SHORT ARTICLE

Knowledge and Practice on lifestyle modifications among males with hypertension

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Citation

Vanitha D, Anitha Rani.M Knowledge and Practice on lifestyle modifications among males with hypertension. Indian J Comm Health. 2015; 27, 1: 143-149.

Source of Funding : Nil **Conflict of Interest:** None declared

Article Cycle

Submission: 29/09/2014; **Revision:** 05/12/2014; **Acceptance:** 09/03/2015; **Publication:** 31/03/2015

Abstract

Background: In 2004, prevalence of hypertension was 25% in urban and 10% in rural population in India, leads to 57% of all stroke deaths and 42% of cardiovascular deaths.(1,2) Life style modifications control hypertension and prevent complications. **Aims and Objectives:** To find out the level of knowledge about life style modifications needed for control of blood pressure among males with hypertension and their current life style practice. **Materials and methods:** This cross sectional study was conducted among males with hypertension in the age group of 30-59 years who attended Hypertension Clinic of Medicine Outpatient Department in Sri Ramachandra Medical College and Hospital, Porur, Chennai in November 2013 using an interview schedule. **Result:** Among 100 males with hypertension, 34% were in the age group of less than 50 years and 64% had hypertension for less than 5 years. Nearly 84% had knowledge about influence of smoking and alcohol on hypertension and 82% had knowledge about at least 3 dietary factors which control hypertension. About 70% of males were aware that more than 30 minutes of physical activity/day is needed to control hypertension. Currently 89% were physically active for more than 30 minutes/day, 72% did not consume alcohol, 89% were nonsmokers but 25% were adding extra salt in their diet and none of them increased fibre intake. **Conclusion:** Dietary modification practices were less among hypertensive males.

Key Words

Life style modifications; Hypertension; Knowledge; Practice

Introduction

A survey in 2004 revealed that in India prevalence of hypertension was 25% in urban and 10% in rural population, leads to 57% of all stroke deaths and 42% of deaths due to cardiovascular disease (1,2) Noncompliance of lifestyle practices due to illiteracy and low socioeconomic class increases the risk of renal disorders, stroke, blindness, cardiac failure and death. Cardiac disorders occur 10-15 years earlier in India than in western countries due to unhealthy habits in life (3). In India productive life years are lost due to cardiovascular disorders in 35-64 years age group (4).

At least 30 to 60 minutes of brisk walking 3 times a week is recommended to control hypertension (5). A Meta-analysis study revealed that for hypertensives aerobic exercise had decreased mean systolic (-3.84mmHg) and diastolic blood pressure (-2.58mmHg) (6). Normal physical activities like walking, cycling and swimming are helpful in prevention and treatment of stroke and CVD (7).Regular exercise decrease systemic vascular resistance by regulatory mechanism of autonomic nervous system and rennin anigotensin system (8). Regular aerobic exercise increase nitric oxide production and cause vasodilatation (9).

Nicotine from smoking stimulates adrenaline release and causes hypertension which leads to myocardial infarction, cerebrovascular accidents, renal and cardiac failure. Cigarette smoking releases carbon monoxide which causes atherogenesis (10).

Saturated fat and Trans fatty acids in diet increase cholesterol and blood pressure which in turn causes cardiac diseases. DASH (Dietary approach to stop hypertension) diet could be started at younger age to avoid complication due to hypertension .For this the food should be balanced with less oil, less sugar, less saturated fat, more fruits, more vegetables and high fibre diet for the hypertensives to control their blood pressure (11).

7-8 gm /day salt intake increase blood pressure and low sodium salt intake reduces it. A study at Japan revealed 400mmol/day sodium intake leads to increased prevalence of hypertension and 60mmol/ day taken by primitive societies had no hypertension (12). Elders are sensitive to sodium. By sodium restriction Systolic pressure by 4mm of Hg and diastolic pressure by 2mm of Hg can be controlled. 6gm sodium chloride/ 1¼ tea spoons of salt/3 spoons full of monosodium glutamate is recommended/ day5.

Alcohol consumption increases systolic and diastolic blood pressure (13). But when an alcoholic abstains from alcohol, blood pressure comes back to normal and the increase is not sustained (14).

