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Original Research Article

Impact of Health Education on Blood Pressure Control among Hypertensive Patients Attending Urban Health Centre of a Medical College: A Quasi Experimental Study (Without Control)

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Abstract

Background: Globally, more than one billion adults have hypertension and majority of them are residing in low- and middle- income countries (LMICs). Life style modification is an important measures taken to modify the dietary patterns and physical activity, hence helps in control of Diabetes and Hypertension.

Objective: To assess the impact of Health Education on blood pressure control among the hypertensive patients attending Urban Health training Center of a medical college.

Methods and Materials: A Quasi experimental study (without control) was conducted among 72 hypertensive patients attending urban health training Centre of SSIMS & RC, Davanagere. Counseling on life style modification was given in local language, supported by pictures, videos, face to face interviews and discussions with individuals. Follow up was done for a period of six months.

Results: In this study it was observed that, from the first visit to last visit, the number of controlled blood pressure patients increased gradually after intervention. High significance difference was found between mean systolic and diastolic blood pressure after intervention compare to basic value ($P < 0.05$).

Conclusion: This study reinforces the importance of health education on lifestyle modifications with regular follow up visits can lead to reduction of blood pressure among uncontrolled hypertensive patients.

Keywords: Health Education, quasi-experimental study, Hypertension.

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Introduction

Globally, more than one billion adults have hypertension and majority of them are residing in low- and middle- income countries (LMICs) [1].

High burden of hypertension in India is due to the ongoing demographic transition and associated increasing aging population, and epidemiological transition related risk factors such as overweight/obesity, sedentary lifestyles, alcohol, tobacco consumption and comorbidities are the some of the risk factors associated with hypertension. [2].

Life style modification is an important measures taken to modify the dietary patterns and physical activity, hence helps in control of Diabetes and Hypertension [3]. Evidence suggests that an alteration and adherence to smoking cessation, reduction in alcohol and salt intake, increased physical activity and healthy nutrition intake with the abundance of fruits and vegetables and the regular use of antihypertensive drugs can control blood pressure [4.5].

One of the effective strategies is behaviour counselling or patient education that augments disease perception, motivation and the ability to adhere to healthy habits [6].

Many hypertension studies are frequently focused on only the pharmacological interventions, however nutritional and lifestyle behavioral

changes are the cornerstone to the management of hypertension [3]. Hence this study was conducted in order to assess the impact of Health education on controlling blood pressure among hypertensive patients attending Urban Health Centre of a medical college.

Materials and Methods

A Quasi experimental study (without control) was conducted among the Hypertensive patients attending Out Patient Department (OPD) of Urban Health Center, Bashanagar for a period of 10 months. All the Known and newly detected cases of Hypertension aged > 18 years attending Urban Health Center, Bashanagar were included in the study. Pregnant mothers and those who are not willing to participate were excluded from the study.

Sample Size: All the known and newly detected 100 cases of hypertension attending Urban Health Centre, Bashanagar visiting first time in those two months were enrolled. The average patients from previous records is 50 in a month taking only one visit into account.

Methods of data collection: Ethical clearance was obtained from the Institutional Ethical Review Board. Written Informed consent was obtained from each participant prior to the interview and intervention. Data was collected by Pre tested semi structured questionnaire.

The questionnaire containing demographic characteristics, Habits history which included the history of alcohol consumption, tobacco consumption, History of Type 2 diabetes mellitus and other co morbidities , sedentary lifestyle, dietary patterns , family history of Hypertension and history of stress . Participants were examined for height and weight for the assessment of Obesity. Blood pressure was measured after a 5 minutes' resting period. The average of 2 readings, taken at 1-2 minutes apart was recorded as the blood pressure of the individual [9, 10,11]. Hypertension was defined as average Systolic Blood pressure > 140 mmHg and/or Diastolic blood pressure > 90 mmHg and/or history of taking antihypertensive medication in the last two weeks [12]. Controlled blood pressure is defined as SBP < 140 mmHg and DBP < 90 mmHg among hypertensive participants [13]. All the hypertensive patients' were enrolled consecutively until the desired sample size was obtained. Health education was given one time during first visit of the patient. The components of health education was explained through counselling in the local language, supported by pictures, videos and face to face interviews and discussions with individuals. The principal investigator was given health education and session of health education was held for 10-15 min. The health education pamphlets were given to all participants which contain the description about the diet , information about the physical activity , tobacco and alcohol session, stress management and adherence to medications and routine check-up. All the participants contact number were collected. For remaining six months, follow up was made for once in every two month and during each follow up the blood pressure of the patients was measured. Those patients who were unable to visit the urban health centre for follow up, house visit were made and blood pressure was measured at their home.

