Detection of Hypertension among Cardiac Diseases Inpatients at Kirkuk City Hospitals

الكشف عن ارتفاع ضغط الدم لدى مرضى القلب الراقدين في مستشفيات مدينة كركوك

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المستخلص :

هدف الدراسة : هدف الدراسة هو تقييم مدى انتشار ارتفاع ضغط الدم بين مرضى القلب ، وتحديد الصلة بين ارتفاع ضغط الدم والأمراض القلبية الوعائية.

المنهجية : دراسة وصفية أجريت باستخدام تقنية الاستبيان والمقابلة مع مرضى القلب الراقدين في الوحدات الباطنية لمستشفيات كركوك وازادي التعليمي للفترة من ١٧ حزيران ٢٠١٢ إلى الأول من آذار ٢٠١٣. تم اختيار عينة احتمالية (غرضيه) من المرضى البالغين عددهم(١٤٨)مريض راقد شملت العدد (٨١) من إلاناث و (٦٧) من الذكور يعانون من مرض القلب في الوحدات الباطنية. تم اعداد استمارة استبيان لتقييم الحالات التي ترتبط بمرضى القلب مثل (المرض ، العلامات والأعراض ، الأدوية الخافضة للضغط ، ارتفاع ضغط الدم ، والنمط الغذائي). تم استخدام مقياس ضغط الدم الزئبقي كأداة لقياس ضغط الدم في وضعية الجلوس للمريض بعد استراحة لخمس دقائق مع استقامة الذراع في مستوى القلب. تم أخذ القراءات لكلا الذراعين ، ما لم يكن هناك فرق كبير بينهما. تم تسجيل متوسط قياسين متتاليين المتخذة خلال دقيقتين. وقد تم قياس الوزن باستخدام مقياس الوزن الالكتروني وأداة الاستبيان تكونت من (٤٤) فقرة موزعة على(البيانات الديمغرافية للمريض تتكون من (١٠) فقرة . و بيانات لتقييم صفات مرضى القلب والأوعية الدموية تتكون من (٣٤) فقرة).

النتائج : أفادت الدراسة أن متوسط العمر والانحراف المعياري لمرضى عينة الدراسة هي (١١.٣∓٦٣.١)، وكانت أعلى النسب المئوية ٥٢(٣٥.١ ٪) للفئة العمرية لعينة الدراسة (من٧٠-٧٩ سنة) كما اظهرت النتائج ان غالبية عينة الدراسة هم من الإناث ٨١ من الإناث (٥٤.٧٪)، في حين الذكور ٦٧ (٤٥.٣٪). وان نسبة غالبية المشاركين ٤٦ (٣١٪) يعانون من الذبحة الصدرية و ٤٤ (٢٩.٧٪) لديهم احتشاء عضلة القلب. وكان ٤٠(٢٧٪) من المرضى يعانون من بداية لارتفاع ضغط الدم(٦٠-١٠٠ /١٢٠-١٣٩)ملم/زئبق، في حين ٢٩ (١٩.٦٪) من المرضى كانوا يعانون من ارتفاع ضغط الدم من الدرجة الأولى .

التوصيات : تنفيذ برامج تثقيفية لزيادة معارف وإدراك أفراد المجتمع تجاه نوعية الحياة للمرضى المصابين بارتفاع ضغط الدم المصاحب لأمراض القلب ، إعداد كتيبات توضيحية للمرضى لتوعيتهم حول نوعية الغذاء المتناول وممارسة التمارين الرياضية التي تقلل من خطورة المرض .

Abstract

Objectives of the study: The main objective of the study is to assess the prevalence of hypertension among cardiac diseases patients and to fiend out relation ship between hypertension and cardiovascular diseases.

