Impact of a Dietary Education Program upon Hypertensive Patient Knowledge in Kirkuk City

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ABSTRACT

Background and aim: Hypertension is a systolic blood pressure greater than 140 mmHg and a diastolic pressure greater than 90 mmHg based on the average of two or more accurate blood pressure measurements taken during two or more contacts with a health care provider. The aim of the study to determine the impact of a dietary educational program upon the hypertensive patient knowledge in Kirkuk city.

Materials and method: Descriptive study consists of (60) hypertensive clients who attended Eskan Health Center in Kirkuk City during the period of the study from the15th of August 2015 to the 15th of October 2015. The sample is divided into two groups; study group (30) hypertensive clients who received dietary educational program and control group (30) hypertensive clients who received a routine care from the hospital. Three major instruments were used; these instruments included (1) knowledge test which was applied on both groups pretest and eight weeks post-test (2) questions to know what they eat in the last 24 hours in the main meals and in between meals (snacks) which were applied on both groups pretest and eight weeks post-test (3) Body Mass Index measurement was applied on both groups pre-test and eight weeks post-test.

Results: Regarding the Comparison between study and control groups regarding sociodemographic characteristic for hypertensive patients the study shows that the highest percentage of the hypertensive clients was similar in both study group and control group (11 (36.7%) was within the age group (40-49) years. Regarding clinical characteristic for hypertensive clientsthat the highest percentage of the hypertensive clients in the study group (28 (93.3%) and the highest percentage of the hypertensive clients in the control group (23 (76.7%) were positive medical family history. Related duration of HT, the highest percentage of the hypertensive clients in the experimental group (9(30.0%) had less than one year while the highest percentage of control group (19(63.3%) had less than one year.

Conclusion: The results show that there is highly significant difference concerns the decrease of BMI in post- test for hypertensive clients in the study group than the control group marked improvement in dietary status of the study group compared to the control group. The results of the study also show that there is a significant difference between study group and control group in post-test regarding the adequate grain vegetable fruit. Meat, poultry, and fish (MPF) and Nuts, seeds, and legumes (NSL) intake daily.

Recommendation: the study recommends that all hypertensive patient should be involved in the application of nutritional educational programme which was developed in this study.

Keywords: Dietary Educational Program, Hypertensive patient.

INTRODUCTION

Hypertension (elevated blood pressure) has become a major cause of morbidity and mortality worldwide and it is now ranked third as a cause of disability-adjusted life-years. Elevated blood pressure (BP) remains an extraordinarily common and important risk factor for cardiovascular and renal diseases, including stroke,11 coronary heart disease, heart failure, and kidney failure. Prehypertensive individuals have a high probability of developing hypertension and carry an excess risk of cardiovascular disease as compared with those with a normal BP (systolic BP <120 mm Hg and diastolic BP <80 mm Hg) (Suzanne *et. al*., 2008)/

Primary Hypertension accounts for 95% of all cases of hypertension, with the onset usually between the ages of 30- 50 years. Although the exact cause of primary hypertension is unknown ,several contributing factors including increase sympathetic nervous system (SNS) activity, over production of sodium-retaining hormones and vasoconstrictors, increased sodium intake, greater than ideal weight , diabetes mellitus and excessive alcohol intake have been identified (Suzanne *et. al*., 2010).

Diet plays an important role in determining the leading causes of morbidity and mortality in developed countries (coronary heart disease (CHD), hypertension, stroke, diabetes and cancer American Heart Association (2004).

Other study focused on dietary protein and BP. They compared vegetable and animal proteins, investigating whether vegetarians have a lower BP, and have in general proved to be negative. However, increased dietary protein

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attenuated the pressure effect of salt among young volunteers with a family history of hypertension. Recently, soy protein supplements of 40 g/d were found to lower systolic BP (SBP) by 3 mm Hg and diastolic BP (DBP) by 2 mmHg, relative to control subjects, in 35- to 65-year-old Chinese subjects with untreated high-normal BP (Baron and Storb, 2004).

Nurses manage patients as complex as those who see only physicians and they achieve better blood pressure control. The nurses successfully identify important problems and refer appropriately. Thus, nurse practitioners with physicians' support, can serve as primary managers for even complex patients (Gibbons, 2003).

Client's usual daily patterns of living are refereed to as life style and its choices involve: eating, sleeping, exercise, smoking, drinking, sexual activity and driving habits, Stressors at home and on the job, Role relationship and associated stressors (Healthy People, 2010).

