Effectiveness of a dietary education program upon hypertensive clients' information

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المستخلص

الهدف: تهدف الدراسة إلى تقييم ممارسات الأمهات باتجاه الأطفال المصابين بمتلازمة التناذر الكلوي المتحسس للستيرويد، اللواتي يراجعن الوحدات الإستشارية لأمراض كلى الأطفال، وإيجاد العلاقة بين هذه الممارسات والصفات الديموغرافية للأم والطفل.

المنهجية: دراسة وصفية أجريت في الوحدات الإستشارية لأمراض كلى الأطفال في مستشفيات الأطفال (مستشفى الطفل المركزي، مستشفى حماية الأطفال، مستشفى الكاظمية التعليمي) للمُدّة من الثامن عشر من شهر شباط ولغاية نهاية شهر مايس ٢٠٠٩. عيّنة غرضية من (٨٠) أم مرافقة لطفلها. جُمعت المعلومات من خلال بناء استمارة استبيانية تكوّنت من قسمين؛ القسم الأول يخص الصفات الديموغرافية للأم والطفل، والقسم الثاني يخص ممارسات الأمهات عن متلازمة التناذر الكلوي المتحسس للستيرويد. أُستعملَ أسلوب المقابلة مع الأمهات لغرض ملء الاستمارة. تمّ تحديد مصداقية الاستبانة من خلال مجموعة خبراء. أمّا الثبات، فقد تمّ تحديده من خلال الدراسة الاستطلاعية وأجريَ تحليل المعلومات إحصائياً وفقاً لنظام التحليل الإحصائي الوصفي للعلوم الاجتماعية الإصدار (١٥) باستعمال التحليل الوصفي والاستنتاجي.

النتائج: أظهرت نتائج الدراسة أنّ ممارسات الأمهات ضعيفة بنسبة ٦١,٣%. كشفت نتائج الدراسة وجود علاقة إحصائية بين ممارسات الأمهات والمستوى الثقافي للام، ومُدّة إصابة الطفل بالمرض. بينما عمر الأم، وظيفة الأم، عمر الطفل، عمر الأم، جنس الطفل، تاريخ ظهور المرض، الأمراض السابقة للطفل، الوراثة لم تظهر أي علاقة ذات دلالة إحصائية معنوية.

التوصيات: أوصت الدراسة بالتثقيف الصحي حول المرض للأمهات والذي قد يحسن ممارساتهن.

Abstract

Objective: To determine the effectiveness of a dietary educational program upon the hypertensive client's information.

Methodology: The sample of the study consists of (60) hypertensive clients who attended Al Anbar Health Office –Al Andalus Health Center during the period of the study from the [14th] of March 2010 to the 30th of September 2010. 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 center. 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: 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 our 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.

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

Keywords: Dietary Educational Program, Hypertensive Clients

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 Ezzati et al, [1]. Wang and Wang[2 (p2126)] mentioned that elevated blood pressure (BP) remains an extraordinarily common and important risk factor for cardiovascular and renal diseases, including stroke, 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).

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 [3] (2000).

Valerie et al, [4 (p821)] 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 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.

Cindy, [5 (p88)]) reported that the 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. Use of this model will significantly increase the resources available for care of hypertension. From the researcher's experience with hypertensive clients, there are no studies related to effectiveness of a dietary program upon hypertensive clients' information in nursing in Iraq (WHO, 2010). Therefore, the researcher carries out the present study, as there is a pressing need to show the importance of the dietary program .Hence, the study aims at studying the effect of the a dietary program upon hypertensive Client's information. The researcher believes that the findings of the study may add something to broaden nursing knowledge particularly in adults nursing.

