Compliance and Knowledge of Hypertensive Patients Attending Shorsh Hospital in Kirkuk Governorate

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ABSTRACT:
BACKGROUND:
Medical non-compliance has been identified as a major public health problem in the treatment of Hypertension.
OBJECTIVE:
To identify factors related to non-Compliance with the treatment of patients with Hypertension.
PATIENTS AND METHODS:
A total number of (400) hypertensive patient was enrolled to assess compliance rate at Shorsh General Hospital from July 21/2006 to July 21/2007, using a structured questionnaire.
RESULT:
The study revealed a low compliance rate among hypertensive patients, Males were less compliant (65.6%) than females (46%). Smokers (61.7%) more than non-smokers (50.6%),non-regular follow-up (76.7%) more than regular, primary and secondary education (68.5%) more than illiterate and high education, more than one medication (66.9%)than single medication. Poverty was the main cause of non-compliance (38.1) while absence of drugs and medical staff are the least to cause non-compliance (2.7%).
CONCLUSION:
Compliance rate in general is low in our study. Compliance rate is more in female, no family history, single drug medication, non-smokers, no other chronic diseases, more than 10 years of hypertension. Patient's knowledge about their disease is insufficient because there are no health educational programs.
KEY WORDS: hypertension, compliance rate, knowledge.

INTRODUCTION:

Hypertension is the single most common and most important risk factor for cardiovascular disease. Despite improvement in the detection and treatment of hypertension since 1970s, recent survey results illustrate that the condition continues to contribute significantly to mortality & morbidity in adults and that it is often poorly controlled in clinical practice [1]. According to the seventh Report of the Joint National Committee (JNC-7) on prevention, detection, evaluation and treatment of high blood pressure (Bp), control rates are far below the "healthy people" goal of 50% in the year 2000. A major (and modifiable) reason for lack of Bp control is failure by patients to use medications as prescribed [2] Non-compliance is a major concern considering that control of hypertension is achieved in only 25% of patients and only 60% of patients take their drugs as prescribed .
The silent nature of hypertension often encourage patients to be non- compliant [3] .
Compliance can be defined as the degree to which the patient conforms to medical advice about life style and dietary changes as well as keeping appointment for follow up and taking treatment as prescribed. A minimum of 80% is generally needed to achieve an adequate reduction in blood pressure [4]. Achieving and monitoring control of hypertension is a problem that is shared by the patient and their physicians, the patient should be an active participant in health care plan, patient knowledge of hypertension is an important factor in achieving better compliance and hence control[5]. It has been suggested that the distribution of compliance with antihypertensive medication would be roughly U-shaped, i.e. one –third of patients would take practically no drugs at all, one-third would take nearly all drugs, and one-third would fall between these extremes [6]. Drug holidays refer to situations where the patient repeatedly and suddenly discontinues his/her medication for at least one day and then suddenly resume it again [3].
Methods of evaluation of compliance:-
1. Pharmacological measures(determination of serum and urinary concentration of drugs or using biological markers).

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2. Clinical measures (Clinical judgment of the doctor, evaluation of promptness for appointments or the use of questionnaires or taking of side effects into account).

3. Measures (verifying prescription renewals, counting the remaining pills, pill counting).

To date, there is no gold standard allowing precise measurement of compliance. However, the electronic pill counter may be considered as the best existing system for measurement of compliance. This consists of a standard pill box which has microprocessor which can register the date and hour of the opening of the container. This allow us to monitor the amount of time between doses of drug and the change in compliance with time[7].

AIM :
Of this study is to assess the compliance of hypertensive patients, their knowledge and misconception in public medical clinic.

PATIENTS AND METHODS:
This study enrolled 400 hypertensive patients attending the out-patient unit in Shorsh General Hospital in Kirkuk. All of them were interviewed using a structured questionnaire form after obtaining informed consents from each patient.