MATERIALS AND METHOD

Descriptive study consists of (60) hypertensive clients who attended Eskan Health Center in Kirkuk City during the period of the study from the15th of August 2015 to the 15th of October 2015. The sample is divided into two groups; study group (30) hypertensive clients who received dietary educational program and control group (30) hypertensive clients who received a routine care from the hospital. Three major instruments were used; these instruments included (1) knowledge test which was applied on both groups pretest and eight weeks post-test (2) questions to know what they eat in the last 24 hours in the main meals and in between meals (snacks) which were applied on both groups pretest and eight weeks post-test (3) Body Mass Index measurement was applied on both groups pre-test and eight weeks post-test. The study instrument was a questionnaire interview developed by the researcher for the purpose of this study. It was consisted of (3) parts.

Part I: Sociodemographic data: This part is concerned with the collection of sociodemographic data obtained from the patients by interview

Part II: clinical data: This part is concerned with the collection of clinical data

Part III: This part is concerned with the measurement of blood pressure, Knowledge test, anthropometric measurement, and dietary assessment.

The data of present study were analyzed through the application of two statistical approaches .A descriptive statistical approach that includes Frequency, Percentage, Arithmetic means (X), Mean of scores, Standard deviation (SD),and an Inferential statistical approach that includes Chi-Square test for testing a non-restricted frequency table.2-Contingency Coefficients (C.C); B (Binomial test); Fisher test; Mc-Nemar test ;One and two -Sample Kolmogorov-Smirnove Test; Two samples Kolmogorov-Smirnov Test and Wilcoxon Signed Ranks test for testing two category nominal scale variables Results were determined as highly significant at ($P<0.01$) significant at ($P<0.05$) and non-significant at ($P>0.05$).

RESULTS

Table (1): Comparison between Study and control groups regarding sociodemographic characteristic for hypertensive patients

Variables	Groups	Sample				C.S.*
		Study l group		Control group		
		Frequency	Percent	Frequency	Percent	
Age Group	20-29	2	6.7	4	13.3	(1.628) P=0.804 NS
	30-39	7	23.3	4	13.3	
	40-49	11	36.7	11	36.7	
	50-59	7	23.3	7	23.3	
	60-69	3	10	4	13.3	
Mean Standard deviation	46.1667 10.8066		46.5 12.1343			
Gender	Male	6	20	15	50	P=0.015 S
	Female	24	80	15	50	
Family Monthly Income	Less than 500.000 I.D.	17	56.7	21	70	(1.421) P=0.491 NS
	500.000 - 1.000.000 I.D.	10	33.3	6	20	
	More than 1.000.000 I.D.	3	10	3	10	

Marital Status	Married	26	86.7	28	93.3	(1.274) P=0.529 NS
	Divorced	1	3.3	0	0	
	Widowed	3	10	2	6.7	
Level of education	illiterate	12	40	6	20	(5.565) P=0.351 NS
	Read and Write	4	13.3	5	16.7	
	Primary School graduate	5	16.7	7	23.3	
	Intermediate School graduate	3	10	2	6.7	
	Secondary School	2	6.7	7	23.3	
	Institute or College	4	13.3	3	10	
Occupation	Government employee	5	16.7	7	23.3	(3.733) P=0.292 NS
	Self employed	3	10	6	20	
	Retired	1	3.3	3	10	
	Housewife	21	70	14	46.7	
Smoking	Active	2	6.7	5	16.7	P=0.212 NS
	Passive	28	93.3	25	83.3	
Alcohol drinking	Yes	0	0	1	3.3	P=0.500 NS
	No	30	100	29	96.7	

*C.S=Comparative significance; ID**=International Dinar; χ^2 =Chi-Squire's, NS= Non Significant; S= Significant; F.E.P.T.= Fisher exact probability test

Table (2): Comparison between study and control groups regarding clinical characteristic for hypertensive clients

