

## **Epidemiological study of hypertensive cases among teaching staffs in kirkuk university**

*Mohammed M. Mohammed\**

*Salah M. Salih Hassan\*\**

*Evan M. Mustafa \*\*\**

*\*College of Medicine - University of Kirkuk*

*\*\* College of Nursing- University of Kirkuk*

*\*\*\* College of Agriculture - University of Kirkuk*

Received: 5/11/2009, Accepted: 28/2/2010

### **Abstract**

This is a Cross-Sectional study done in Kirkuk city among teaching staff of Kirkuk University for the prevalence of hypertension among them. About 136 subjects selected randomly within all colleges (6 Colleges) during the period 1 January to 31 March 2009. The results of the study found that 22(16,2%) subject were hypertensive that discovered accidentally, about 22,5% of sample study were systolic hypertensive and 18,9% of them were diastolic hypertensive , Among the male subject . The prevalence of hypertension was increased as age and body mass index of the subject increased. About 20,7% male subjects were smoker. The study recommended that there is great need for the teaching staff to reduce their weight, prohibited smoking and to check their blood pressure routinely and periodically.

### **Introduction**

Hypertension is a common chronic condition that currently affects more than 65 million or about 31% of united state adult population and its prevalence ranged from 28-44% in European countries (Anthony & Warren, 2008; Giampaoli, et al, 2003). The prevalence greatly increases with age, affecting proximately 6% of 18 to 34 year old individuals but over 77% of those 75 years or older (Anthony & Warren, 2008). It is responsible for 35% of all myocardial infarctions and strokes as well as half of all episodes of congestive heart failure (CHF) (Radwal, et al, 2001). Nearly one out of four premature deaths is caused by hypertension , making it the single most important cause of premature death in developed countries(Sheridan's, et al., 2003; Ezzati, et al., 2002). The most etiology of hypertension is unknown (essential hypertension), and the other causes are renal disease, glucocorticoid excess (endogenous or iatrogenic) ,coarctation of aorta and phaeochromocytoma(Gordian, 2004).When hypertension acutely causes symptom , the organs most commonly affected include the brain , heart ,and kidneys (Keith& Roger, 2004). Although each component of blood pressure was associated with risk for CHF, Pulse, and systolic pressure conferred greater risk than diastolic pressure (Agha, et al., 2003; Bray, 1978).

## **Subjects and Methods**

This is a cross-sectional study designed to determine the prevalence of hypertension among teaching staffs of Kirkuk University. The survey was conducted between 1 January and 31 March. The sample size was 136 subject collected randomly. The participants was interviewed by the researchers concerning their age, gender, smoking habits, body mass index (BMI), previous history of hypertension, diabetes, and current use of medication for hypertension or diabetes, or both. Height and weight were measured using standardized method; all the participants wore light clothes and no shoes for this part of examination. The BMI was calculated as the weight in kilograms KG (with one KG subtracted to allow for clothing) divided by height in meter squared (M); and subject was classed into three categories: acceptable weight (BMI<25Kg/m<sup>2</sup>), overweight (BMI=25-29,9Kg/m<sup>2</sup>), and obese (BMI>30Kg/m<sup>2</sup>) in accordance with the classification described by Bray (Bray,1978). The blood pressure was measured with subject in sitting position, using a sphygmomanometer cuff wrapped around the upper arm, rest the subject for five minutes, support the patients arm comfortably at about heart level, apply the cuff to upper arm with the center of the bladder over the brachial artery. Three measurement of blood pressure were taken and the average of the three values represent the value upon which we consider whether the subject was hypertensive, hypotensive or normotensive case. Systolic blood pressure was recorded at the appearance of the first korotkoff sound (tapping sound) and diastolic blood pressure at the disappearance of the fifth korotkoff sound (diastolic 2), and hypertension was defined according to WHO criteria as systolic blood pressure>140 mmHg or diastolic blood pressure>90mmHg (Masti & Mitchell, 2003; Graham, et al., 2005; World Health Organization, 1978; Carol, et al, 2008). The aim of this study is to measure the prevalence of hypertension among teaching staff in Kirkuk University and to find any relationship between it and body mass index and smoking habit of teaching staffs. The data were analyzed using the statistical package for social science (Norusis, 1988). Student's t-test was used to find the difference between means of SBP and DBP among hypertensive subjects. The chi – square test was used to compare frequencies between hypertensive and non hypertensive subjects and the frequency of other associated socioeconomic and lifestyle factors. The level  $P<0.05$  was taken as the cutoff value for significance. (Norusis, 1988 ; Stacey & Laurel, 2009; David & William, 2006).