Methodology: A descriptive study, using interviewer and questionnaire technique was conducted on cardiac diseases inpatients of clinic unite at Kirkuk and Azady hospitals from 17th ,June ,2012 to 1st, March , 2013. Non – probability (purposive) sample of (148) adult patients, (81) females and (67) males with heart disease are selected from inpatients of clinic unite at Kirkuk and Azady hospitals at kirkuk city. Questionnaire was developed to assess the items which are related to heart disease patient's (Disease, Signs and Symptoms , Antihypertensive Drugs , Blood Pressure , and Dietary Patterns). A calibrated mercury sphygmomanometer was used to measure BP while the individual was seated and resting five minutes with the arm held at heart level. The first reading were taken in both arms; unless there was a significant difference, the right arm was used for subsequent reading. The mean of two consecutive measurements taken at two-minute intervals was recorded. Weight was measured using a calibrated scale . The study instruments consist of total (44) items, which are distributed though the following : Demographic data form consist of (10) items   and questionnaire was concerned with data to evaluate the criteria of cardiac diseases patients form consist of (34) items.

Results: The results of this study revealed that the mean age and standard division   of study sample is (63.1∓11.3), the highest percentage 52(35.1%) of age factor for heart disease patients are reported at (70-79yrs.) group .The majority of study sample are females 81(54.7%), whereas, males are 67(45.3%). High percent 46(31%)of participants are suffering from angina and 44(29.7%) had myocardial infarction. 40(27%) of the patients had Prehypertension (120-139/60-100) while 29(19.6%) of patients had first stage of hypertension.

Recommendations : Educational programs should be designed to increase people knowledge and awareness about the life style of hypertensive heart disease patients. Booklet should be prepared and presented to the patients to advise them to leave high amount salt intake, give up exercise which is considered one of the contributing factors for hypertension.

Key words: Detection , Hypertension ,Cardiac Diseases ,Inpatients

Introduction

Hypertension is an acknowledged potential risk factor in the development of cardiovascular diseases like stroke, coronary heart disease, renal failure and congestive heart failure .[1]

Hypertension has become an important public health problem in worldwide . Currently an epidemiologic transition from infectious diseases is going on in the continent and the prevalence of chronic diseases like hypertension is increasing. The response of the heart to the stress/after load imposed on the left ventricle by the progressively increasing arterial blood pressure is described as hypertensive heart disease. Since hypertension is a treatable cardiovascular risk factor, there is need to create more awareness about the disease and educate our patients concerning drug compliance. There is also a need for longitudinal multicentre study in Africa, in order to assess the severity and burden of the disease. [2]

The heart is a common target in hypertension. The response of the heart to the stress/after load imposed on the left ventricle by the progressively increasing arterial blood pressure is described as hypertensive heart disease. Despite advances in clinical assessment, investigation, diagnosis, management and prevention. Arterial hypertension is a highly prevalent circulatory disease that leads to severe complications if untreated. [3,4]

Cardiac complications are the main cause of morbidity and mortality in patients with high blood pressure [5] , and also the key features influencing the choice of appropriate diagnostic procedures and of tailored antihypertensive therapy. [6]

Despite a number of studies performed over the years, no comprehensive definition and no clinically meaningful classification of hypertensive heart disease (HHD) is available. That is why the Steering Committee of the Hypertension Working Group of the Spanish Society of Cardiology developed a clinical classification of the so called "hypertensive cardiopathy" based on the three main heart components involved in patients with chronic elevated blood pressure. This classification is briefly reviewed next.[7]

There is an epidemic of heart failure in the United States. The three major causes of heart failure are Hypertensive Heart Disease (HHD), ischemic heart disease associated with prior myocardial infarction(s) and Idiopathic dilated cardiomyopathy. Because the prevalence of hypertension is increasing globally, heart failure secondary to HHD will soon become the most common cause of heart failure. It has become clear that heart failure can clinically present with predominantly diastolic or systolic dysfunction or both. Patients with heart failure secondary to HHD frequently begin their clinical course with only symptoms of diastolic heart failure (in particular, shortness of breath with exertion) but frequently progress to combined diastolic and systolic heart failure. The major difference between HHD and other causes of heart failure can be represented by the manner in which geometric remodeling of the Left Ventricle (LV) occurs . Patients with HHD usually present with Left Ventricle Hypertrophy (LVH) but have a normal-sized LV chamber and preserved systolic function (ejection fraction greater than 50%). By contrast, patients with heart failure secondary to ischemia or idiopathic cardiomyopathy usually have an enlarged, dilated LV chamber and more frequently also have Right Ventricle(RV) enlargement. [8]