	Groups	Frequency and Percentages	Sample		Total	C.S.
			Study	Control		
Medical family history	Positive	Frequency	28	23	51	**P=0.073 NS**
		% within Medical family history	54.9%	45.1%	100 %	
		% within Sample	93.3%	76.7%	85.0%	
	Negative	Frequency	2	7	9	
		% within Medical family history	22.2%	77.8%	100 %	
		% within Sample	6.7%	23.3%	15.0%	
Duration of HT	< 1 yrs.	Frequency	9	19	28	**(10.844) P=0.028 N.S**
		% within Duration of HT	32.1%	67.9%	100 %	
		% within Sample	30.0%	63.3%	46.7%	
	1 - 5	Frequency	8	8	16	
		% within Duration of HT	50.0%	50.0%	100%	
		% within Sample	26.7%	26.7%	26.7%	
	6 - 10	Frequency	8	3	11	
		% within Duration of HT	72.7%	27.3%	100 %	
		% within Sample	26.7%	10.0%	18.3%	
	11 - 15	Frequency	4	0	4	
		% within Duration of HT	100%	0.0%	100%	
		% within Sample	13.3%	0.0%	6.7%	
	> 15 yrs.	Frequency	1	0	1	
		% within Duration of HT	100%	0.0%	100%	
		% within Sample	3.3%	0.0%	1.7%	
treatment of HT	ACEI	Frequency	7	7	14	**(2.482) P=0479 NS**
		% within treatment of HT	50.0%	50.0%	100%	
		% within Sample	23.3%	23.3%	23.3%	

	B. Blocker	Frequency	7	10	17	
		% within treatment of HT	41.2%	58.8%	100%	
		% within Sample	23.3%	33.3%	28.3%	
	Diuretic	Frequency	6	8	14	
		% within treatment of HT	42.9%	57.1%	100%	
		% within Sample	20.0%	26.7%	23.3%	
	Two-drug combination	Frequency	10	5	15	
		% within treatment of HT	66.7%	33.3%	100%	
		% within Sample	33.3%	16.7%	25.0%	
Number of antihypertensive	one	Frequency	20	26	46	**(3.735) P=0.292 NS**
		% within Number of treatment (No. of drug)	43.5%	56.5%	100%	
		% within Sample	66.7%	86.7%	76.7%	
	two	Frequency	4	2	6	
		% within Number of treatment (No. of drug)	66.7%	33.3%	100%	
		% within Sample	13.3%	6.7%	10.0%	
	three	Frequency	5	2	7	
		% within Number of treatment (No. of drug)	71.4%	28.6%	100%	
		% within Sample	16.7%	6.7%	11.7%	
	> three	Frequency	1	0	1	
		% within Number of treatment (No. of drug)	100%	0.0%	100%	
		% within Sample	3.3%	0.0%	1.7%	

C.S=Comparative significance; %=percentage; P-value= Level of probability; HT=Hypertension; F.E.P.T.= Fisher exact probability test; NS= Non Significant; < = less than; > = more than ;.S= Significant; Two-dr ug combination for most (usually thiazide-type diuretic and or ARB or beta-blocker or calcium channel blocker) ACEI= Angiotensin Converting enzyme Inhibitor; EXP=Experimental; χ^2- = Chi-Squire

Table (3): Comparison between study and control groups regarding BMI for hypertensive clients

Sample	BMI post test	d.f	Sig.(2 tailed)	Mean Differences	C.S
Study	-11.727	29	1.583e-012	-1.2897	H.S +
Control	4.212	29	0.0002	0.475	H.S-

BMI=Body Mass Index; C.S=Comparative significance; df=degree of freedom; HS=Highly Significant; P-value= Level of probability; Sig=significant; t=t-test

Table (4): Comparison between study and control groups regarding food groups for hypertensive clients based on 2250 calories/day

food groups	Groups	Frequencies and percent	Pre		Total	Post		Total	C.S.
			Study	Control		Study	Control		
Grain	inadequate	Frequency	30	30	60	13	28	41	Pre
		% within Grain	50.0%	50.0%	100.0%	31.7%	68.3%	100.0%	P=1.000
		% within Sample	100.0%	100.0%	100.0%	43.3%	93.3%	68.3%	NS
	adequate	Frequency	0	0	0	17	2	19	Post
		% within Grain	0%	0%	0%	89.5%	10.5%	100.0%	P=0.000
		% within Sample	0%	0%	0%	56.7%	6.7%	31.7%	HS
Veg.	inadequate	Frequency	26	24	50	2	25	27	Pre
		% within veg.	52.0%	48.0%	100.0%	7.4%	92.6%	100.0%	P=0.365
		% within Sample	86.7%	80.0%	83.3%	6.7%	83.3%	45.0%	NS
	adequate	Frequency	4	6	10	28	5	33	Post
		% within veg.	40.0%	60.0%	100.0%	84.8%	15.2%	100.0%	P=0.000
		% within Sample	13.3%	20.0%	16.7%	93.3%	16.7%	55.0%	HS

