

## Knowledge of Hypertensive Patients Attending Al- Imamein Kadhimein Medical City Regarding Follow- Up Visits

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### ABSTRACT:

#### BACKGROUND:

Hypertension is a challenge for public health professionals all over the world and it is often poorly controlled in clinical practice and to achieve control, hypertensive patients should actively participate in the plan of management through being educated and monitored at follow-up appointments.

#### AIM OF THE STUDY:

To shine a light on a sample of hypertensive patients, tracing knowledge about follow-up visits practicing, and identifying the factors that influence their practice.

#### PATIENTS & METHODS:

A cross-sectional study was carried out on 300 outpatient hypertensive patients aged eighteen years and above of both sexes who were known to be hypertensive for not less than one year and on antihypertensive treatment, attended Al- Imamein Kadhimein Medical City and interviewed face to face by using a detailed questionnaire.

#### RESULTS:

The majority of the participants had hypertension for less than 5 years (43%), family history in (69%), and (57.3%) had knowledge about hypertensive complications. Patients with regular visits constituted (65.7%) whom the private sector represented the main health care provider (65.5%) of the sample. Diabetes mellitus, cardiovascular diseases, knowledge of hypertension complications and educational level were statistically significantly associated with follow-up visits.

#### CONCLUSION:

the private health sector providers were the preferred side follow-up for 2/3 of the patients. Educational level was inversely associated with regularity of visits, while diabetes and cardiovascular diseases were proportionally associated with the follow-up visit of the patient's family and friends comprised the main source of information about hypertensive complications rather than health care providers.

**KEYWORDS:** Hypertension, knowledge, follow-up visits.

### INTRODUCTION:

Hypertension (HT) is defined as persistent non-physiologic elevation of systolic BP value  $\geq 140$  mmHg or diastolic BP value  $\geq 90$  mmHg<sup>[1]</sup>. HT is the most prevalent medically treatable chronic cardiovascular disease affect the adult population all over the world<sup>[2]</sup>, Despite hypertension can be controlled life-style modification, the complications of HT were reported as serious health problem leading to stroke, heart failure and kidney problems<sup>[3]</sup>, and the risk associated with increasing blood pressure is continuous, with each 2 mmHg rise in SBP

associated with a (7%) increased risk of mortality from ischemic heart disease and a (10%) increased risk of mortality from stroke<sup>[4]</sup>. There are simple criteria for the detection of high blood pressure and it doesn't require long and complex training or expensive equipment. On the other hand, reduction of blood pressure is achievable with both non-pharmacologic and drug treatment<sup>[5]</sup>.

This reduction with new or old drugs or with non-pharmacologic treatment is quite effective in the reduction of total cardiac mortality, hospital Admissions for acute coronary events, heart failure, coronary artery bypass surgery, percutaneous coronary interventions, myocardial infarction and cerebrovascular accidents<sup>[6-7]</sup>.

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Hypertension treatment also reduces progression of chronic renal failure<sup>[8]</sup> and peripheral artery disease.<sup>[7]</sup> HT is common worldwide, affecting an estimated more than a billion people, nearly three-quarters of whom live in low or middle income countries<sup>[9]</sup>. It's second, after smoking, as a contributor to the Global Burden of Disease in the latest (2010) analysis<sup>[10]</sup>

Analysis of the global burden of hypertension revealed that over (25%) of the world's adult population had hypertension in 2010, and the proportion is expected to increase to (29%) by 2025<sup>[11]</sup>. The prevalence of HT in Iraq is estimated to be (25.2%) as the WHO reported in 2019.<sup>[12]</sup> The prevalence of HT is highest in the African region at (46%) of adults aged (25) and above, while the lowest prevalence at (35%) is found in the Americas. The increasing prevalence of hypertension is attributed to population growth, aging behavioral risk factors, such as unhealthy diet, harmful use of alcohol, lack of physical activity, excess weight and exposure to persistent stress<sup>[13]</sup>. Despite the increased prevalence of HT and its associated complications, studies have shown that control of the disease is far from adequate<sup>[14,15]</sup>. Therefore, Effective population control of hypertension demands an improvement in awareness (among both health professionals and the general population), an assessment of overall absolute cardio vascular risk (CVD risk) and an increase in the effectiveness of non-pharmacological and pharmacological interventions<sup>[16]</sup>, therefore, hypertensive patients should be educated and monitored at the beginning of the treatment to achieve better compliance<sup>[17]</sup>, meet physicians or nurses at follow-up appointments over a long period of time [18]. Primary goals of follow-up are to reduce the cardiovascular risk factors associated with high BP, to encourage patient compliance with lifestyle modification, medical treatment and to control BP<sup>[17,18]</sup>.