Treatment of mild hypertension, through life style modifications reduce blood pressure by 9/9 mm Hg and decrease in necessity of additional drugs in patients already on monotherapy (15). Life style modifications through DASH diet, regular exercise, quitting of smoking & alcohol consumption control hypertension.

A community based study published in 2012, revealed that prevalence of hypertension among rural population was 21.4% in TamilNadu (16) but previous studies have not focused on practice of lifestyle modifications among hypertensives. No previous studies showed knowledge on each of life style modifications separately.

Aims & Objectives

This study has been planned to evaluate knowledge and practice on life style modifications among hypertensive males comprehensively and also planned to evaluate the association between knowledge and practice on life style modifications for each individual.

Material and Methods

This was a cross sectional study conducted among the hypertensive males (30-59yrs) who were attending Hypertension clinic of Medicine Department in Sri Ramachandra Medical College and Hospital, Porur, Chennai, Tamil Nadu for at least 1 year, willing to participate and have given the informed consent. Here on an average of 160 hypertensive patients were attending as outpatient daily. Among them nearly 80 hypertensive patients were males. Among them 10-12 males were in the age group of 30-59 years. Data collection was done for a period of 10 days in November 2013 using Interview schedule after obtaining informed consent. All hypertensive males in the age group of 30-59 years attending hypertensive clinic in Medicine department during data collection period were included as sample in this study. Hypertensive males who were hospitalized during last 30 days or with serious illness were excluded. Based on a study done in 2012 among the hypertensives, prevalence of physically active for more than 30 minutes as 63% and with 5% significant level, the limit of accuracy as 16% of anticipated prevalence, the minimum sample size required was 100 after adding for 10% refusal to participate in the study. This study was approved by Institutional research Ethical committee for Post graduate students of Medical College, Sri Ramachandra University, Chennai. Data analysis was done using statistical package for social sciences (SPSS) version 16 software.

Results

The study result of 100 males with hypertension in the age group of 30-59 years who were attending a tertiary care hospital in Chennai are presented here. Mean age of participants was 51 years (SD=6.9) and it ranged from 32-59 years. Mean duration of hypertension was 4.3 years (SD=3.9) and it ranged from 1-20 years. Among the participants 64% were hypertensives for less than 5 years and 75% had diabetes mellitus. Nearly half of participants were from rural area (51%) and 49% were doing unskilled work (Table-1) like daily wages, flower or fruit vendors etc.

Knowledge on life style modifications: Knowledge about need to increase vegetable intake (33%), fruit intake (15%), and need to decrease intake of fried snacks (19%) was very less. Nearly 82% of participants had knowledge about at least 3 dietary factors which control hypertension. (eg - decrease

salt, fried /oil items, increase fruits and vegetables etc.)

In this study 84% were aware that smoking and alcohol consumption increase hypertension and 70% of males were aware that more than 30 minutes of physical activity/day is needed to control hypertension. (Table-2) Knowledge about dietary modifications was higher among the participants who were having hypertension for less than 5 years 58(90.6%) compared with participants who were having hypertension for more than 5 years 27(75%) (p=0.036) (not shown in Table)

Practice on life style modifications

About 72 % of participants were taking rice based foods for 2 times/day and wheat based food for at least once/day. Greater proportion of males who were hypertensives for more than 5 years (86%)taking rice based foods for 2 times/day compared with (64.1%) participants who were having hypertension for less than 5 years (p=0.018)(Table-5). Majority of the participants 93 (93%) were taking vegetables daily at least once and 4(4%) were taking twice/week. In this study 48(48%) hypertensives were never taking fruits, 31(31%) were taking fruits one or two times/week, 14(14%) were taking fruits one or two times/month and 7(7 %) were taking fruits more than 3 times/week. In this study 69(69%) were taking fried items for more than 3days per week. Out of 69(69%) participants, 48(69.6%) were taking fried snacks 2 times a day. Ten(10%) participants stopped non vegetarian foods for more than 5 years and 64(64%) were taking mutton /red chicken /beef weekly once and the remaining were taking 2 or more times/week (Table-3).Twenty (20%) males stopped the egg intake completely. Out of the remaining 80 males 40(50%) of them were taking 2 eggs/time.