Outcome of the study: The main outcome of this study was the mean reduction of blood pressure among the hypertensive patients from uncontrolled stats to controlled status.

Statistical Analysis: Data were entered in the Microsoft excel and presented in the form of frequencies. SPSS v20 software was used for analysis. Chi square test was applied for qualitative variables. For quantitative variables ANOVA test was applied.

Results

In this study, out of 100 hypertensive patients were enrolled and among them only 72 patients had completed follow-up hence 72 Hypertensive patients were included for analysis. Majority of the patients were at the age group of 51-60(41.7%), females were more in number (88.9 %), predominant religion was Islam (88.9%), (52.8%) were illiterate , belonged to class 2 socioeconomic status(50%), and (54.2%) were residing in joint families. Socio demographic factors of the study participants are explained in the Table 1.

Table 1: Socio-demographic features of the study participants.

Variables	Frequency	Percentages
Age wise distribution		
31-50	8	11.1
41-50	16	22.2
51-60	30	41.7
> 60	18	25.0
Gender		
Male	8	11.1
Females	64	88.9
Religion		

Hindu	5	6.9
Muslim	67	93.1
Type of family		
Joint	39	54.2
Nuclear	33	45.8
Education		
Illiterate	38	52.8
Primary	6	8.3
Middle school	20	27.8
high school	8	11.1
Socio-Economic status		
Class I	7	9.7
Class II	36	50.0
Class III	15	20.8
Class IV	14	19.4
Total	72	100%

In this study, Diabetes was found to be present among (41.6%) of the study participants and 26.4% of the study participants had family history of Hypertension.

The diet of the majority of the patients were mixed diet(91.7%) and 65. 3% of the patients do not cultivated the habit of extra salt consumption. It was observed that (68.1%) of patients had not indulging in physical activity, and (36.1%) of the patients reported the presence of stress.

The risk factors associated with hypertension are explained in Table 2.

Table 2: Distribution of Risk factors for hypertension

Variables	Frequency	Percentage
History of Diabetes		
Present	30	41.6
Absent	42	58.4
Family history of hypertension		
Yes	19	26.4
No	53	73.6
Dietary Habits		
Vegetarian	6	7.3
Mixed diet	66	91.7
Extra salt intake		
Consumed	25	34.7
Not consumed	47	65.3
Physical activity		
Practiced	23	31.9
Not practiced	49	68.1
History of stress		
Present	26	36.1
Absent	46	63.9
Total	**72**	**100**

As shown in the table 3, significant difference was found between statuses of the blood pressure from the basic visit to remaining visits after intervention. From the first visit to last visit there is gradually increase in the number of controlled blood pressure patients after intervention. The change in the blood pressure status of the patients following intervention are explained in table 3.

Table 3: Change in the Blood pressure status of the patients following intervention.

Variables .	Blood Pressure status		Total (122)	$\chi 2$ Value	P value
	Controlled	Uncontrolled			
Basic visit	40(55.6%)	32(44.4%)	72(100%)	**21.1**	**0.000**
First follow up	49(68.1%)	23(31.9%)	72(100%)		
Second follow up	59(81.9%)	13(11.9%)	72(100%)		
Third follow up	62(86.1%)	10(13.9%)	72(100%)		

There was a significance difference was found between mean systolic and diastolic blood pressure after intervention compare to basic value. P value (<0.05) considered as statistically significant. Comparison of mean blood pressure changes between the regular follow up visits are explained in table 4.

Table 4: Comparison of blood pressure changes between the regular follow up visits.