## **Results**

From the history and examination of the blood pressure of the subject in this study; it was found that 22 (16,2%) of them did not know they suffer from hypertension, and their condition was discovered accidentally

by the researchers , and such a result is identical to similar study done in Baghdad (Mohammed & Marwan, 1990). Table (1) shows the age and sex distribution of detected systolic and diastolic hypertension among the sample study. systolic hypertension among males constitute 22,5% of the sample study and 18,9% for the diastolic hypertension; while for the female it was 8% for systolic and 4% for the diastolic, a result which was lower than that found by similar studies done in Baghdad and Qatar (Abdulbari, et al, 2004; World Health Organization, 1983). The percentage of hypertension was increased as age of the subject and this is was proved by a report of scientific researchers of the world health organization (World Health Organization, 1990; Ray & Eric, 1990). There was no significant difference in the prevalence of hypertension among men versus women ( $P > 0.05$ ),

**Table 1: Age and sex distribution of detected systolic and diastolic hypertensive among teaching staffs / Kirkuk University.**

Age group year	Male			Female		
	Examined No.*	Systolic ** No. %	Diastolic *** No. %	Examined No.*	Systolic ** No. %	Diastolic *** No. %
20 –29	7	1(4.0)	1(4.8)	8	--	--
30 –39	56	5(20.0)	5(23.8)	13	1(50.0)	--
40 -49	25	9(36.0)	7(33.3)	3	1(50.0)	--
50 -59	19	9(36.0)	7(33.3)	1	--	1(33.3)
>60	4	1(4.0)	1(4.8)	--	--	--
Total***	111	25(100.0)	21(100.0)	25	2(100.0)	1(100.0)

\* No. =Number,

\*\* Systolic Hypertension: B.P > 140 mmHg.,

\*\*\* Diastolic Hypertension: B.P >90 mmHg.

\*\*\*\*Chi square was used for statistical analysis.

Male – Female.

Systolic d.f. =1  $P > 0.05$ .

Diastolic d.f. =1  $p > 0.05$ .

The body mass index of the subject is shown in table 2, where 58(52,2 %) males and 11(44 %) female were overweight while 24(21,6 %) male and 6(24 %) female were obese.

**Table 2: Body mass index (BMI) of the sample study by age and sex.**

Age (year)	BMI						Total		P value
	<25 Kg/m2		25-29.9Kg/m2		>30Kg/m2		Male No.	Female No.	
	Male No.**	Female No.	Male No.	Female No.	Male No.	Female No.	Male No.	Female No.	
20-29	3	4	4	3	-	1	7	8	>0.05
30-39	16	4	28	7	12	2	56	13	>0.05
40-49	10	-	8	1	7	2	25	3	>0.05
50-59	-	-	14	-	5	1	19	1	<0.05
>60	-	-	4	-	-	-	4	-	>0.05
Total	29	8	58	11	24	6	111	25	

\* BMI :< 25 Kg /m2: Normal weight.

BMI: 25 -29.9 Kg /m2: Over weight.

BMI: > 30Kg/m2: Obese.

\*\* No. : Number

The frequency distribution of males subjects with in the sample study and smoking habit is shown in table 3, where 23(20, 7%) subjects were smoker and 16(14, 4%) of them were belong the group of overweight and obese subject . No females found to be smoker.

**Table 3: Frequency distribution of the male with sample study by body mass index (BMI) and smoking habit.**

BMI group*	Non smoker No.**	Smoker No.	Total	P Value
Group I	22(25.0)	7(30.4)	29	> 0.05
Group II	50(56.8)	8(34.8)	58	< 0.05
Group III	16(18.2)	8(34.8)	24	>0.05
Total	88(100.0)	23(100.0)	111	

\* Group I: Is normal weight (> 25 Kg / m2)

Group II: Is over weight (25- 29.9 Kg /m2)

Group III: Is obese (>30 Kg /m2)

\*\* No. : Number

Table 4 shows some of the socio-demographic characteristic of the subject and its relation to blood pressure. As age of the subjects increase the percentage of hypertension is also increased and the percentage also increase as BMI index, and in subjects with diabetes and heart disease. There are statistically differences between all age group of hypertensive and non hypertensive subjects, except the age group 20 – 29 and > 60 year. (P<0.01 and 0.05). It can also be seen that obesity is considerably higher among hypertensive subjects (P> 0.05).