Methodology

A descriptive study, using interviewer questionnaire technique was conducted on heart disease inpatient's of clinic unite in Kirkuk and Azady teaching hospitals from 17th ,June ,2012 to 1st, March , 2013. The study was conducted in clinical units inpatients in Kirkuk and Azady teaching hospitals of kirkuk city . Non – probability (purposive) sample of (148) adult patients, (81) females and (67) males with heart disease, during the period from 15th September , 2012 to 15th October , 2012 were selected from inpatients of clinic unites in Kirkuk and Azady teaching hospitals of kirkuk city. The criteria which patients were selected accordingly ;a. Adult patients whose ages over 20 Years old. b. Patients who were able to speak, read and write Arabic. c . Cardiac disease patient.

Administrative Arrangement;

- Approval of the council of Nursing College/ university of kirkuk was obtain for the proposal of the study .

- Approval permission was presented to the director of kirkuk Health Office / Kirkuk's and Azady hospitals .

Instrument construction:

Questionnaire was developed by the researcher for the purpose of the study to assess the domains related to heart disease patients (Disease, Signs and Symptoms Antihypertensive Drugs , Blood Pressure , and Dietary Patterns).

Items formulation was based upon the extensive review of related literatures and previous studies . The Blood Pressure (BP) measurement protocol was similar to used in previous studies .[9,10] A calibrated mercury sphygmomanometer was used to measure BP while the individual was seated and resting five minutes with the arm held at heart level. The first measurements were taken in both arms; unless there was a significant difference, the right arm was used for subsequent measurements .The mean of two consecutive measurements taken at two - minutes intervals was recorded . Weight was measured using a calibrated scale .The developed questionnaire consists of (2) parts :

Part I : Patient demographic data form:
It is concerned with determination of the demographic characteristics of these patients, the form consist of (10) items which included(gender, age, level of education, Family history , Alcohol consumption , Occupation, Smoking, Weight).

Part II :

It is concerned with determination the criteria of these patients, the form consist of (34) items which include; (Diseases, Signs and Symptoms , Blood Pressure , Dietary Patterns and Antihypertensive Drugs).

Validity of Assessment Tools:
The content validity was determined by a panel of experts who they have more than five years expert in the specialist field. Most of them had agreed that the questionnaire was clear, relevant and adequate Certain modifications were employed based on the experts recommendations and suggestions .

Data Analysis ;The data of present study were analyzed through the application of two statistical approaches. A descriptive statistical approach that includes Frequency, Percentage, $\bar{x} \mp S.D.=$ Arithmetic Mean ($\bar{x}$) and Standard Division. (S.D)and an Inferential statistical approach that includes Chi-Square test.

Results:

Table 1. Distribution of Cardiac Patients Regarding Sociodemographic Characteristic .

	Variable	Ferq.	%
Age	40-49	20	13.5
	50-59	40	27.1
	60-69	36	24.3
	70-79	52	35.1
	$\bar{x} \mp S.D$	63.1$\mp$11.3	
Sex	Male	67	45.3
	female	81	54.7
Marital status	Single	0	0
	Married	106	71.6
	Divorced	2	1.4
	Widow	40	27
Education Level	No read & Write (illiterate)	95	64.2
	Read and Write	12	8.1
	primary school	13	8.7
	Intermediate	12	8.1
	secondary school	6	4.1
	institute graduate	8	5.4
	University graduate	2	1.4
Family History	No history	70	47.3
	Father	29	19.6
	Mather	32	21.6
	Brothers &Sisters	27	18.2
Job	Housewife	72	48.6
	Free -Job	17	11.5
	Government emp.	15	10.2

Continues ......