Collected data include information about sex, age, educational level, smoking status and family history. Patients were also asked about their knowledge regarding hypertension such as gender susceptibility, complication and cure of hypertension. Compliance to treatment was assessed by self reporting method and the therapeutic outcome method. Blood pressure was measured using a cuff of a suitable size applied evenly around the right upper exposed arm. Patients who had a systolic blood pressure of less than 140 mmHg and/or Diastolic blood pressure of less than 90 mmHg where considered to have a controlled Blood pressure .

Chi-squared test was used to assess the significance of associations between categorical groups, P-value of 0.05 or less was regarded as statistically significant.

RESULTS:
The study enrolled 400 hypertensive patients, mean age was 52 year and age group of 40-60 years comprise 47.2% of the cases. Male were more than female 53.7%, 46.3% respectively as shown in table (1).

Table 1: Relations between age and sex in hypertensive patients

Age	Male	%	Female	%	Total	%
20-40 years	35	8.7	20	5	55	13.7
40-60 years	100	25	89	22.3	189	47.2
> 60 years	80	20	76	19	156	39
Total	215	53.7	185	46.3	400	100

(P – Value < 0.05)

Table (2) shows that female are more compliant than males, out of 215 males, 74(34.4%) were compliant while in female (54%) were compliant. Out of 189 patients of the age group 40-60 year,110(58%) were non-compliant and 79(42%) were compliant while in the age group 20-40 compliance and non-compliance were (46%, 54%) respectively which mean there is no difference in compliance rate between all age groups (p-value >0,1). Compliance rate is more in those patients who have regular follow – up than those have irregular follow – up (73.7%,23.3%) respectively.

Regarding compliance rate in relation to educational level, the rate is nearly equal for non-compliance and compliance in both illiterate and highly educated but in those who have   primary or secondary education(146 patients), 46(31.5%) were compliant and 100(68.5%) were non-compliant which is statistically significant (p-value <0.05)

Positive family history of hypertension have inverse relation as it increase the non-compliance and decrease the compliance (59.2% and 40.8% respectively) while negative family history have no role .

Number of drugs taken by the patients has a role in compliance rate. In those who take one drug the rate of compliance is (54.6%) while in those who take more than one medication it is (33.1%) which is statistically significant (p-value <0.05). There is inverse relation which is statistically significant between smoking and compliance rate, (38.3%) of smoker were compliant while it is higher in non-smoker (49.4%).

The rate of compliance is more (57.3%) in those who have no other chronic diseases like diabetes mellitus, bronchial asthma or rheumatoid arthritis while it was

(32.4%) in presence of other disease.
Regarding duration of hypertension , table (2) shows that compliance rate increase as the duration of hypertension increases so those with duration of hypertension between 5-10 year and more than 10 years show the highest compliance rate (41.3%,51.9% respectively) which is statistically significant(p-value <0.025) .

Table 2: Compliance rate in relation to Socio- demographic character

Character		Compliant		Non-Compliant		Total		
		No.	%	No.	%	No.	%	
Sex	- Male	74	34.4	141	65.6	215	53.7	<0.05
	- Female	100	54	85	46	185	46.3	
Age (years)	- 20-40	25	46	30	54	55	13.7	
	- 40-60	79	42	110	58	189	47.3	>0.1
	- > 60	70	45	86	55	156	39	
Follow-up	-Regular	118	73.7	42	26.3	160	40	>0.05
	- Irregular	56	23.3	184	76.7	240	60	
Educati -onal level	-Illiterate	96	51	92	49	188	47	
	-Primary & 2nd	46	31.5	100	68.5	146	36.5	<0,05
	-High - edu	32	49	34	51	66	16.5	
Family history	- Positive	114	40.8	166	59.2	280	70	<0.05
	- Negative	60	50	60	50	120	30	
Drugs	- One	105	54.6	87	45.4	192	48	<0,05
	- 2 or more	69	33.1	139	66.9	208	52	
Smoking	- Smoker	82	38.3	132	61.7	214	53.5	<0.025
	- Non	92	49.4	94	50.6	186	46.5	
Chronic diseases	- Present	72	32.4	150	67.6	222	55.5	<0.05
	- Absent	102	57.3	76	42.7	178	44.5	
Duration	- 1-5 year	56	36.3	98	63.7	154	38.5	
	- 5-10 year	38	41.3	54	58.7	92	23	<0.025
	- > 10 year	80	51.9	74	48.1	154	38.5	

