Assessment of Patients' Compliance with Essential Hypertension

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الخلاصـة

الهدف: لتقييم مطاوعة مرضى فرط ضغط الدم الأساسي المتعلقة بالأدوية الخافضة لفرط ضغط الدم، المتابعة، النظام الغذائي والعادات الصحية، لمعرفة المضاعفات المرفقة للمدى البعيد ولإيجاد العلاقة بين مطاوعة المرضى والصفات الديموغرافية (العمر، الجنس، المستوى الثقافي، مدة الإصابة بالمرض والاختلاطات).

المنهجيـة: أجريت الدراسة الوصفية في العيادة الاستشارية لمستشفى الناصرية التعليمي لتحقيق أهداف الدراسة.

النتائـج: أظهرت نتائج الدراسة وجود علاقة بين المستوى التعليمي ومطاوعة المرضى الكلية ووجود علاقة بين مدة الإصابة بالمرض مع المضاعفات وان أكثر مرضى الدراسة ٦٣ % هم غير مطاوعين وغالبيتهم من الرجال وذات مستوى تعليمي متدني و ٧٠% منهم يعانون من مضاعفات وأكبر عدد منهم ٢١% مصابين بالجلطة الدماغية.

التوصيـات: أوصى الباحث بإنشاء عيادات متخصصة ومتكاملة لمرضى فرط ضغط الدم الأساسي، إعداد برنامج تثقيفي، دعم حكومي للأدوية الخافضة لفرط ضغط الدم، توفر الأدوية في العيادات الاستشارية ومنع بيعها في الصيدليات الأهلية لتأمين مطاوعة المرضى وإجراء دراسة أخرى في العراق لمعرفة الصعوبات التي تؤدي إلى عدم مطاوعة مرضى فرط ضغط الدم الأساسي.

Abstract

Objective:

This study aims to asses the patients' compliance with essential hypertension in respect to antihypertensive medications, follow-up, dietary pattern and health habits, to identify the associated long-term complications, and to find out the relationship between patient's compliance, and demographic characteristics such as age, gender, level of education, and duration of disease.

Methodology:

A descriptive study was carried out in Nasiriyah Teaching Hospital to achieve presented objectives .

Results:

The results of the study revealed that there were a significant association between educational level and total patient's compliance, a significant association was found between the duration of disease and complications, the majority (63%) of the sample was non-complaint, most of them was males with low level of education and (70%) of them had complications. A greater number (21%) suffering from (Cerebrovascular accident).

Recommendation:

The research recommends that establishing well-equipped specialized hypertension clinics, educational program should be designed, antihypertensive drugs should be supported by government, antihypertensive medications must be obtained from the out patient clinic to avoid buying them from private pharmacies to maintain patients compliance, and further study can be conducted in Iraq to determine the impact of non-compliance of patients with essential hypertension.

Key words: patients' compliance, essential hypertension, complications .

Introduction:

Historical review shows that the [1] was measured blood pressure for the first time and described the importance of blood volume in (Blood Pressure) regulation [2]. Hypertension is one of the most common worldwide diseases afflicting human beings because of the associated morbidity, mortality, the cost of the society and it is an important public health challenge over the past several decades. Hypertension remains a major risk and powerful predictor when poorly compliant or if left untreated [3].

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Essential hypertension is that applied to (95%) of cases in which no cause can be identified. It is also called primary hypertension or idiopathic. As it is the commonest, it is usually affecting people between the ages of (40-60) year. Essential hypertension can be divided into two groups; benign and malignant [4].

The Historical review shows that before the year 1974, most of the world knowledge of compliance in modern medicine could be found in 245 scientific articles and these included a few articles dating back to 1940s. The terms compliance and adherence can be used interchangeably [5].

The term compliance used to describe the extent to which patients follow instructions that are given prescribed therapy [6].

Compliance involves not only taking the prescribed medications, but also adherence to follow-up, diet appointment, and maintaining the recommended lifestyle modification or application health habits [7].