**Table 4: Some socio–demographic characteristic blood pressure.**

Variable	Normotensive No.=34	Hypotensive NO.=75	Hypertensive NO.=27	P Value
Age group (year)				
20 -29	7(20.6)	7(9.3)	1(3.7)	>0.05
30 -39	13(38.2)	50(66.7)	6(22.2)	<0.01
40 -49	8(23.5)	10(13.3)	10(37.0)	<0.05
50 -59	5(14.7)	6(8.0)	9(33.3)	<0.05
> 60	1(2.9)	2(2.7)	1(3.7)	>0.05
Gender				
Male	29(85.3)	57(76.0)	25(92.6)	>0.05
Female	5(14.7)	18(24.0)	2(7.4)	>0.05
Body Mass Index				
< 25 Kg /m2	9(26.5)	24(32.0)	4(14.8)	>0.05
25 -29.9 Kg/m2	15(44.1)	38(50.7)	16(59.3)	>0.05
> 30 Kg /m2	10(29.4)	13(17.3)	7(25.9)	>0.05
Associated Medical Condition				
Diabetes Mellitus	1(2.9)	-	4(14.8)	
Heart Diseases	1(2.9)	-	5(18.5)	

## **Discussion**

Hypertension indicates a chronically elevated systolic and/or diastolic blood pressure, and the higher the arterial pressure, the greater the cardiovascular morbidity and mortality. The history and physical examination are by far the most important parts of the hypertension evaluation (World Health Organization, 1988). The results of the study indicates that 22(16,2%) subjects were discovered as hypertension accidentally and this mean that our educated population did not check their blood pressure routinely as it must done by them for the benefit of their health . The results of the study shows that the prevalence of hypertension among the subject was lower than that done in Baghdad, Qatar, and European countries (Mohammed & Marwan, 1990; Abdul bari, et al, 2004; Giampaoli, et al, 2003), and this may be attributed to differences in the life style, eating habit. As BMI increased, the percentage of hypertension is also increased and this because of the complication of over nutrition and obesity and this may be attributed to little physical activity and excessive ingestion of the saturated fat (World Health Organization, 1990). Smoking is frequent among male hypertensive subject (20,7%), this will result in additional risk for the health status of the subject; meanwhile this indicate that our teaching staffs did not car about the bad effect of smoking in spite of their knowledge about its danger. Unfortunately our figure (20, 7%) was more than the figure seen in study done in Qatar (15, 8%) (Stacey & Laurel, 2009). Medical conditions such as

heart disease and diabetes associated with hypertensive subject in this study were prominent (22, 7% and 18, 1% respectively) and this add additional burden on the health status of the subject.

### **Conculution**

1. Hypertension was discovered accidentally in 22(16,2%) subject in; the sample study.
  2. Systolic hypertension constitute about 22,5% of the sample study and 18,9% for the diastolic hypertension in the male subject .
  3. The prevalence of the hypertension is increased with the increase of the age and BMI of the subject.
  4. About 73,9 % of males and 68% of females were overweight .
- The smoking habit found among 20,7% male subject .

### **Recommendation**

1. There is a great need for the teaching staffs to check their blood pressure and body weight routinely and periodically and consider it as important thing for maintaining their healthful life, and prevent complication that may arise from hypertension and overweight.
2. It is sorry to say that there is a need to educate them about the danger of smoking and obligate them to stop it.

### **Acknowledgment**

Great thanks to Ass.Prof. Sabah Hasseb (College of Science) for his kind assessment in statistical analysis.

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## دراسة وبئية حول حالات ارتفاع ضغط الدم لدى التدريسين في جامعة كركوك

محمد مصطفى محمد\* صلاح محمد صالح\*\* ايفان محمد مصطفى\*\*\*

\*كلية الطب - جامعة كركوك

\*\* كلية التمريض - جامعة كركوك

\*\*\*كلية الزراعة - جامعة كركوك

تاريخ الاستلام: ٢٠٠٩/١١/٥، تاريخ القبول: ٢٠١٠/٢/٢٨

### الخلاصة

هذه دراسة مقطعية أجريت في مدينة كركوك لمعرفة مدى أنتشار حالات ارتفاع ضغط الدم لدى التدريسين في جامعة كركوك. احتوت العينة على ١٣٦ تدريسي بمختلف المرتبات العلمية تم اختبارهم عشوائيا من كافة الكليات السنة التي تحتويها الجامعة وخلال فترة الأول من كانون الثاني ولنهاية الواحد والثلاثون من آذار للعام ٢٠٠٩. أثبتت نتائج الدراسة بان ٢٢ (١٦,٢%) من التدريسين تم أكتشاف ارتفاع ضغط الدم لديهم من فحصهم ودون معرفتهم مسبقا" بذلك ، وأن ٢٢,٥% منهم يشكون من ارتفاع الضغط الأقباضي و ١٨,٩% من ارتفاع ضغط الدم الأنبساطي. أثبتت الدراسة بأن الزيادة في ارتفاع ضغط الدم تتماشى مع الزيادة في العمر ومؤشر كتلة الوزن للجسم. وللأسف وجدنا أن ٢٠,٧% من التدريسين هم من المدخنين . أقتزحت الدراسة بضرورة قيام التدريسين بالفحص الدوري الروتيني لضغط دمهم ووزنهم اضافة الى قطع التدخين وحفاظا" لصحتهم .