Fruit	inadequate	Frequency	27	30	57	2	30	32	Pre P=0.119 NS Post P=0.000 HS
		% within fruit	47.4%	52.6%	100.0%	6.3%	93.8%	100.0%	
		% within Sample	90.0%	100.0%	95.0%	6.7%	100.0%	53.3%	
	adequate	Frequency	3	0	3	28	0	28	
		% within fruit	100.0%	0%	100.0%	100.0%	0%	100.0%	
		% within Sample	10.0%	0%	5.0%	93.3%	0%	46.7%	
Fat intake	Low	Frequency	6	5	11	30	11	41	Pre P=0.718 NS Post P=0.000 HS
		% within Fat intake	54.5%	45.5%	100.0%	73.2%	26.8%	100.0%	
		% within Sample	20.0%	16.7%	18.3%	100.0%	36.7%	68.3%	
	Moderate	Frequency	9	12	21	0	11	11	
		% within Fat intake	42.9%	57.1%	100.0%	0%	100.0%	100.0%	
		% within Sample	30.0%	40.0%	35.0%	0%	36.7%	18.3%	
	High	Frequency	15	13	28	0	8	8	
		% within Fat intake	53.6%	46.4%	100.0%	0%	100.0%	100.0%	
		% within Sample	50.0%	43.3%	46.7%	0%	26.7%	13.3%	
MPF	In adequate needs intake daily	Frequency	24	18	42	9	17	26	Pre P=0.079 N.S Post 0.0% H.S
		% within MPF	57.1%	42.9%	100.0%	34.6%	65.4%	100.0%	
		% within Sample	80.0%	60.0%	70.0%	30.0%	56.7%	43.3%	
	adequate needs intake daily	Frequency	6	12	18	21	10	31	
		% within MPF	33.3%	66.7%	100.0%	67.7%	32.3%	100.0%	
		% within Sample	20.0%	40.0%	30.0%	70.0%	33.3%	51.7%	
	more adequate needs intake daily	Frequency	0	0	0	0	3	3	
		% within MPF	0%	0%	0%	0%	100.0%	100.0%	
		% within Sample	0%	0%	0%	0%	10.0%	5.0%	
NSL	inadequate	Frequency	30	26	56	22	29	51	Pre P=0.056 NS Post P=0.013 S
		% within NSL	53.6%	46.4%	100.0%	43.1%	56.9%	100.0%	
		% within Sample	100.0%	86.7%	93.3%	73.3%	96.7%	85.0%	
	adequate	Frequency	0	4	4	8	1	9	
		% within NSL	0%	100.0%	100.0%	88.9%	11.1%	100.0%	
		% within Sample	0%	13.3%	6.7%	26.7%	3.3%	15.0%	

MPF= Meats, poultry, and fish, NSL= Nuts, seeds, and legumes; C.S=omparative significant; %=percent; P-value= Level of probability; NS= Non Significant; Veg. =Vegetable; Exp.=Experimental; H.S= Highly Significant; S=significant

DISCUSSION

This table shows that the highest percentage of the hypertensive clients in the study group (11 (36.7%) was within the age group (40-49) years with a mean age (46.1667, and SD=10.8066) years similar to the highest percentage of the hypertensive clients in the control group (11(36.7%) was within the age group (40-49) years with a mean age (46.5 and SD= 12.1343) years.

It appears from table (2) that the highest percentage of the hypertensive clients in the study group (28 (93.3%) and the highest percentage of the hypertensive clients in the control group (23 (76.7%) were positive medical family history. Related duration of HT, the highest percentage of the hypertensive clients in the experimental group (9(30.0%) had less than one year while the highest percentage of control group (19(63.3%) had less than one year.

Table (3) shows that there is a highly significant difference (positively) decreased in BMI in post-test for hypertensive clients in the study group while that there is highly significant difference (negatively) increased in BMI in post-test for hypertensive clients in the control group.

It appears from this table that there is no significant difference between study and control in pre-test regarding the adequate daily intake of

Grain vegetable fruit. MPF (Meat, poultry, and fish) NSL (Nuts, seeds, and legumes) when analyzed by Chi-Square test. It shows also that there is a significant difference between study and control in pre-test regarding the adequate daily intake of Grain vegetable fruit. MPF (Meats, poultry, and fish) NSL (Nuts, seeds, and legumes) when analyzed by chi-square test.