### **AIMS OF THE STUDY:**

1. Throw a light on hypertensive patient's knowledge about follow-up visit practicing.
2. Identify the factors that influence their practice.

### **PATIENTS AND METHODS:**

A descriptive cross sectional study conducted in Al Imamein Kadhimien Medical City in Baghdad from March 1<sup>st</sup> till June 30<sup>th</sup> 2014 including 300 hypertensive patients, seeking medical help either for hypertension or for other diseases.

### **Inclusion criteria:**

Inclusion criteria of sample include patients: Any patient who is 18 years old and above on antihypertensive treatment for 1 year and more and is willing to participate in the study.

### **Exclusion criteria:**

Hypertensive but:

- 1) Less than 18 years old
- 2) Diagnosed with hypertension less than one year.
- 3) Not on medical treatment.
- 4) Patients with complications that required admission to the hospital.

Data were collected by directly interviewing the patients using a questionnaire designed for the purpose. Follow-up visits parameters were traced in the tool and participants responses regarding hypertension symptoms discussion by the health care provider, life style modification, advising for regular physical activities, antihypertensive drugs adherence, adding/changing antihypertensive drugs on demand, other diseases drugs interaction/interference with hypertension, measuring blood pressure, weigh for BMI calculation, and investigations including S.creatinine, S.electrolyte, fasting blood sugar, lipid profile, ECG, funduscopy, and echo study

### **Statistical analysis:**

Analysis of data was carried out using the available statistical package of SPSS. Data were presented in simple measures of frequency, percentage, mean, standard deviation, and range (minimum-maximum values). The significance of difference of different percentages (qualitative data) was tested using chi-square test ( $\chi^2$ -test) with application of Yate's correction or Fisher Exact test whenever applicable. Level of significance (P value of 0.05 or less) was used.

### **RESULTS:**

This study found that for the chronic diseases, diabetes mellitus present in (26.3%) followed by cardiovascular diseases (25.3%) figure (1). The majority have hypertension for less than 5 years (43%), (69%) had family history of complications while (57.3%) heard about complications table (1).

The knowledge about complications come s first from friends and family members (26.3%) figure (2)

Table (2) showed, (65.7%) of participants had regular visit, the private clinics visited the most (65.5%), while primary health care was the least for follow-up (21.3%)

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According to follow-up visit parameters Table (3), all of discussing symptoms, salt reduction advice, decreasing saturated fat advice, and increasing fruits and vegetables recorded more than (85%) of the participants. While only (0.3%) of participants had their weight measured during follow-up.

Regarding drugs discussions (which include antihypertensive treatment or other chronic drugs used by the patients), the majority (90.2%) discussed with their doctors the adherence to dose and time of antihypertensive treatment. BP measurement were routinely done by for most of patients (99.7%) in each visit

The two investigations the participants hadn't hear or know about were s.electrolyte (42.5%) followed by s.creatinine (32.8%).F.B.S. were done routinely in (71.4%) followed by ECG in (69.7%).

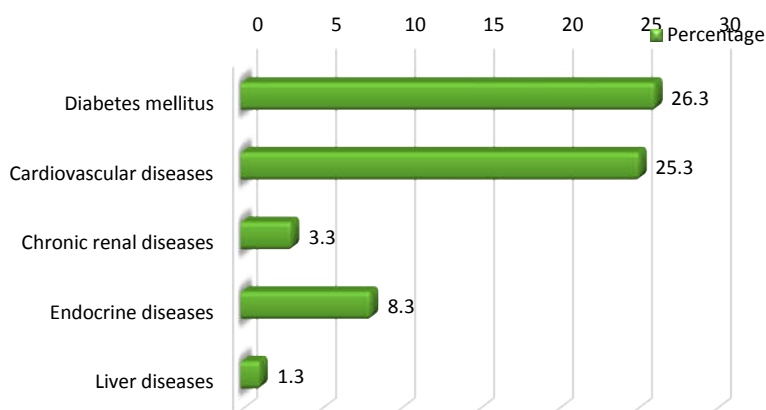
Two third of participants did not practice follow-up visit (70.7%) as they didn't know about it figure (3).

There was a significant association between follow-up visit's regularity with the educational level of hypertensive patients, p value (0.003) Table (4).

Table (5) shows statistically significant association between regularity of follow-up visit with diabetes mellitus and cardiovascular disease, p value (0.020, and 0.015) respectively.