Out of 100 participants, 28(28%) quit smoking and 32 (32%) quit alcohol consumption for more than past 3 years. Current smokers were 11(11%), of them 4 were smoking 2 cigarettes/day and remaining more than 2 cigarettes/day. Current alcohol consumers were 28(28%), of them 14(50%) were consuming alcohol monthly once /occasionally per year and remaining once weekly, except one who consumed alcohol daily.

Significant proportion of males in age group of less than 50 years were currently consuming alcohol (47.1%) than males in age group of ≥ 50 years (18.5%)(p=0.003) (Table-5). About 89(89%) participants were physically active for more than 30 minutes/day in past 2 weeks which included job related activity and others (Table-3).

Association between knowledge and practice on life style modifications

None of the participants were taking fruits daily. Among them 85(85%) were not aware about the need to increase fruit intake. Out of 69(69%) participants who were taking fried items daily, 57(82.6%) participants were not aware that fried items increase hypertension. Adding extra salt to food was by 25(25%) of participants, of them 19(76%) of them did not aware that salt increases hypertension. Twenty six (26%) participants were taking mutton/beef/red chicken 2 or 3 times a week. Among them 8(30.8%) participants were not having knowledge that these food items have to be reduced to control hypertension (Table- 4).Out of 80 males,28 (35%) of them did not know egg has to be restricted to control hypertension.

Among the 11 current smokers, 3(27.3%) were not aware that smoking increase blood pressure. Among the 28 current alcohol consumers 4(14.3%) of them were not aware that alcohol abstinence is needed for control hypertension. Out of 11% participants who were not physically active, about 7(63.6%) were not aware that at least 30 minutes of physical activity was needed to control hypertension.

Discussion

This study presented the knowledge and practice on life style modifications among the males with hypertension who were attending the Hypertension clinic of Medicine department in a tertiary care hospital.

Knowledge - Nearly half of the participants had knowledge about the need to decrease the intake of salt, mutton, red/white chicken, beef, oil and fat items. About 82% of participants had knowledge on life style modifications about at least 3 dietary factors which control hypertension (eg- decrease salt, fried/oil item, increase fruits and vegetables etc). About 84% of participants had knowledge that smoking and alcohol increases hypertension and 70% were aware that more than30 minutes were needed for physical activity to control hypertension. A study done among hypertensives in Mumbai in 2011 revealed that 83.42% of participants had poor knowledge on lifestyle modifications to control hypertension. This study was done in an urban slum area and participants were aged above 40 years.

In the current study overall awareness about all life style modifications was high, because in this tertiary care hospital health education was given by dietician about dietary pattern, effects of quitting smoking and alcohol and about the advantages of physical activity on the day of diagnosis of hypertension. Health education was also given by medical personnel's who were treating hypertensives.

But majority of participants had poor knowledge about the need to decrease intake of fried items and increase fruits and vegetables for control hypertension. Comparison on knowledge about life style modifications could not be done with more other studies because they give overall knowledge score on life style modifications. They did not mention percentage on each lifestyle factors.

Practice – About 10% of participants avoiding non vegetarian items completely and 31% were avoiding fried chicken/fried Non-vegetarian items. Nearly 20% of participants completely stopped egg intake. None of the study participants were taking fruits daily. Only 3% were taking vegetables 3 times/day. A study done in Karnataka in 2011 showed that 46% were restricting certain diet and 20% had stopped non-vegetarian diet completely to control hypertension (17). In Tamilnadu dietary restrictions has to be improved among hypertensives.

In this study 75(75%) hypertensives were not adding extra salt in their diet, similar to a study done in 2012 in china which revealed that 81.1% of hypertensives avoiding extra salt during eating/cooking (19) Out of 69(69%) participants who took fried snacks daily, 48(69.6%) were taking fried items 2 times a day. Cardiovascular risk assessment questionnaire by an Australian health world limited stated that total highest risk score for developing cardiac diseases due to dietary habit was more than 14. Ten score was given if fried snacks were taken daily which leads to moderate risk for developing cardiac diseases (20).

