the developing and the developed world alike. Lifestyle modification is an important step of therapy when hypertension is diagnosed, with or without starting antihypertensive medication. **Objective:** 1.To study the socio demographic characteristics of the study population. 2. To assess the level of acceptance about recommended lifestyle modification in specific dietary changes. **Materials and Methods:** A cross-sectional study was conducted among hypertensive patients above 30 years of age attending O.P.D. at Sir Sunder Lal Hospital, Banaras Hindu University. Respondents for this study were hypertensive patients who were under the treatment and attending the medical outpatient department for follow up. A semi- structured questionnaire was used to collect information. SPSS Ver. 16.0 (trial version) software was used to analyze the data. **Results:** More than half (54.7%) of the patients were non-vegetarian before diagnosis and after diagnosis the proportion of non-vegetarian study subjects reduced by 14%. Similarly, the reduction in consumption of meat, eggs, salt, ghee and oil (mustard, sunflower) by hypertensive patients was also noted. Likewise, smoking and consumption of alcohol was also reduced after diagnosis of hypertension. However physical activity increased among 30% of the respondents. **Conclusion:** Most of the patients changed their lifestyle after diagnosis of hypertension. There were many recommended lifestyle changes but this study showed that even after diagnosis of hypertension only few lifestyle changes were adopted.

KEYWORDS: Hypertension; Lifestyle; Hypertensive Patients; modification

INTRODUCTION

Hypertension is becoming an important public health problem and is also a risk factor for cardiovascular diseases. It is not always taken seriously and is often poorly controlled. [1] It has remained an important public health challenge in the developing and the developed world alike.[2] The burden of chronic conditions such as hypertension has been linked to an iceberg phenomenon in which the cases that we see are only a tip of the whole problem. Even within the 'visible' portion, there are different strata of hypertension with or without controlled blood pressure. [3] Hypertension is estimated to cause 7.1 million deaths annually accounting for 13% of all deaths globally. Overall 26.4% adult world population was estimated to have hypertension in the year 2000, a number that was projected to increase to 29.2% by 2025. [4]

Sentinel Surveillance Project, documented 28% prevalence of hypertension (criteria: =JNC VI) from 10 regions of the country in the age group 20-69 years. According to Indian

studies it is noted that the prevalence of hypertension has increased by 30 times among the urban population over a period of 55 years and about 10 times among the rural population over a period of 36 years. According to national clinical practice guidelines from the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure (JNC), five primary lifestyle modifications have been suggested to be used for the initial treatment of stage 1 hypertension (SBP = 140-159 mmHg, DBP = 90-99 mmHg). These lifestyle modifications also may be used as an adjunct to drug therapy for all stages of hypertension and for the primary prevention of hypertension in those with above-optimal Blood Pressure.[5]

Certain life style habits, including unhealthy dietary habits, cigarette smoking and inactivity are risk factors for cardiovascular disease that in part may be mediated through effects on blood pressure and body weight. These life style factors may also be established during childhood and

adolescence, however, their associations with weight status and blood pressure in childhood and adolescence are less clear than in adulthood.[6] The problem which lies with the hypertension is that it cannot be cured completely. And its management requires lifelong medication with some important life-style modifications. The main objective of this study was to determine the extent to which diagnosed hypertensive patients modify their lifestyle.

MATERIALS AND METHODS

Study Design: A hospital based cross-sectional study was designed for this study. Respondents for this study were diagnosed hypertensive patients above 30 years of age attending Cardiology O.P.D.at Sir SunderLal Hospital, Banaras Hindu University, Varanasi.

Study Period: The data collection was carried out of the patients who attended O.P.D. during 15th September 2013 to 10th November 2013. It included period for planning, proforma designing, data collection, data entry, analysis and interpretation.

Study tools and technique: A questionnaire was designed consisting of three categories of questions; the first, regarding demographic characteristics of the participants, second regarding food habits and third was concerned with physical activity pattern, alcohol consumption, smoking and stress reduction activities etc. The questionnaire was pretested on ten subjects and on the basis of outcome of the pre-testing results, it was modified to design the final questionnaire.

Study site and study population: This study was conducted among diagnosed hypertensive patients above 30 years of age attending Sir Sunderlal hospital BHU, Varanasi. Sixty four hypertensive patients from the above mentioned hospital were interviewed for the study, who were attending the out patients department for follow-up, during the study period.