Methodology

A quantitative design was conducted throughout the period from March, 14th, 2010 to the September, 30th, 2010. A purposive sample of (60) Patients who were selected from the hypertensive clients who attended Al Anbar Health Office –Al-Andalus Health Center. Those who met the criteria for selection were: (1) Hypertensive clients who were (20) years old and older (2) Free from mental disorders (3) able to speak Arabic or English (4) No history of advanced malignancy (5) clients with essential hypertension for at least six months ago (6) agree to participate in the study (7) No educational levels were defined (8) Non pregnant women (9) All of them did not have any complication from hypertension

The dietary educational program was designed to provide hypertensive clients information relative to(1) Introduction about blood pressure which are included: definition; causes; signs and symptoms and complication of blood pressure (2) the importance of well-balanced diet for the hypertension clients (3) the basic essential food group and functions which include protein; carbohydrate; minerals; vitamins, fat and water (4) benefit diet which includes low animal fat diet; low-salt (low sodium); high fruit intake; high vegetable and (5) Instruction as general for hypertensive clients. 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 hypertensive clients who met the study criteria were invited to participate and the study objectives were explained. Implementation of a dietary program on the 30 hypertensive clients who were selected as study group. The programme was implemented as group teaching. Each hypertensive clients from the study group attended teaching class twice a week for three

weeks and each group attended six sessions. Each session lasted two hours. First Session: was approached on the first week of the program. The following activities and topics were performed

1. Blood pressure is measured by Mercury Syphgmonometer (blood pressure cuff) and a stethoscope.

2. Sociodemographic and clinical characteristics information were obtained by the researcher using the questionnaire format to select the hypertensive clients who met the criteria of the study

3. Knowledge test (pre–post-test) was administered to the hypertensive clients in the study and control groups to detect participants' knowledge regarding nutrition. The participants were instructed to each of the test statements in terms of being true or false. The pre-test lasted from (15-20) minutes .The responses were then scored and only those who got less than (70%) were included in the study.

4. Questions were recalled to recall what they ate in the last 24 hours at the main meals and in between meals (snacks) were applied on both groups pre and 8 weeks post test

5. Anthropomatric measurements were applied on both groups pre and 8 weeks post test

Second Session: introduction about blood pressure; definition; causes; signs and symptoms and complication.

Third Session: The importance of well-balanced diet for the hypertension clients is considered.

Fourth Session: The basic essential food group and functions: protein; carbohydrate; fat; minerals; vitamins and water are taken into consideration.

Fifth session (benefit diet): low salt (low sodium); low animal fat diet; high fruit intake; high vegetables.

Sixth session: Instruction as general for hypertensive clients' Incentives and motivation were offered to the hypertensive clients. We conducted post-test on both study and control

groups to detect hypertensive client's knowledge regarding nutrition using the same questionnaire format .Contact with the hypertensive clients, the hypertensive clients informed that the follow–up will continue for two months. Telephone contacts were made with those who have phone (60 hypertensive clients) and distribution model cart for explaining date and follow up. Teaching materials which were used in these sessions included models (food preparation demonstrations), illustration, discussion, film and folders which consisted of the important issues of the major content area.

Hypertensive clients in the control group had regular methods and information by the nurse or other staff members who may have verbalized to hypertensive clients. They also include brief instructions which are provided by the physician, if the hypertensive clients in the control group ask the researcher questions, they are instructed to refer their questions to appropriate member of the health team e.g. nurse or physician.

Statistical Analysis

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 clients

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	
	Self employed	3	10	6	20	
	Retired	1	3.3	3	10	
	Housewife	21	70	14	46.7	(3.733) P=0.292 NS
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

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.

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

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. Comparison between study and control groups regarding BMI for hypertensive clients

Sample	Number	Mean	Standard Deviation	Mean	Standard Deviation
Study	30	25.19	42.6	33.813	4.3793
Control	30	20.5	45.7	31.485	5.6373

Sample		Test Value =0			
	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 (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 .

Table 4. Comparison between study and control groups in pre-test regarding categories of pre and post-tests knowledge and total scores for hypertensive clients