Table 1. Continues

	Retired	28	18.9
	Unemployed	16	10.8
Residential Area	City	127	85.8
	Urban	14	9.5
	Suburban	3	2
	Rural	4	2.7
Smoke	Yes	27	18.2
	No	121	81.8
Cig. No/day	1-10	4	2.7
	11-20	11	7.4
	21-30	5	3.4
	≥31	7	4.7
Smoker year	1-10	3	2
	11-20	24	16.2
Alcohol consumption	Yes	3	2
	No	145	98
	Daily	1	33.3
	Weekly	2	66.6
years	1-10	1	33.3
	11-20	2	66.6
Weight/ Kg	50-60	25	16.9
	61-70	29	19.6
	71-80	33	22.3
	≥81	61	41.2

%= percent ; freq. =Frequency ; $\overline{x} \mp S.D$ = mean and standard deviation;

Table(1) show 81(54.7%) of participants are female while male is 67(45.3%) . High percentage 52(35.1%) of them within age group(70-79), over all domain most (106,71.6%) participants were married and 70 (47.3%) have no family history of hypertension . 95(64.2%) of clients No read & Write (illiterate). the table also shows (121, 81.8%) 0f participants have passive history of smoking .61(41.2%) of participants are over (≥81) Weight/ Kg.

Table 2. Distribution Patients according Disease diagnosed by physician.

	Variable	Frq.	%
Diagnosed Disease	**stroke**	9	6.1
	angina	46	31
	myocardial infarction	44	29.7
	heart failure	23	15.5
	peripheral arterial disease	18	12.7
	chronic kidney disease	4	2.7
	endocrine diseases	1	0.7
	Valvular disease	3	2.02

%= percent

; freq. =Frequency

Table(2) show that the high percent 46(31%)of participants are suffering from angina and 44(29.7%) had myocardial infarction while 23(15.5%) of them had heart failure .

Table 3. Distribution of Patients according to the Signs and Symptoms .

	Variable	Frq.	%
	Headache	96	64.9
	Dizziness	70	47.3
	Fatigue	88	59.5
	Shortness of breathing	99	66.9
Signs and Symptoms	Palpitation	92	62.2
	Nausea	57	38.5
	Blurring of vision	49	33.1
	Chest pain	113	76.4
	Nervousness	35	23.6
	Flashed face	21	14.2

%= percent ; freq. =Frequency

   Table (3) show that the high percent 113(76.4%) of patients suffering from chest pain ,while 99(66.9%) had Shortness of breathing and 96(64.9%) they got headache .

Table 4. Distribution of Patients according to the blood pressure group (systolic/ diastolic)

	Variable	Ferq.	%
	120-139/60-100	40	27
	140-149/90-99	29	19.6
Blood Pressure Systolic/diastolic	150-159/100-109	23	15.5
	160-169/110-119	27	18.2
	≥170 /≥120	21	14.2
	≥140/≤90	8	5.4

%= percent ; freq. =Frequency

   Table (4) show that 40(27%) of the patients had Prehypertension (120-139/60-100) while 29(19.6%) of patients had first stage of hypertension(140-149/90-99) and 27(18.2%) denoted for third stage .the table also denoted 8(5.4%) for isolated hypertension(≥140/≤90).

Table 5. Distribution of Patients according to the Dietary Patterns .

	Variable	Ferq.	%
	maintain normal body weight....	39	26.4
	reduce dietary sodium intake.....	100	67.6
Dietary Patterns	engage in regular aerobic physical activity	64	43.2
	limit alcohol consumption	1	0.7
	consume a diet rich in fruit and vegetables	123	83.1

%= percent ; freq. =Frequency

   Table(5) show that 123(83.1%) of the patients consume a diet rich in fruit and vegetables and 100(67.6%) of the patients reduce dietary sodium intake while 64(43.2%) engage in regular aerobic physical activity .

Table 6. Distribution of Patients according to the Antihypertensive Drugs Consuming .

	Variable	Ferq.	%
	No drug treatment	52	35.1
	Thiazide diuretics	27	18.2
Antihypertensive Drugs Taken By Patient	Beta blockers	53	35.8
	Calcium channel blockers	1	0.7
	Angiotensin-converting enzyme (ACE) inhibitors	24	16.2

%= percent ; freq. =Frequency

Table (6) show that 53(35.8%) of the patients consume Beta blockers and 27(18.2%) of them tack Thiazide diuretics , while 24(16.2%)of the total participant consume Angiotensin-converting enzyme (ACE) inhibitors .