Sampling criteria:

Inclusion criteria: 1. Hypertensive patients (Diagnosed cases) who were under the treatment regimen and attending the medical outpatient department for follow up. 2. Age 30 or older having no other cardiac complication. 3. Patients who were willing to participate in the study. **Exclusion criteria:** 1. Patients having associated disease like Heart disease, Kidney disease etc. were excluded. 2. Patients who were unwilling to participate in the study.

Informed Consent:

The respondents were adequately informed and explained about the purpose of the study. They were assured of the privacy and confidentiality of the information. So, verbal informed consent was obtained before a respondent was interviewed.

Data Analysis

Statistical treatment of the data was performed by means of SPSS 16.0 (trial version) software. Distribution in the form of frequencies and proportion and then Chi- square test was applied to compare the life style modification and p-value < 0.05 was considered as significant.

RESULTS

The study showed that majority (42.2%) of the respondents belonged to 41-50 year age group and 56.2 % were male. About half (43.7%) were from rural areas. More than three fourth (84.3%) of patients were of Hindu religion. According to their educational background, nearly one fifth (21.9%) had studied up to higher secondary or above whereas 15.6% of the respondents had studied till secondary and 29.7% of them were illiterate. More than one fourth (29.7%) of the respondents were doing household work and 37.5% were doing government or private service. Similarly more than half (56.2%) were from joint family. About half (50%) of the respondents were suffering from one to two years with hypertension. (table.1)

Table1: Socio-demographic Characteristics of the diagnosed hypertensive patients.

Characteristics	Variable	Hypertensive patients (n=64)		95 % C.I.
		Number	Proportion %	
Age group	31-40	5	7.8	1.22-14.37
	41-50	27	42.2	30.1-54.3
	51-60	17	26.6	15.77-37.42
	Above 60	15	23.4	13.02-33.77
Sex	Male	36	56.2	43.84-68.16
	Female	28	43.8	30.87-55.12
Residence	Urban	19	29.6	17.88-40.11
	Rural	28	43.7	30.87-58.12
	Semi-Urban	17	26.5	15.25-36.74
Religion	Hindu	54	84.3	75.01-92.98
	Muslim	6	9.3	2.18-16.4
	Others	4	6.2	0.29-12.10
Educational	Illiterate	19	29.7	17.88-40.11

Status	Literate(non-formal)	6	9.4	2.25-16.54
	Primary	15	23.4	12.68-33.31
	Secondary	10	15.6	6.2-23.74
	Higher Secondary or above	14	21.9	11.02-30.97
Occupation	Agriculture	10	15.5	6.2-23.74
	Business	11	17.2	7.77-26.20
	Service Govt/Private	24	37.5	25.17-48.82
	Household Work	19	29.7	17.88-40.11
Family Type	Nuclear	28	43.8	30.87-55.12
	Joint	36	56.2	43.83-68.16
Duration of Disease	6 month-1 Year	20	31.2	19.66-42.33
	1 year-2 Year	32	50	37.73-62.25
	≥2 Year	12	18.7	8.58-27.41

Table 2: Dietary habits of the respondents before and after diagnosis of hypertension.

variables	Dietary habit of respondents (n =64)				Total	
	Vegetarian		Non- vegetarian			
	number	%	number	%	number	%
Before diagnosis	29	45.3	35	54.7	64	100
After diagnosis	38	59.4	26	40.6	64	100

($\chi^2 = 6.16$, d. f =1, $P < 0.05$)

Out of total respondents, 43.7% were smoker before diagnosis of hypertension and they reduced to 12.5% after diagnosis of hypertension. The difference was significant ($p < 0.05$). Few continued smoking but decreased the frequency of smoking. Similarly 21.8% respondents were consuming alcohol before diagnosis but later on advice of

doctor, 84.3% respondents did not consume alcohol after the diagnosis. The trend of the alcohol intake seemed declining in proportion but those who continued they reduce the amount and frequency of intake. The reduction in consumption of alcohol was statistically insignificant ($p > 0.05$). (table.3)

Table 3: Changes in Smoking and alcohol Consumption habits of the diagnosed hypertensive patients.