In this study 11% of participants were current smokers, a study done by CSI in India in 1990 revealed that 28% were current smokers. (21) In this study 28(28%) of participants were consuming alcohol currently. Among them 14(50%) were social drinkers and remaining were consuming alcohol once weekly except one participant who was consuming daily, similar to a study done in Mumbai urban slum in 2011 revealed that about 26% were consuming alcohol currently and they were addicts18.These results reveal that there is a shift in behaviour pattern of hypertensive towards healthier side.

In this study 11% of the participants were not physically active for at least 30minutes/day. A study done among hypertensives in Karnataka in 2011 showed that 37% were not physically active for at least 30 minutes and 63% were regular exercisers17. This also reveals that there is a shift in behaviour pattern of hypertensives in Tamil Nadu due to better awareness.

Association between knowledge and practice on life style modifications – Among the participants who were not practicing dietary modifications like daily fruits intake, reducing fried items and not adding extra salt, greater proportion were lacking the knowledge. Health education should be given to them to create awareness .Out of 25(25%) hypertensives who added extra salt in their diet, significant proportion of rural participants 18(35.3%) added extra salt in their diet when compared with urban participants 7(14.3%) (p=0.016) (Table-5). A study done in China in 2008 showed that excess salt intake was more among rural hypertensives (22) Among the participants who were not restricting mutton, red/white chicken, beef and fried non-vegetarian items greater proportion were aware about it. Health education and continuous motivation are needed to practice dietary modifications to control hypertension.

Proportions of participants consuming alcohol and smoking were more though they were aware about the need to modify these habits. They should be fully supported by family and community to quit those practices. Comparison could not be done with other studies, because they did not associate knowledge and practice.

Strength of the study – This study revealed the knowledge and practice among hypertensives on lifestyle modifications comprehensively. Association between their current practice and knowledge on lifestyle modifications were not covered in previous studies.

Conclusion

Knowledge of hypertensives to decrease fried snacks and salt intake and to increase fruit and vegetable intake was very low. Currently restriction of fried snacks and non-vegetarian items intake and increasing vegetable and fruit intake was very low among hypertensives.

Since majority of hypertensives had poor dietary habits, they need to be encouraged and motivated to modify their dietary practices. Programmes and campaigns encouraging healthy dietary habits should be promoted at community level and in clinical practice. Food industry should be encouraged to manufacture food products with low fat and salt contents.

Recommendation

Health education, counselling programmes should be developed to control hypertension and continuous motivation is needed to all. Health policy should focus on measures to control blood pressure through lifestyle modifications and community health education.

Limitation of the study

This is a hospital based study and so the study findings could not be extrapolated to the community. It did not cover about stress, doing yoga / meditations, and type of alcohol used etc.

Relevance of the study

Previous studies have not concentrated on proportion of hypertensives who were not practicing lifestyle_modifications with and without awareness about lifestyle modifications. No previous studies exhibited knowledge on each of life style modifications separately. In the current study knowledge of hypertensives to decrease fried snacks and salt intake and to increase fruit and vegetable intake was very low. Restriction of fried snacks and non-vegetarian items intake and increasing vegetable and fruit intake was very low among hypertensives.

Authors Contribution

Vanitha. D has conceived the idea, designed the methodology, d.id the data collection, data analysis and report writing. Anitha Rani.M has refined the research questions, refined methodology and contributed for data analysis and report writing.

Acknowledgement

I am thankful to Prof. M. K. Sudhahar. M.D., F.C.C.R., Former Professor of Medicine, Sri Ramachandra University, for his suggestions and opinions. I am thankful to Prof. G.Palani. M.D, B.S.Sc. for his valuable suggestions and for permitting me to conduct the pilot study at RHTC, Vayalanallur.