Period	Score	category 1 Study		Control		category 2 Study		Control		category 3 Study		Control		category 4 Study		Control		category 5 Study		Control		Total Study		Control	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Pre-test	Failure	0	0.0	0	0.0	6	20	7	23.3	3	10	3	10	7	23.3	6	20	11	36.7	11	36.7	27	9.0	27	3.3
	Acceptable	0	0.0	0	0.0	22	73.3	17	56.7	16	53.3	15	50	15	50	16	53.3	14	46.7	14	46.7	67	22.3	62	5.0
	Fair	4	13.3	5	16.7	1	3.3	3	10	8	26.7	11	36.7	7	23.3	7	23.3	4	13.3	4	13.3	24	8.0	30	2.7
	Good	6	20	5	16.7	1	3.3	2	6.7	3	10	1	3.3	1	3.3	0	0.0	0	0.0	0	0.0	11	3.7	8	10.3
	Excellent	20	66.7	20	66.7	0	0.0	1	3.3	0	0.0	0	0.0	0	0.0	1	3.3	1	3.3	1	3.3	21	7.0	23	28.7
C.S. (K-S1 _ test)		0.467 HS		0.467 HS		0.533 HS		0.400 HS		0.300 HS		0.367 HS		0.367 HS		0.367 HS		0.433 HS		0.433 HS		0.227 HS		0.380 HS	
C.S. (K-S2- test)		0.033 NS				0.133 NS				0.067 NS				0.033				0.000 NS				0.067 NS			
Post - test	Failure	0	0.0	0	0.0	0	0.0	1	3.3	0	0.0	0	0.0	0	0.0	4	13.3	0	0.0	10	33.3	0	0.0	15	5.0
	Acceptable	0	0.0	0	0.0	0	0.0	19	63.3	1	3.3	15	50	0	0.0	15	50	0	0.0	14	46.7	1	0.3	63	21.0
	Fair	0	0.0	0	0.0	0	0.0	8	26.7	2	6.7	12	40	2	6.7	8	26.7	7	23.3	4	13.3	11	3.7	32	10.7
	Good	0	0.0	2	6.7	0	0.0	2	6.7	17	56.7	3	10	12	40	2	6.7	10	33.3	2	6.7	39	13.0	11	3.7
	Excellent	30	100	28	93.3	30	100	0	0	10	33.3	0	0.0	16	53.3	1	3.3	13	43.3	0	0.0	99	33.0	29	9.7
C.S. (K-S1 _ test)		0.800 HS		0.733 HS		0.800 HS		0.333 HS		0.500 HS		0.300 HS		0.533 HS		0.300 HS		0.367 HS		0.400 HS		0.586 HS		0.1333 HS	
C.S. Pre X Post (Wilcoxon- test) P-value		0.004 HS		0.004 HS		0.000 HS		0.046 S		0.000 HS		0.005 HS		0.000 HS		0.140 NS		0.000 HS		0.660 NS		(K-S2 _ test) 0.707 HS		K-S2 _ test) 0.080 NS	

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

Table (4)also shows that there is a highly significant difference of increase in total scores of knowledge test in the study than the control groups in post-test when analysis by Wilcoxon-Test.

Table 5. Comparison between study and control groups regarding food groups for hypertensive clients based on 2250 calories/day

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

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.

Discussion

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 Yekeenl et al. [7] (p129) 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). Another study [8] has reported that the family history of essential hypertension had no significant differences with socioeconomic status. *John et al* have been emphasized [9] that careered *c*areful 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). *Yekeenl et* al. [7(p129)] *reported that t*he 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. Our study reveals that there is a high significant difference that concerns increase in total scores of knowledge of test in the study group than the control group in post-test when analyzed by Wilcoxon -Test (table-4-) *Sa´nchez eta* [10] *estimated that h*igh educated people commonly exert exemplary role on less educated people, who might change their habits to imitate them The researcher believes that the safest and best way to prevent and treat hypertension, once risk factors have been identified, is for people to make healthy changes in their personal habits. Lifestyle intervention programmes, for example

dietary programmes that encourage better control of existing diseases like 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.

Our 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 (table 5).

Srinath et al. [11] 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.

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 [11]. Our 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.

Recommendations:

Based on the results and conclusions of the present study; the researcher recommends the following:

1. Government should change salt's regulatory status from "Generally Recognized As Safe" to "food; additive" and set limits on the salt content of foods that provide the most salt to the average diet; encourage food manufacturers and restaurants to use less salt; ask for chain restaurants to disclose on menus and in brochures the sodium content of their foods;

improve labeling of packaged foods to highlight those that are high in salt products.

2. The development and implementation of educational instructional program for nurses (theory and practice) for the care of hypertensive clients are very important.

3. Educating hypertensive clients how to manage their diet is necessary.

4. Preparation of some booklets about the importance of diet for hypertension which should be distributed to hypertensive clients.

5. More studies should be carried out on a larger sample for prolonged time and more hypertensive clients should be included in different cities in Iraq.

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