Also, there was a statistically significant association between regularity of follow-up visit with hypertensive patient's knowledge of hypertension complication, p value (0.038).

No statistical significance found between regularity follow-up visits and source of patient's knowledge of HT complications table (6).

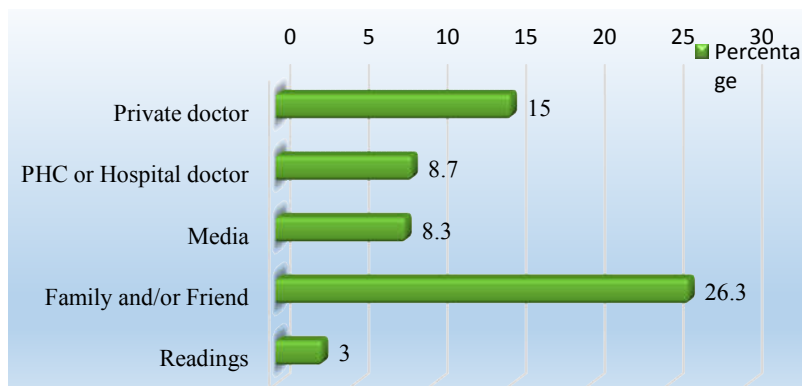


**Figure 1: Distribution of participants in study group according to presence of other chronic medical diseases.**

**Table 1: Distribution of study participants according to the duration of hypertension, family history of hypertension and knowledge of hypertension complications.**

		No	%
Duration of HT	<5	129	43.0
	5---9	76	25.3
	10---14	58	19.3
	15---19	25	8.3
	=>20years	12	4.0
	Mean± SD(Range)	6.8±5.5	(1-33)
Family history of HT		207	69.0
Knowledge of hypertensive complications		172	57.3

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**Figure 2: Distribution of participants according to the source of participant's knowledge of hypertension's complications.**

**Table 2: Distribution of participants according to the follow-up visit regularity, frequency and place where done.**

		No.	%
Follow-up visit	Regularly	197	65.7
	If had complain	90	30.0
	No visits	13	4.3
No. of visits	One visit /year	62	21.6
	Every 6 months	26	9.1
	More than two visits/year	199	69.3
Place of visit			
Hospital		134	46.7
PHCC		61	21.3
Private clinic		188	65.5
Others (nurse, pharmacist)		90	31.4
*More than one place of visit in each category.			

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**Table 3: Distribution of participants according to the parameters of each follow-up visit.**

In each visit	No.	%	
Discussing symptoms	271	94.4	
Advice on salt reduction	249	86.8	
Advice for decrease saturated fat	256	89.2	
Advice to increase fruits and vegetable	245	85.4	
Advice for stop/decrease smoking	24	72.7	
Advice to do regular exercise (20-30 min/4-5days/week)	115	40.1	
Weight measure to calculate BMI	1	0.3	
Advice for weight reduction or maintain adequate weight	61	21.3	
Drugs	No	%	
Adherence to dose and time	259	90.2	
Side effect	224	78.0	
Add or change drugs	213	74.2	
Discussing other drugs used	157	54.7	
BP measurement	286	99.7	
S.creatinine	Yes	74	25.8
	No	119	41.5
	???	94	32.8
S.electrolyte	Yes	60	20.9
	No	105	36.6
	???	122	42.5
F.B.S.	Yes	205	71.4
	No	82	28.6
	???	-	-
Lipid profile	Yes	165	57.5
	No	110	38.3
	???	12	4.2
Retinal examination	Yes	78	27.2
	No	208	72.5
	???	1	0.3
ECG	Yes	200	69.7
	No	85	29.6
	???	2	.7
Echo	Yes	141	49.1
	No	145	50.5
	???	1	.3
*13 participants were excluded from the total sample who didn't do follow-up visit.			
*More than one practice per participant			

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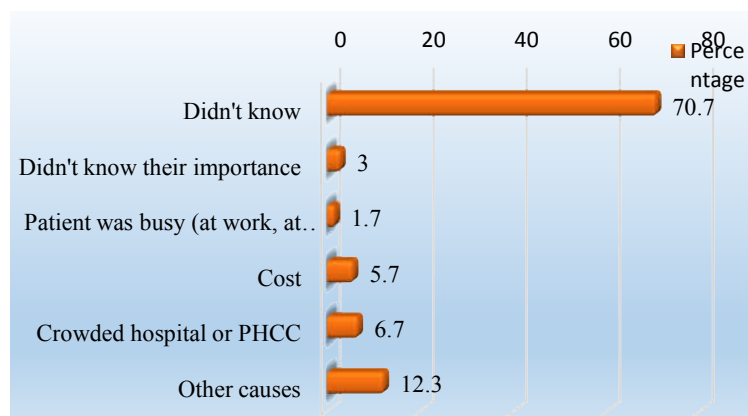


Figure 3: The percentage of causes of patient didn't practicing follow-up visit or did incomplete visit.