Type of Addiction (n =64)		Yes		No		p-value
		number	%	number	%	
smoking	Before diagnosis	28	43.7	36	56.25	$\chi^2=27.8$ ($P < 0.01$)
	After diagnosis	8	12.5	56	87.5	
alcohol	Before diagnosis	14	21.8	50	78.1	$\chi^2=2.9$ ($P > 0.05$)
	After diagnosis	10	15.2	54	84.3	
Tobacco	Before diagnosis	43	67.1	21	32.8	$\chi^2=7.4$ ($P < 0.05$)
	After diagnosis	33	51.5	31	48.4	

About 40.6 % respondents had always taken additional salt, 37.5 % were taking sometimes and only 21.9 % were never adding the extra salt before diagnosis. But after diagnosis, majority (67.2%) left the salt intake. Additional salty food comprised papad, pickle and potato chips/Namkeen etc. Out

of total respondents, 76.5% were found to be using additional salty food before diagnosis which came down to 45.3% who were still taking even after their diagnosis of hypertension. (table. 4)

Table 4: Pattern of salt consumption by the respondents before and after diagnosis of hypertension.

Type of Salt intake		Intake of salt by the respondents (n = 64)					
		Never		sometimes		Always	
		number	%	number	%	number	%
Use of extra salt (table salt)	Before diagnosis	14	21.9	24	37.5	26	40.6
	After diagnosis	43	67.2	21	32.8	nil	Nil
Intake of additional salty food	Before diagnosis	18	28.1	26	40.6	20	31.2
	After diagnosis	30	46.8	28	43.7	4	6.25

Change in frequency of meat and eggs consumption by non-vegetarian patients after diagnosis of hypertension was further analysed. It was observed that majority of respondents (74.2%) used to take meat 1-2 times per week before diagnosis and they reduced to 19.2% after diagnosis. Whereas rarely consumers of non-veg diet increased from

11.4% to 80.7%. As many left frequent intake of meat /non vegetarian diet. About 14.2% respondents were consuming egg nearly every day before diagnosis of hypertension and all of them stopped daily intake of egg. The proportion of respondents taking egg rarely also increased from 14.2% to 46.1% after diagnosis. (table.5)

Table 5: Changes in frequency of meat and egg consumption by the diagnosed hypertensive patients.

Type of Non-Veg food		Intake of meat and egg by the respondents							
		Nearly everyday		1-2 times/ week		3-4 times/ week		Rarely	
		number	%	number	%	number	%	number	%
Meat	Before diagnosis (n=35)	nil	nil	26	74.2	5	14.2	4	11.4
	After diagnosis (n=26)	nil	nil	5	19.2	-	-	21	80.7
Egg	Before diagnosis (n=35)	5	14.2	17	48.5	8	22.8	5	14.2
	After diagnosis (n=26)	--	--	10	38.4	4	15.3	12	46.1

The changing pattern of oil and ghee consumption by the respondents before and after diagnosis of hypertension was studied. More than half (57%) of respondents used animal ghee daily before diagnosis and after diagnosis of hypertension daily users reduced their intake. Hence, non users of animal ghee increased from 17.1% to 65.6% after

diagnosis. Similarly vegetable ghee users also changed their food habits (Table.6). The daily consumers of soybean oil before diagnoses were 18.7% and after diagnosis increased to 37.5%. About three fourth (76.5%) were not consuming soya bean oil before diagnosis but after diagnosis number of soybean oil users increased. (table.6)

Table 6: Changes in consumption of different types of oil/ghee by the diagnosed hypertensive patients.

Type of fat		Fat consumption by the respondents (n=64)					
		Daily		Occasionally		Non-User	
		number	%	number	%	number	%
Animal Ghee	Before Diagnosis	37	57	16	23.4	11	17.1
	After Diagnosis	10	15.6	12	18.7	42	65.6

Vegetable Ghee (Hydrogenated fat)	Before Diagnosis	02	3.1	10	15.6	52	81.2
	After Diagnosis	0	0.0	05	7.8	59	92.1
Soya bean Oil	Before Diagnosis	12	18.7	03	4.6	49	76.5
	After Diagnosis	24	37.5	04	6.2	36	56.2

Physical exercise and stress reduction activities are important to control hypertension. About one fifth (21.8 %) respondents were practicing physical exercise before diagnosis of hypertension. But after diagnosis, on the advice of doctor the number of respondents increased from 21.8% to 54.6%. The increase in number of respondents who were

doing exercise was statistically significant. Similarly, 23.4 % were doing stress reduction activities before the diagnosis but after diagnosis; the number increased from 23.4% to 34.3%. However this difference was not statistically significant ($p>0.05$). (**table.7**)

Table7: Physical exercises and stress reduction activity performed by respondents before and after diagnosis of hypertension.