Table (3) shows that poverty is the most common cause of non-compliance (38.1%) followed by side effects of antihypertensive drugs (23.7%) while the least common causes were absence of both drugs and medical staffs(2.7% for each) .

Table 3: Causes of non-compliance among 226 patients

Cause	No. of patients	%
Poverty	86	38.1
Side effect of drugs	56	23.7
Patient's ignorance	42	18.6
Inability to control diet	20	8.8
Other drug abuse	10	4.4
Absence of drug	6	2.7
Absence of medical staff	6	2.7
Total	226	100

Table (4) shows the knowledge of hypertensive patients regarding their disease and reflects that most of patients don't have enough information about their disease, (66.3%) of patients believe that hypertension can be cured and (68.5%) supposed that drugs can be stopped once control is achieved,(63%) thought that males were more susceptible to be hypertensive, (57.5%) thought that elderly are main age group prone to be affected by hypertension,(36.5%) thought that emotional stress is the main cause of hypertension and(37.7%) don't know the complication of hypertension .

Table 4: Knowledge of hypertensive patients about disease aspects

Disease aspect		No.	%
Can hypertension be cured	- Yes	265	66.3
	- No	135	33.7
Can drugs be stopped once control is achieved	- Yes	274	68.5
	- No	126	31.5
Which sex is more susceptible to hypertension	- Male	252	63
	- Female	148	37
Which age group are more susceptible	- Elderly	230	57.5
	- Middle -aged	91	22.7
	- All age group	79	19.7
What are the causes of hypertension	- Emotional stress	146	36.5
	- Hereditary	104	26
	- Obesity	100	25
	- Excessive salt	50	12.5
Complication of Hypertension	- Don't know	151	37.7
	- Cardio-vascular	107	26.6
	- More than one	66	16.7
	- Neurological	64	16
	- Renal	12	3

DISCUSSION:

Our study revealed a variety of results and associated factors which can influence compliance behavior in group of patients with hypertension . We found that age group(40-60) years comprises 47.3% of total cases which is consistent with study in Finland which show similar results in which age group (40-60) comprised 52% of their patients[8]. The finding that males comprise (53.7%) of total patients is compatible with a study done in Italy in which males comprise (56%) of Total of 367 patients [5]. This study showed that females were more compliant 54% than males 34.4% which is consistent with a study in Sudan which showed that females comprise 73% of their compliant patients[9]. and study in Ghana[10] Which showed that compliance rate in female comprise (80%) and is inconsistent with two studies done in Iran (Shiraz) and Nigeria which show no gender difference [11, 12]. this may be due to fact that most of our female group were housewives and have time to visit health centers regularly for follow up which in turn improves compliance or it may be due to the fact that males have other life concerns than spending time for follow up of their hypertension.

In our study no relation between age and compliance rate was found (P-value not significant) which is inconsistent with study done in Saudi Arabia which showed a higher compliance rate among those > 55 years of age (48.5%) [3]. Another study in Ghana showed a higher compliance rate in age group(40-60) year(68%) and a decrease rate in those less than(40 year) and above (60 year) (6%,33% respectively) [10], and is compatible with study done in Iran-Shiraz [11]