Methodology:

A descriptive study was carried out through the present investigation in order to achieve the objectives of the present study. After a written official permission has been obtained from the Ministry of Planning and Ministry of Health , a non-probability "purposive" sample (100) case which consisted of patients who were attending the out–patient clinic of Nasiriyah Teaching Hospital, including (60) male and (40) female. According to the following criteria; 1. Adult patient aged (30–60) year. 2. Diagnosed with essential hypertension. 3. Free from other illnesses. A questionnaire was designed and constructed by the researcher to measure the study variables. The questionnaire consisted of 2 parts. Part I: A demographic information sheet, consisted of (12) item, and Part II: Compliance indicators: included (15) item concerned with taking antihypertensive medications, (7) items are concerned with follow-up, (8) items were concerned with dietary patterns, and (7) items are concerned with health habits. The content validity for the early constructed instrument is determined through a panel of experts to investigate the content of questionnaire for its clarity and adequacy in order to achieve the objectives of the present study.
Pilot study was conducted from Feb. 21st, 2007 to March 21st, 2007. A purposive sample of (20) patient with essential hypertension from both gender was selected from Nasiriyah Teaching hospital. Test-retest reliability was determined through a computation of pearson correlations for the scale coefficients for the all (49) item was r= 0.87. Data were collected by two ways from the Feb. 21st, 2007 up to May 20th, 2007. (1) Interviews by the use of the questionnaire took approximately from (15–20) minute for each patient who attended out patient clinic of Nasiriyah Teaching Hospital. (2) The researcher measured height and weight for each patient which calculated according to BMI classifications. Data analysis was employed through the application of the following statistical data analysis approaches. A. Descriptive statistical data analysis include frequency, percentage, mean of scores and mean. B. Inferential statistical data analysis include 1. Cronbach Alpha correlation coefficient was employed for the determination of instrument reliability [8]. 1. Chi-square (X^2) test: It was applied for the confirmation of the association between the sample demographic characteristics of age, gender, level of education, duration of disease and complications and compliance with taking antihypertensive medications follow up, dietary pattern, and health habits, which were computed as [9].

Results:

Table 1. Distribution of the patients' compliance with essential hypertension according to their demographic characteristics

List	Demographic Characteristics	Frequency	Percent %
	Age		
1-1	30 – 39	25	25
1-2	40 – 49	32	32
1-5	50 – 59	29	29
1-4	60	14	14
	Total	100	100
2-	**Gender**		
2-1	Male	60	60
2-2	Female	40	40
	Total	100	100
3-	**Educational level**		
3-1	Do not read and write	39	39
3-2	Read and write	18	18
3-3	Primary school graduate	14	14
3-4	Intermediate school graduate	12	12
3-5	Preparatory school graduate	9	9
3-6	College graduate and above	8	8
	Total	100	100
4	**Duration of disease**		
4-1	below one years	7	7
4-2	1–5 years	30	30
4-3	6–10 years	33	33
4-4	11–15 years	20	20
4-5	16–20 years	6	6
4-6	≥ 21 years	4	4
	Total	100	100
5	**Complications**		
5-1	Yes	70	70
5-2	No	30	30
	Total	100	100
5-1	If the answer yes		
5-1-1	Cardiac hypertrophy	19	19
5-1-2	Angina pectoris	10	10
5-1-3	Myocardial infraction	8	8
5-1-4	Heart failure	9	9
5-1-5	Cerebrovascular accident	21	21
5-1-6	Renal failure	3	3

Table 1. (continued)

List	Demographic Characteristics	Frequency	Percent %
5-1-7	Loss of vision	0	0
	Total	70	70
5-2	Non applicable	30	30
	Total	30	30
	Total	**100**	**100**

The distribution of the matched demographic characteristics out of this table indicates that the majority 32 (32%) of the groups was (40– 49) years. Most of them was male 60 (60%). The table indicated that the majority 39 (39%) of the groups do not read and write. The table indicated that the greater 33 (33%) of the groups have the duration of disease from (6–10) year. Finally, the table indicated that the majority 70 (70%) of the groups had complications. Most of them 21 (21%) in the items number (12-1-5).

Table 2. Association between the educational level and the patients' compliance of

No.	Compliance / Education	Compliance	Non compliance	Total
1	Not read and write	8	31	39
2	Read and write	6	12	18
3	Primary school	3	11	14
4	Intermediate school	5	7	12
5	Preparatory school	5	4	9
6	College and above	6	2	8
	Total	33	67	100
	χ^2 obs. = 12.620 df = 5 χ^2 crit = 11.070 P $\leq$0.05			

df=degree of freedom, p=probability level, χ^2crit= critical chi-square, χ^2obs.= observed chi-square

This table indicated that there is a significant association between the educational level and the total patients' compliance with antihypertensive medications, follow-up, dietary pattern, and health habits.

Table 3. Association between the duration of disease and the compliance of patients with essential hypertension

No.	Compliance / Duration of Disease	Compliance	Non compliance	Total
1	Below one year	3	4	7
2	1 – 5	20	10	30
3	6 – 10	15	18	33
4	11 – 15	4	16	20
5	16 – 20	2	4	6
6	≥ 21	1	3	4
	Total	45	55	100
	x^2 obs. = 12.343 df = 5 x^2 crit. = 11.070 $P \leq 0.05$			

df=degree of freedom, p=probability level, x^2crit.= critical chi-square, x^2obs.= observed chi-square

This table indicated that there is a significant association between the duration of disease and the compliance of patients with essential hypertension.