Variables	Mean	Standard deviation	F value	P value
Systolic blood pressure				
Basic visit	142.14	14.0	29.5	**0.000**
First follow up	138.69	10.4		
Second follow up	134.92	9.5		
Third follow up	125.25	10.9		
Diastolic blood pressure				
Basic visit	89.61	8.1	19.7	**0.000**
First follow up	87.89	8.0		
Second follow up	83.78	6.9		
Third follow up	80.67	7.6		

Table 5: Change in the Blood pressure status of the patients following intervention.

Variables	Blood Pressure status		Total (122)	$\chi 2$ Value	P value
	Controlled	Uncontrolled			
Basic visit	40(55.6%)	32(44.4%)	72(100%)	**21.1**	**0.000**
First follow up	49(68.1%)	23(31.9%)	72(100%)		
Second follow up	59(81.9%)	13(11.9%)	72(100%)		
Third follow up	62(86.1%)	10(13.9%)	72(100%)		

There was a significance difference was found between mean systolic and diastolic blood pressure after intervention compare to basic value. P value (<0.05) considered as statistically significant. Comparison of mean blood pressure changes between the regular follow up visits are explained in table 4.

Table 6: Comparison of blood pressure changes between the regular follow up visits.

Variables	Mean	Standard deviation	F value	P value
Systolic blood pressure				
Basic visit	142.14	14.0	29.5	**0.000**
First follow up	138.69	10.4		
Second follow up	134.92	9.5		
Third follow up	125.25	10.9		
Diastolic blood pressure				
Basic visit	89.61	8.1	19.7	**0.000**
First follow up	87.89	8.0		
Second follow up	83.78	6.9		
Third follow up	80.67	7.6		

Discussion

This study was conducted in order to assess the impact of health education among hypertensive patients attending urban health training centre of SSIMS & RC, Davanagere. It was found that health education followed by regular follow up visits leads to significant reduction of mean blood pressure. These finding s are similar to other studies conducted by Kundapur R et al [3], Suseela RP et al [7], Khanal MK et al [8], Mohammadkhah F et al [14] and Kobashi Y et al. [15] In this study majority of the study participants were females. This is similar to a study done by Suseela RP et al [7] and Khanal MK et al [8]. In contrast to this a study conducted by Mohammadkhah F et al [14] showed that majority of the participants' were males. In this study 41.6% of the patients' were diabetics. A study done by by Suseela RP et al [7] showed that 27% of the cases and 24% of the controls were diabetic.

In present study 68.1% of the patients had not practiced physical activity. In contrast to this a study conducted by and Khanal MK et al showed that majority of the patients had practiced physical activity. In this study 26.4% of the patient had the family history of hypertension. A study done by Mohammadkhah F et al [14] showed that majority of the patient had family history of high blood pressure. In this study significance difference was found between mean systolic and diastolic blood pressure after intervention compare to basic value followed by regular follow up visits. This is similar to a study done by Khannal MK et al, and Mohammadkhah F et al [14].

This is could be due to adapting life style changes and proper adherence to medication after health

education. Tami HL et al [16] conducted one meta-analysis of 13 studies in middle-income countries which showed that group education and other supportive methods improved the adherence to lifestyle modification. A study conducted by Ozoemena EL et al [17] revealed that group counselling and home visits encourage the participants to adopt healthy self-care practices. Health education is a tool which improve the patients engagement and to begin and maintain adherence to lifestyle modification and compliance with medications18. The limitations of the present study were small sample size, which was done in single health care setting, future large scale multi-central studies will be needed to generalise the results. This study was done for a period of six months, further regular long term follow up will be needed to assess the actual impact of this intervention on reduction of blood pressure among hypertensive patients. There is no control group for comparison.

In this study, Health education on Life style modifications along with regular follow up visits showed significant reduction of blood pressure among uncontrolled hypertensive patients. Continuous regular follow-up and adapting life-style modification will help to maintain not only adequate blood control but also prevent further complications associated with Hypertension and non-communicable diseases.

Recommendations

Hypertensive need regular follow-up visits, adherence to anti -hypertensive drugs and life-style modification. Health education on life style modification during each follow up visit will help in control of blood pressure and prevent further complications associated with it. The health education and counselling at primary care level can be taken up by one of the member of the health team.

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