Table 4: Association between regularity of follow-up visit with socio-demographic characteristics of hypertensive patients.

Socio-demographic characteristics		Follow-up visit						P value
		Regularly		If complaining of symptoms		No visits		
		No.	%	No.	%	No	%	
Age (years)	<40	15	7.6	4	4.4	2	15.4	0.427
	40---49	18	9.1	11	12.2	-	-	
	50---59	61	31.0	31	34.4	6	46.2	
	60---69	69	35.0	33	36.7	2	15.4	
	=>70years	34	17.3	11	12.2	3	23.1	
Sex	Male	54	27.4	30	33.3	4	30.8	0.589
	Female	143	72.6	60	66.7	9	69.2	
Work	Employee	19	9.6	8	8.9	3	23.1	0.583
	Self-employee	35	17.8	20	22.2	2	15.4	
	Retired	28	14.2	16	17.8	1	7.7	
	Not working	115	58.4	46	51.1	7	53.8	
Education level	Illiterate	74	37.6	26	28.9	9	69.2	0.003*
	Read & Write	41	20.8	6	6.7	-	-	
	Primary school	26	13.2	18	20.0	2	15.4	
	Secondary school	28	14.2	20	22.2	1	7.7	
	College & Higher	28	14.2	20	22.2	1	7.7	
Residence	Urban	197	100.0	90	100.0	13	100.0	-
	Rural	-	-	-	-	-	-	

\*Significant difference between proportions using Pearson Chi-square test at 0.05 level.

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**Table 5: Association between regularity of follow-up visit and other chronic disease, family history of HT, duration of HT and patient's knowledge of presence of complications.**

		Regularity of follow-up visit						P value
		Regularly		If complaining of symptoms		No visits		
		No.	%	No	%	No.	%	
Diabetes mellitus	Yes	62	31.5	15	16.7	2	15.4	0.020*
	No	135	68.5	75	83.3	11	84.6	
Cardiovascular diseases	Yes	60	30.5	15	16.7	1	7.7	0.015*
	No	137	69.5	75	83.3	12	92.3	
Chronic renal diseases	Yes	7	3.6	2	2.2	1	7.7	0.565
	No	190	96.4	88	97.8	12	92.3	
Endocrine diseases	Yes	19	9.6	4	4.4	2	15.4	0.215
	No	178	90.4	86	95.6	11	84.6	
Liver diseases	Yes	4	2.0	-	-	-	-	-
	No	193	98.0	90	100.0	13	100	
Family history of hypertension	Yes	137	69.5	64	71.1	6	46.2	0.184
	No	60	30.5	26	28.9	7	53.8	
Duration of hypertension	<5	83	42.1	38	42.2	8	61.5	0.899
	5---9	52	26.4	21	23.3	3	23.1	
	10---14	37	18.8	20	22.2	1	7.7	
	15---19	16	8.1	8	8.9	1	7.7	
	=>20years	9	4.6	3	3.3	-	-	
Knowledge of HT complications	Yes	109	55.3	59	65.6	4	30.8	0.038*
	No	88	44.7	31	34.4	9	69.2	

\*Significant difference between proportions using P value = 0.05 level.

**Table 6: Association of frequency and regularity of follow-up visit with source of patient's knowledge of HT complication.**

Source of information		Regularity of follow-up visit						P value
		Regularly		If complaining of symptoms		No visits		
		No.	%	No.	%	No	%	
Private doctor	Yes	35	17.8	10	11.1	-	-	0.103
	No	162	82.2	80	88.9	13	100.0	
PHC or Hospital doctor	Yes	18	9.1	6	6.7	2	15.4	0.535
	No	179	90.9	84	93.3	11	84.6	
Media	Yes	14	7.1	11	12.2	-	-	0.187
	No	183	92.9	79	87.8	13	100.0	
Family and/or Friend	Yes	46	23.4	31	34.4	2	15.4	0.093
	No	151	76.6	59	65.6	11	84.6	
Readings	Yes	4	2.0	4	4.4	1	7.7	0.322
	No	193	98.0	86	95.6	12	92.3	

\*Significant difference between proportions using p value= 0.05 level.