Table 4. Association between the complications and the compliance of patients with essential hypertension

No.	Compliance / Complications	Compliance	Non compliance	Total
1	Cardiac hypertrophy	4	15	19
2	Angina pectoris	2	8	10
3	Myocardial infraction	2	6	8
4	Heart failure	3	6	9
5	Cerbrovascular accident	5	16	21
6	Renal failure	0	3	3
7	No complications	19	11	30
	Total	35	65	100
	x^2 obs. = 15.286 df = 6 x^2 crit. = 12.592 $P \leq 0.05$			

df=degree of freedom, p=probability level, x^2crit.= critical chi-square, x^2obs= observed chi-square

A significant association is found between the complications and the compliance of patients with essential hypertension.

Table 5. Association between the patients' complications with essential hypertension and the duration of disease

No.	Complications / Duration of disease	Cardiac hypertrophy	Angina	M.I	H.F	CVA	RF	Non complications	Total
1	Below one year	2	1	0	0	0	0	4	7
2	1 – 5	4	2	1	1	5	1	16	30
3	6 – 10	8	1	4	5	5	0	10	33
4	11 – 15	3	2	3	2	9	1	0	20
5	16 – 20	1	3	0	1	1	0	0	6
6	≥ 21	1	1	0	0	1	1	0	4
	Total	19	10	8	9	21	3	30	100
	χ^2 obs = 57.956 df = 30 χ^2 crit = 43.77 P ≤ 0.05								

df=degree of freedom, p=probability level, χ^2crit.= critical chi-square, χ^2obs.= observed chi-square

This table indicated that there is a significant association between the complications of patients with essential hypertension and the duration of disease

Table 6. Shows the distribution of complications of Patients with essential hypertension

No.	Item	Frequency	Percent
1	Cardiac hypertrophy	19	19
2	Angina pectoris	10	10
3	Myocardial infraction	8	8
4	Heart failure	9	9
5	Crebrovascular accident	21	21
6	Renal failure	3	3
	Total	70	70
	Non applicable	30	30
	Total	30	30
	Total	**100**	**100**

This table indicated that the greater of groups who are accounted 70 (70%) have complications. Most of them who are accounted 21 (21%) on item (5). The remaining of group who are accounted 30 (30%) have non complications.

Discussion:

Table (1) showed that the majority 32 (32%) of the study sample was (40-49) years, the mean of age of those was (48.20) year, while the minority 14 (14%) was (60 year). This finding was supported by [10] who reported that the progression begins with the prehypertension person aged up to (30) year and by increased (Cardiac Output) to early hypertension at age up to (40) year which will increased (Peripheral vascular resistance) established at age (40-50) year. While, these results are similar to the results obtained from a study done by [2] who stated that the hypertension grows significantly with increasing age. The prevalence increased (22%) in the age groups (40-49) years old.

According to the subjects' gender, the majority 60 (60%) of them was males and the remaining 40 (40%) was female. [11] Stated that the prevalence of hypertension is higher in men than in women.

Relative to their educational level, the majority 39 (39%) of them do not read and write, while, the minority 8 (8%) is (college graduate and above). This finding was supported by [12] who reported that the lower educational level was associated with hypertension incidence and with poor blood pressure control.

Relative to the duration of the disease, the majority 33 (33%) at groups (6-10) years, while the minority 4 (4%) at groups (>21 year). This finding was supported by [13] who reported that the Essential Hypertension is associated with a risk factor for Cardiovascular diseases if left untreated after (8-10) years of duration.

Relative to the complications, the majority 70 (70%) has complications, while 30 (30%) do not have complications. This finding was supported by [14] who reported that the uncontrolled Hypertension is a serious risk factor for cardiovascular events such as Stroke, Heart failure, Myocardial infarction, Renal failure, Left ventricular hypertrophy and Angina.

Table 2 indicated that there was a significant association between the educational level and the total compliance in respect to antihypertensive medications, follow-up, dietary pattern and health habits. The majority 67 (67%) of them was non-compliant. Mostly 31 (31%) in groups (not read and write) ($P \leq 0.05$) while, 2 (2%) in age groups (college and above). This finding was supported by [15] who stated that the lower level of education is associated with higher risk of hypertension and non-compliance with health habits, while higher level of education produced lowest risk of hypertension and more compliance with health habits.