Type of life style		lifestyle adoption by the respondents (n=64)				P-Value
		Yes		No		
		number	%	number	%	
Physical Exercise	Before Diagnosis	14	21.8	50	78.1	$X^2=26.4$ ($P<0.001$)
	After Diagnosis	35	54.6	29	45.3	
Stress Reduction Activity	Before Diagnosis	15	23.4	49	76.5	$X^2=4.84$ ($P>0.05$)
	After Diagnosis	22	34.3	42	65.6	

DISCUSSION

Hypertension is one of the most common disease affecting humans all over the world. It is the risk factor for coronary artery disease, congestive heart failure, stroke, renal disease, and vascular disease. Changes in lifestyle should be an important part of hypertension management; the present study showed that a diagnosis of hypertension did lead to few lifestyle changes. Thus it is a challenge for the healthcare professionals to identify and treat this disease. Men tend to display higher blood pressure than women, more evident in young and middle-age. The prevalence of hypertension and the blood pressure levels increased with age in both men and women.[7]

The result of this study showed that the majority (90%) of respondents were non-vegetarian before diagnosis, whereas after the diagnosis of hypertension vegetarians increased from 10% to 20%. A research study conducted by Lindhal et al, found that vegetarian diet was extremely beneficial for hypertensive patients.[8] Another study carried out by Guba& Lincoln, under The Dietary Approaches to Stop Hypertension, (DASH) diet is a diet rich in fish, chicken, lean meat, low-fat dairy, fruits, vegetables, whole grains, legumes, lowered SBP for hypertensive patients by an

average of 11 mm Hg and DBP by an average of 5.5 mm Hg compared with the control group. [9]

The consumption habit of oil and non vegetarian items such as mutton, chicken, eggs were taken into account while collecting the data. There was a statistically significant reduction in the consumption of meat and egg after diagnosis of hypertension ($p<0.05$). Physical inactivity is one of the most associated risk factors for hypertension. The present study showed that the number of respondents doing physical exercise increased to 47% from 23% after the diagnosis of hypertension. A study conducted by Regmi, reported that walking an hour per day at the rate of 4km/hour to be an effective exercise for reducing hypertension.[10] Another study conducted by WHO, showed that there is an inverse relationship between an aerobic physical activities and blood pressure. Regular aerobic physical activity has been demonstrated to be beneficial both for prevention and treatment of hypertension. [11] The trend of the smoking and alcohol intake notably declined over the period both in terms of amount and frequency of intake. Under this study it was observed that there is a consistent association between smoking, alcohol intake and high blood pressure. [12]

It is clear that more work needs to be done about promoting lifestyle changes. Health care professionals need to be more planned in their counselling regarding lifestyle issues when treating newly diagnosed hypertensive patients.[13] To achieve lasting lifestyle changes, it is likely that system changes are needed, such as the creation of multidisciplinary teams with expertise in counselling and the remuneration of time spent in lifestyle counselling.[13] Promotion will need to include a component indicating that hypertension in itself is not a condition that hampers one's lifestyle – on the contrary, if controlled, it will allow a normal lifestyle for a longer period of time.[14]

CONCLUSION

Adoption of healthy lifestyles by community at large is essential for the prevention of high BP and is an indispensable part of the management of those with hypertension. There were number of recommended lifestyle changes but this study showed that even after diagnosis of hypertension only few lifestyle changes were adopted. There were statistically significant modifications on the type of food consumption including meat, eggs, ghee and oil. However the extent of modification was very less regarding soyabean oil consumption, additional salty food and amount of extra salt intake after the diagnosis of hypertension. However it was observed that after diagnosis of hypertension almost all patients had adopted lifestyle modifications in some or the other way.

RECOMMENDATION

It was clear from this study more planned strategy needs to be developed about promoting lifestyle changes. Health care professionals need to be more planned in their counselling strategies regarding lifestyle issues when treating newly diagnosed hypertensive patients. This can be done by: Mobilizing the key informants' e.g. political leader, social workers for public awareness, Broadcasting program and information regarding hypertension, Developing IEC (Information, Education and Communication) material (e.g. pamphlet, poster) which will help in preventing and control of hypertension. Setting up a hypertension-counselling clinic in each hospital should be promoted when hypertensive patients are treated.

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