Table -7: Relationship Between the Hypertension and Cardiac Diseases.

Bp \ Diseases	120-139/60-100	140-149/90-99	150-159/100-109	160-169/110-119	≥170 /≥120	Total
angina	10	9	12	11	5	47
myocardial infarction	7	12	7	5	9	40
heart failure	4	3	4	2	2	15
Total	21	24	23	18	16	102
X^2 =6.31 df = 8 P ≤0.01						

χ²obs= Observed chi-square value ; df=degree of freedom ； P ≤ Level of probability

Table (7) show that a highly significant relationship between stages of hypertension and same heart disease ex.(angina, myocardial infarction , heart failure) which indicated that the(X^2 =6.31,df =8 ,P ≤0.01) .

Discussion :

According to patients ages , the results of this study reported that the mean age and standard division of study sample was (63.1∓11.3), In addition to that, table (1) demonstrates that the highest percentages 52(35.1%)of age factor for hypertensive heart disease Clients were reported at (70-79 yrs.) group. The result findings agree with Gunnar ,[11] who evaluated, in a study, the factors associated with the effect of age on blood pressure in more than 4800 patients. The results of their study show that increased age associated with a significant increase in the prevalence of hypertension and especially of systolic hypertension after age 60 years. The incidence of hypertension (HTN) increases with age. The Framingham Heart Study showed that subjects younger than sixty years of age had a 26.9 percent incidence of HTN, while those between sixty and seventy-nine years had a 58 percent incidence, and those eighty or older had a 70.9 percent incidence. [12].The result of this study reported that the majority of study sample were females 81(54.7%) ,whereas, males were 67(45.3%) Table (1) . The finding of present study supported evidence is available in the study that reported that up to about age 55, women have a lower incidence of hypertension and other cardiovascular diseases than men do. But women's blood pressures, especially the systolic readings, rise more sharply with age. Indeed, after age 55, women are at greater risk for high blood pressure. This pattern may be partly explained by hormonal differences between the sexes[13].The majority of participants are married 106(71.6%) Table (1). The finding of present study supported evidence is available in the study that reported concerning the effects of marital status on hypertension in Chines women in a longitudinal study. He found that (75%) of Married women are more likely to be at risk for hypertension and (25%) of widowed or separated have a higher risk for hypertension[14]. According to patients Level of education, the result of this study reported that the majority of study sample were 95(64.2%) of clients No read & Write (illiterate) Table (1).The finding of present study supported evidence is available in the study that reported that knowledge is necessary to prevent and control hypertension , a major public health problem exists, but control rates are dismal in every part of the world[15]. The result of this study reported that the majority of study sample 70(47.3%)had no Family history , whereas 29(19.6%)denoted with   father ,32(21.6%) for mother 27(18.2%) for Brothers &sisters Table(1). The finding of present study supported evidence is available in the study

that reported who conclude that there is connection between family history and high blood pressure when gave a stranded test for 314 volunteers and measured their blood pressure for 24 hours using a wearable monitor. Participants who is mother or father or both had high blood pressure were listed having a family history of the disease. Participants whose parents had hyper-tension had significantly high systolic blood pressure and high diastolic blood pressure[16]. Result of this study reported that 72 (48.6%) of Clients was Housewife while 15(10.2%) are Government employee Table (1). The finding of present study supported evidence is available in the study that reported that in a Scottish study of men age 35 to 64, cumulative measures of occupational prestige showed a graded relationship with cardiovascular mortality[17]. The 121(81.8%) of participants have passive history of smoking while 27(18.2%) have active history of smoking most of them smokes 11(7.4%) Cigarette/day Table (1). The finding of present study supported evidence is available in the study that reported a higher incidence rates of hypertension were found among male workers in Japan and Korea who stopped smoking or who never smoked than among male workers who continued to smoke[18]. On the other hand Okuba, emphasized that a study revealed that there were no differences in the proportions of hypertension between smokers and non-smokers [19]. The study denoted high perce-ntage 46(31%) of participants are suffering from angina and 44(29.7%) had myocardial infarction while 23(15.5%)of them had heart failure Table (2) . The finding of present study supported evidence is available in the study that stated almost one out of three adults has HTN, it is more common in women over the age of fifty-four and among African Americans. Although control of HTN has improved over the past decade, target blood pressure goals are often not achieved in the elderly [20].also Forette Reported Untreated or under-treated HTN strongly increases the risk of other co morbidities such as stroke, myocardial infarction (MI), Heart failure (HF),End-stage