Table 3 indicated that there was a significant association between the duration of the disease and the compliance of patients with essential hypertension, the majority 55 (55%) of them was non-compliant. Mostly 18 (18%) ($P \leq 0.05$) in groups (6-10) years, while 3 (3%) in groups (>21 year). This result was supported by [16] who stated that the Systolic Blood Pressure increases with age, but Diastolic Blood Pressure tends to level of age (55-60) year. Also, it stated that a significant association between the duration of disease and compliance, and the age with duration of disease at group (6-10) years or more than had been associated with non-compliance and poor BP control.

Table 4 indicated that there was a significant association between the complications and compliance of patients with essential hypertension. 65 (65%) ($P \leq 0.05$) of them was non-compliant. 16 (16%) of them had Cerebrovascular accidents and 3 (3%) had renal failure. This finding was supported by [17] who reported that the Cardiovascular diseases prevalence was strongly correlated with the compliance of patient. [18] stated that the Cerebrovascular complications are major causes of morbidity and mortality of Essential Hypertension. Left Ventricular Hypertrophy may cause or facilitate many cardiac complications, and the occurrence of Heart Failure is by (50%) with antihypertensive drugs. Chronic hypertension leads to nephrosclerosis a common cause of renal insufficiency. [19] who reported that all patients with grade (1) Hypertension (SBP 140-159 or DBP 90-99) mm. Hg should be offered treatment with antihypertensive drugs, if there is any complication of Hypertension or target organ damage, or if an estimated 10 years risk of Cardiovascular diseases of >20% despite lifestyle advice.

Table (5) indicated that there was a significant association between complications and duration of disease. 70 (70%) of study sample do not have complications, 30 (30%) ($P \leq 0.05$) had no complications, 2 (2%) Left Ventricular Hypertrophy and 1 (1%) angina in groups (below one year), 5 (5%) Cardiovascular diseases and 1 (1%) Myocardial Infarction,

Heart Failure, Renal Failure in groups (1-5) years, 8 (8%) Left Ventricular Hypertrophy and 1 (1)% angina in groups (6-10) years, 9 (9%) Cardiovascular diseases and 1 (1%) Renal Failure in groups (11-15) years, 3 (3%) angina and 1 (1%) Left Ventricular Hypertrophy, Heart Failure, Cerebrovascular accidents in groups (16-20) year, 1 (1%) Left Ventricular Hypertrophy, angina, Cerebrovascular accident, RF in groups ($\geq$ 21years). This finding was supported by (20) who stated that there was a positive relationship between high Blood Pressure and complications, a person with elevated Blood Pressure is twice as likely to develop Cardiovascular diseases, Congenital Heart Diseases, Myocardial Infarction, Congestive Heart Failure, Renal Failure and four times more likely to have a stroke as those with normal Blood Pressure.

Table (6) indicated the complications distribution of essential hypertension, the majority 70 (70%) of them had complications. Mostly, 21 (21%) Cardiovascular diseases, while, 19 (19%) Left Ventricular Hypertrophy, 10 (10%) angina, 9 (9%) Heart Failure, 8 (8%) Myocardial Infarction, Renal Failure 3 (3%), and the remaining 30 (30%) do not have complications. This finding was supported by [21] who stated that a long-term reduction 5-6 mm. Hg in Diastolic Blood Pressure is associated with approximately (35-40%) less stroke and (20-25%) less Congenital Heart Diseases related death. [22] also stated that hypertension was a significant risk factor for the development of end stage renal disease, not only in men, but also in women. A control of Blood Pressure within the normal level should be stressed as a strategy to prevent end stage renal disease in both men and women.

Finally, the study showed that the majority 63 (63%) of (100) sample was non-compliant. Most of them 38 (38%) was males and 25 (25%) was females, while the minority 37 (37%) was compliant in respect to antihypertensive medications, follow-up, dietary pattern, and health habits.

Recommendations:

The research recommends to establish well-equipped hypertension specialized clinic to provide wide health services to persons at risk of hypertension, an education program should be designed to increase peoples' information about hypertension in order to reduce long-term complications, a booklet should be prepared and presented to patients with essential hypertension as guidance for compliance, prepare a lecture for patients visiting the out patient clinic about the relationship of noncompliance with the long-term complications, antihypertensive drugs should be supported by government, all drugs of chronic diseases such as antihypertensive medications must be obtained from the out patient clinic to avoid buying them from private pharmacies and further study can be conducted on a large sample to determine the impact of non-compliance of patients with essential hypertension to antihypertensive medications , follow-up, dietary pattern and health habits.

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