### DISCUSSION:

The study showed that two third of patients were between (50-69) years with mean age $\pm$ -SD (57.7 years $\pm$ -10.9). (66.3%) of the study population was either illiterate, read and write only or with primary education which agree with studies in Duhok, 2010<sup>[19]</sup>, Jordan, 2013<sup>[20]</sup>. The study illustrated that (71%) of the study populations was retired or

unemployed... More than half of participants who had other chronic diseases in addition to HT had Diabetes Mellitus or CVD or both. In this study, there was a significant association between hypertensive patients who had other chronic diseases (diabetes mellitus and cardiovascular diseases) with regular follow-up visits, these

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patients were accustomed to do follow-up for their diseases or attending the health centers for receiving their chronic medicines.

Concerning hypertensive complications, (57.3%) of the patients had knowledge about stroke and heart disease as HT complications, In general, the knowledge about the complication of HT show significant association with regular follow-up visit in this study.

The highest proportion reported for the source of information about hypertensive complications were from friends and relatives, in contrary with studies done in USA<sup>[21]</sup>, where physician and health care provider represented the first source (74%), while in USA (59%) attributed to media which plays an important role in the awareness of patients<sup>[21]</sup>.

Two thirds of our sample did the follow-up regularly and at more than two visit/year, which was good percent which fellow many guidelines, (Iraq<sup>[18]</sup>, JNC 7<sup>[22]</sup>, American<sup>[23]</sup>, and Canadian<sup>[24]</sup>) suggest similar intervals, every 3- to 6-month intervals after BP is at goal and more frequent visits will be necessary for patients with stage 2 HT or with complicating comorbid conditions.

The preferred place for follow-up in this study was private clinics which disagrees with study in Saudi, 1998<sup>[25]</sup> where PHCC was the most preferred place. The overcrowding load routine of our hospitals and PHCC and unavailability of some investigations and treatment might be important causes to prefer private clinic.

Most of our participants were discussing symptoms they complained in each follow-up visit and received advise about diet (86.8% were advised to decrease salt, 89.2% were advised to decrease saturated fat and 85.4% were advised to increase fruits and vegetables) while only 40% of participants advised for regular exercise (frequency, duration, intensity) in spite of its importance, Hagberg et al. on their review of 15 studies supported the recommendation that exercise training is an important initial or adjunctive step that is highly efficacious in the treatment of individuals with mild to moderate elevations in BP<sup>[26]</sup>.

(21.3%) of participants had received weight reduction advice but only one participant's weight had been measured in follow-up visits in spite of current guidelines suggesting lifestyle modifications and reduction in body weight for all

obese hypertensive patients<sup>[17]</sup>, since there was a positive relation between body weight and BP<sup>[27]</sup>.

Most of the participants received advise on adherence to dose and time of antihypertensive treatment, discussing the side effects and the regimes of treatment changed by the doctor, while only half of the participants discussing other drugs used for other diseases,

Investigation are recommended in periodic periods for assessing cardiovascular risk factors, early detection of end organ damage or if present, better management to avoid advanced morbidity and mortality. In this study most of our patients had knowledge about F.B.S. and ECG, approximately half of them had knowledge about lipid profile and echo study while s. electrolyte, s.creatinine and retinal exam had least knowledge (20.9%, 25.8%, 27.2% respectively), Retinal exam also important issue in follow-up, hypertensive retinopathy is generally considered to be a marker and/or predictor of vascular disease and death. Hypertensive retinopathy is strongly related to stroke or lacunar infarctions<sup>[28]</sup>. Therefore the follow-up of renal function and retinal exam important to avoid the complication. There is significant association between regularity of periodical visits and presence of DM, CVD, knowledge about complications of HT and level of education p value (0.020, 0.015, 0.038 0.003) respectively.

When we assess the causes of why the patients didn't do periodic follow-up or did it incompletely, most of them (70.7%) had no information which mean the cause is poor health education program from the health system and limited role of physicians in patient's awareness.

### CONCLUSION:

The private clinics is the preferred place for follow-up of about 2/3 of participants. There was strong inverse statistical association of follow-up visits practicing with educational level of participants, while having diabetes mellitus, cardiovascular disease, and knowledge about complications showed proportional association with follow-up visits. Most of the participants had good information about lifestyle modification except regular physical activity and weight reduction which had the lowest percentage. Lack of knowledge about hypertensive's follow-up visit or any of its parameters was the major cause of not doing follow-up visit or did it incompletely.



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