renal disease and dementia. Treatment of HTN in the elderly for five years is estimated to prevent nineteen cases of dementia for each one thousand cases. Untreated or under-treated HTN leads to left ventricular hypertrophy (LVH), which is an important marker for adverse cardiac outcomes. The presence of LVH increases with age. In those seventy years and older, LVH occurs in 33 percent of men and 49 percent of women[21]. The study shows that the high percent 113(76.4%) of patients suffering from chest pain while 99(66.9%) had Shortness of breathing and 96(64.9%) they got headache Table (3).The finding of present study supported evidence is available in the study that mentioned that in some patients with palpitations, no heart disease or abnormal heart rhythms can be found.

Reasons for their palpitations are unknown .In others, palpitations result from abnormal heart rhythms (arrhythmias)[22] . The study shows that the high percent 40 (27%) of the patients had Pre-hypertension (120-139/60-100) while 29(19.6%) of patients had first stage of hypertension(140-149/90-99) and 27(18.2%) denoted for third stage .the table also denoted 8(5.4%) for isolated hypertension (≥140/≤90) Table (4) . Blood pressure is classified according to four stages in adults eighteen and older: 1) Normal, < 120/80 mm Hg; 2) Pre-hypertension, SBP 120-139 or DBP 80-89 mm Hg; 3) Stage 1 HTN, SBP 140-159 or DBP 90-99 mm Hg; and 4) Stage 2 HTN, SBP > 160 or DBP > 100 mm Hg. The diagnosis of HTN depends on two or more properly measured seated BP readings on each of two or more office visits using the mean value [6].The study reported that there is high percent 123(83.1%) of the patients consume a diet rich in fruit and vegetables and 100(67.6%) of the patients reduce dietary sodium intake while 64(43.2%) engage in regular aerobic physical activity Table (5) . The finding of present study supported evidence is available in the study that who stated that based on the results of DASH trial and other studies, the National High Blood Pressure Education Program Coordinating Committee has recommended

reduction of dietary sodium intake to not more than 100 mmol/ day (2.4 gm. sodium or 6.0 gm. salt)[23]. The finding of present study supported evidence is available in the study that founded that Engaging in aerobic physical activity like brisk walking at least 30 minutes per day, most days of the week, can have a big payoff: Not only will it help the patient control his weight, but it can also decrease the blood pressure 4 to 9 mm Hg[24] . The study reported that there is high percent 53(35.8%) of the patients consume Beta blockers and 27(18.2%) of them tack Thiazide diuretics , while 24(16.2%)of the total participant consume Angiotensin-converting Enzyme (ACE) inhibitors. Table (6) .The finding of present study supported evidence is available in the study that Stated that the Intervention for hyper-tensive heart disease includes drug therapy to control blood pressure and modifications of diet and lifestyle. Several classes of drugs may be prescribed in the treatment of hypertension, including diuretics, beta-blockers, ACE inhibitors, calcium channel blockers, angiotensin II receptor antagonists, and alpha-blockers. The type of drug therapy selected is based on coexisting medical conditions, lifestyle issues, safety, and tolerance of the drug[17]. The result of this study reported that there is a highly significant relationship between stages of hypertension and same heart disease ex.(angina, myocardial infarction , heart failure) which indicated that the(X^2 =6.31,df =8 ,P ≤0.01) Table (7).

Recommendations:

Based on the conclusions, the researcher recommended that:

1. Further studies with large sample should be conducted in the Kirkuk Governorate .

2. Educational programs should be designed to increase people knowledge and awareness about the life style of hypertensive heart disease patients.

3. Specify a special center for dealing hypertensive heart disease patients.

4. Booklet should be prepared and presented to the patients to advise them to leave high amount salt intake, give up exercise which is considered one of the contributing factors for hypertension.

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