Blood pressure can be unhealthy even if it stays only slightly above the normal level of less than 120/80 mmHg. The more blood pressure raises above normal, the greater the health risk. Blood pressure is reduced with an eating plan that is low in saturated fat, cholesterol, and total fat and that emphasizes eating fruits, vegetables, and fat-free or low-fat milk and milk products. Also this includes whole grain products, fish, poultry, and nuts. It is reduced in lean red meat, sweets, added sugar; it is rich in potassium, as well as protein and fiber.

According to their age, the results of this study reported that the mean age of (30) hypertensive clients in the study group were (46.16) and SD (10.80) and the mean age of (30) hypertensive clients in the control group was (46.5) and SD (12.13) (table 1). This result is supported by Radhika et al, 6 (p.405) who stated that the mean age was (44.9 ± 12.9 years) with hypertensive subjects. The researcher believes that this finding could be due to aging process, atherosclerotic changes in blood vessels, stress and strain and unknown factor. According to their gender, the result of this study reported that the majority of hypertensive clients in the study group were females (24; 80%), whereas, males were (6; 20%) while the same percentage (15; 50%) of hypertensive clients was given for females and males in the control group (table 1) consistent with findings of Pearson *et al*. (2003) who studied two hundred and fifty clients with hypertension; One hundred and two (40.8%) were males, while one hundred and forty eight (59.2%) were female. Our study revealed that the highest percentage of the hypertensive clients in the study group (28; 93.3%) and the highest percentage of the hypertensive clients in the control group (23; 76.7%) were positive medical family history (table 2). Milgrom (2004) has reported that the family history of essential hypertension had no significant differences with socioeconomic status. Eagle, K. A., Guyton, R. A. (2004) have been emphasized that careered careful family history in detailing all first-degree relatives and some second-degree relatives which would provide less opportunity for systematic bias. Our study shows that there is high significant difference which decreases positively BMI in post-test for hypertensive clients in the study group while there is high significant difference which decreases negatively BMI in post-test for hypertensive clients in the control group when analyzed by t-test (table 3). Eagle and Guyton, (2004) reported that the importance of the finding is to enable "care-givers" in hypertension to pay more attention to the control of obesity so that several complications associated with it might be prevented, the risk factors of coronary heart disease (CHD) already seen in several of the obese patients can be lowered by dietary intervention. The researcher believes that the overweight and obesity are increasing dramatically in the Ramadi city and most likely contribute substantially to the burden of hypertension.

There is an increasing interest in the study of dietary patterns and their effects on health in contrast to the study of isolated nutrients or food items.

The results reveal that there is a significant difference between study and control in post-test regarding the adequate and inadequate Grain vegetable fruit. MPF (Meat, poultry, and fish) NSL (Nuts, seeds, and legumes) intake daily when analyzed by chi-square test (Cleveland, 2003).

Fraker *et. al.* (2007) summarized that dietary sodium is associated with elevation of blood pressure, while dietary potassium lowers the risk of hypertension and stroke. Regular frequent intake of fruits and vegetables is protective against hypertension, CHD and stroke. Composite diets (such as Dietary Approach to Stop Hypertension (DASH) diets, Mediterranean diet, and 'prudent' diet) have been demonstrated to reduce the risk of hypertension and CHD (Grundy *et. al*., 2007).

The dietary pattern rich in vegetables, fish, fruit, poultry, olive oil, legumes and nuts has been considered as an important protective factor against some diseases like hypertension Fraker *et. al.* (2007). The results indicated that the diet is rich in lower calorie foods, such as fruits and vegetables, so it can easily be changed to support weight loss. They can reduce calories even more by replacing higher calorie foods, such as sweets, with more fruits and vegetables (Marshall and Soucy, 2003).

CONCLUSION

The results show that there is highly significant difference concerns the decrease of BMI in post- test for hypertensive clients in the study group than the control group marked improvement in dietary status of the study group compared to the control group. The results of the study also show that there is a significant difference between study group and control group in post-test regarding the adequate grain vegetable fruit. Meat, poultry, and fish (MPF) and Nuts, seeds, and legumes (NSL) intake daily.

RECOMMENDATION

The study recommends that educational programs should be designed to increase people knowledge about etiology, signs and symptom and treatment of angina pectoris. Specify a modern center for dealing with angina pectoris. Providing scientific booklet, publication and journal about angina. Advertisements and some health educational programs regarding angina pectoris should be encouraged through mass media. Further study has to be conducted in all Kirkuk region. Finally, Secondary school curriculum should include topics concerning angina pectoris.

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