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Tables

TABLE 1 SOCIO-DEMOGRAPHIC PROFILE OF PARTICIPANTS

S. No	Characteristics	Frequency (n = 100)	%
1	Age in years		
	30-39	8	8
	40-49	26	26
	50-59	66	66
2	Education		
	Illiterate	4	4
	Primary education	49	49
	High school	30	30
	Higher secondary school/ graduation/diploma.	17	17
3	Occupation		
	Unemployed	1	1
	Unskilled	49	49
	Semi-skilled and skilled	50	50
4	Socio Economic status based on modified Prasad's classifications – 2013		
	Category I (> Rs.5156)	12	12
	Category II (Rs.2578 - 5155)	39	39
	Category III (Rs.1547 – 2577)	32	32
	Category IV (Rs.773 – 1546)	15	15
	Category V (Rs.< 773)	02	02

TABLE 2 KNOWLEDGE ON LIFE STYLE MODIFICATIONS AMONG HYPERTENSIVE MALES TO CONTROL HYPERTENSION

S. No	Life style modifications	Number	%
1	Dietary modifications		
	Increase fruit intake	15	15
	Increase vegetable intake	33	33
	Decrease salt intake	47	47
	Decrease intake of non-vegetarian item	64	64
	Decrease oil use	64	64
	Decrease fat items like cheese, butter, ghee, coconut	54	54
	Decrease fried snacks	19	19
	Having knowledge of at least 3 dietary factors	82	82
2	Smoking increases hypertension	84	84
3	Alcohol increases hypertension	84	84
4	Duration of physical activity >30 mins controls blood pressure	28	28

TABLE 3 PRACTICE ON LIFE STYLE MODIFICATIONS TO CONTROL HYPERTENSION

S No	Characteristics	Frequency	%
1.	Vegetables intake 3 times per day	03	03
2.	Fruits intake daily	00	00
3.	Fried snacks < 3 times per week/occasionally	31	31
4.	Restricted mutton/red chicken intake at least weekly once	64	64
5.	Avoiding fried chicken/non vegetarian items	31	31
6.	Not adding extra salt	75	75
7.	Physically active >30min/day	89	89
	Walking	66	66
	Cycling	9	9
	Exercise	2	2
	Job related activity	12	12
	Gardening	4	4
	Other activity	7	7
8.	Currently not consuming alcohol	72	72
9.	Currently not smoking	89	89

TABLE 4 PROPORTION OF PARTICIPANTS WHO WERE NOT PRACTICING LIFESTYLE MODIFICATIONS WITH AND WITHOUT AWARENESS ABOUT LIFESTYLE MODIFICATIONS

Life style modifications (n = 100)	Not practicing lifestyle modifications		Total (%)
	Aware (%)	Not aware (%)	
Fruits intake daily	15 (15)	85 (85)	100 (100)
Reduced fried items to less than 3 times per week	12(17.4)	57(82.6)	69(69)
Not adding extra salt	6(24)	19(76)	25(25)
Mutton/red chicken/beef restricted to weekly once	18(69.2)	08(30.8)	26(26)
Avoiding fried chicken / fried non vegetarian items	43(62.3)	26(37.7)	69(69)
Currently not smoking	8(77.7)	3(22.3)	11(11)
Currently not consuming alcohol	24(85.7)	4(14.3)	28(28)
Physically active for more than 30 mins	4(36.4)	7(63.6)	11(11)

TABLE 5 ASSOCIATION BETWEEN CERTAIN SOCIO DEMOGRAPHIC FACTORS AND CURRENT LIFESTYLE PRACTICES AMONG HYPERTENSIVES

S.No	Socio demographic factors	Current lifestyle practices	Practices		Chi Square	P Value
			Yes (%)	No (%)		
1	< 50 yrs age group	Consuming alcohol	16(47.1)	18(52.9)	9.282	0.003
	≥ 50 yrs age group		12(18.5)	54(81.5)		
2	Rural	Adding extra salt during food intake	18(35.3)	33(64.7)	5.824	0.016
	Urban		7 (14.3)	42(85.7)		
3	< High school level	Taking fried snacks > 3times/week	39(73.6)	14(26.4)	19.08	0.000
	≥ High school level		30(63.8)	17(36.2)		
4	HT for < 5 yrs	Taking rice based food for 2times/day	41(64.1)	23(35.9)	5.556	0.018
	HT for ≥ 5 yrs		31(86.1)	5(13.9)		