Regular follow up of the patients showed a high compliance rate (73.7%) which is statistically significant and compatible with other studies, in Saudi Arabia(82.1%)[3], Sudan (62.2%)[9], while in Iran the rate was (59.6%)[11]. It is a well-known facts that regular follow up improve the compliance rate [8]. There is a decrease in compliance rate in those patients with primary and secondary school education (31.5%) while no significant difference among those with higher education and non-educated patients which is inconsistent with two studies done in Ghana [10] and Saudi Arabia [3] showing that compliance rates in educated patients were (18% and 33% respectively) and consistent with two study in Finland [8] and Nigeria [12] showing high compliance rate in educated patients (81.5%,74.2% respectively). These differences could be due to the characters of patients attending these health care centers while most of our patients were non-educated & the least were highly educated. In this study positive family history of hypertension had no role to increase the compliance rate (40.8%) which is consistent with study in Saudi Arabia [3], which showed compliance rate of (49.5%). The effect of having many patients in a family with hypertension is not beneficial to increase the compliance as nearly most of them have the same attitude regarding the disease, drug intake, dietary restriction and the same for compliance.

It is well known that compliance is improved if the patient is taking single drug rather than two or more [8]. Our study showed that those on single medication were more compliant (54,6%) than those on more

than one drug(33.1%) which is compatible with study in Sudan[9],Switzerland[13].Saudi Arabia[3], Canada[7] which showed compliance rate with one drug of (80.8%,93%.78.9% and 91% respectively). We think that high rate of smoking among our patients (53.3%) may also explain why most of them were non-compliant (61.7%) because of no awareness of smoking hazards and hence non-compliance with medication. Chronic diseases in addition to hypertension will inversely affect the compliance rate probably because taking a lot of medication and dietary restriction may cause depression. amnesia, fatigue & hence non-compliance which is inconsistent with study in United State which showed no difference in compliance in presence with other diseases [7].A higher rate of compliance was seen in those patients who had been hypertensive for more than 10 years and decreased rate with less than 5 years which is consistent with Mallon JM[4],who showed that 54-83% of patients were more compliant after 5 years from start of their medications.Poverty was found to be the main cause of non-compliance which is consistent with what is found in study in Ghana [10], which showed that (93%) of non-compliance was due to poverty, Another study in Sudan showed that the main cause of non-compliance was due to poverty(36.8%) which means that in underdeveloped countries the main cause of non-compliance is poverty while when we compare it with study in United State[14], we found that the main cause of non - compliance was due to the fact that patient think that they have been cured so the drugs were not taken regularly(46%),(11%) was due to side effect and only (6%) was due to financial causes . The reason for such results is that in those developed countries there is a high income and governmental agencies which pay for treatment of their citizens [8].

There is low knowledge of our patients regarding hypertension if compared with developed countries as (66.3%) of patients thought that their hypertension can be cured, (68.5%) thought that they can stop medication once blood pressure is controlled, (63%) thought that males are more susceptible to hypertension and (36.5%) thought that emotional stress is the main cause, when we compare with United State hypertensive patients we found that (57%) know that family history plays a major role in the causation, (41%) know that stress can increase blood pressure, (42%) know that obesity worsen pre-existing hypertension, (37%) think that exercise can decrease the disease, (29%) think that bad eating habits will worsen hypertension and the difference in knowledge is because there are always publications, committees and organizations in developed countries which educate patients about most of chronic diseases .

CONCLUSION:

Compliance rate in general is low in our study and the compliance is more in female, patients with negative family history of hypertension, single drug medication, non-smokers, no other chronic diseases and more than 10 years of hypertension.

Patients knowledge about their disease is insufficient or poor because there are no or weak health educational programs and this is partly due to the existing security situation which affect the performance of the medical staff and the patients not aware or response to those programs so we recommend strengthening of the existing programs through health education of patients and the public to raise their awareness regarding hypertension, risk factors, the need to take medication regularly, possible side effects of anti-hypertensive drugs and the draw-back of non-Compliance through using all available mass media like television, radio, newspaper, posters .

The governmental roles to increase the compliance rate is by continuous supply of anti-hypertensive medications to be distributed through the booklets of chronic diseases in the public clinics and by increasing the items of the food ration which will decrease the financial burden on patients and their families.

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