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Are General Practitioners in Primary Health Care Aware of Hypertension Treatment Guidelines?

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ABSTRACT

***Background*: Only 14% of patients on anti-hypertensive drugs achieve the recommended blood pressure level. Guidelines help clinicians managing patients with hypertension.**
***Objective:* The primary purpose of the study was to survey general practitioners in Kuwait about their awareness, and to disclose their reasons for not implementing specific guidance within the WHO/ISH guidelines.**
***Methods:* This study is a cross-sectional survey that was carried in the five health regions of Kuwait. All PHC physicians who were currently working as GPs were asked to participate in the study. Data was collected out using a structured self-administered questionnaire, including clinically oriented questions formulated on the basis of the 1999 World Health Organization/International Society of Hypertension, as standard reference**
***Results:* The study revealed that 39.6% and 50.9% of GPs were very familiar or somewhat familiar respectively with the guidelines, 91.3% were in agreement with WHO/ISH guidelines. More than three quarters (84.5%) of the GPs indicated that they always or usually follow these guidelines when treating patients. Regarding the correct choice of the 20 guidelines statements,only 10.6% of the GPs answered correctly less than ten of the 20 statements, 55.0% answered 10 to less than 15, and 34.4 % answered ≥ 15 statements, none choose correctly the 20 statements.**
***Conclusion:* The results of this survey indicate that there is a need to establish nationwide educational and quality monitoring programs to facilitate the correct implementation of hypertension guidelines in PHC clinical practices in Kuwait.**

INTRODUCTION

About 20% of adults worldwide suffer from hypertension. It is ranked third as a cause of disability-adjusted life years. (Kearney et al. 2005). By 2025 it is expected that over 1.56 billion adults (29%) of the world's population will have hypertension.Provided that patients are diagnosed and treated appropriately, much of the morbidity and mortality associated with hypertension can be avoided. However, many patients remain undiagnosed or untreated. Only 14% of patients on anti-hypertensive drugs achieve the recommended blood pressure level. (Walley et al., 2003)

Recent changes in definition and classification of blood pressure levels make hypertension, by far, the most commonly diagnosed condition in primary and secondary healthcare systems and projects the entity on the first place in terms of work load and prescribing cost. (JNC, 2003).Many factors, both those related the patient himself or that related to patient-physician relationship, contribute to the low level of blood pressure control. On the top of the determinants list are implementation of inappropriate treatment regimens that do not achieve target blood pressure, and poor patient compliance. (ESH-ESC, 2003) Guidelines help clinicians in the management of hypertensive patients, and are developed for improving the suboptimal treatment of hypertension. (ESH-ESCGC, 2003; BHS, 2004; National Collaborative Center for Chronic Condition, 2006) In spite that the majority of doctors support the concept of guidelines, several studies suggested that recommendations vary in their degree of adherence.(Heagerty, 2006) Non-implementation of recommended guidelines may be due to many variables as lack of physician's awareness, lack of agreement with the guideline, belief that changing behaviour is difficult and cannot lead to a particular consequence, in addition to external barriers.(Cabana, 1999)However, little is known about how physicians change their practice after their awareness of a guideline.(Heagerty, 2006)

Currently, safe and effective antihypertensive therapies are readily available to most hypertensive patients. World Health Organization and the International Society of Hypertension (WHO/ISH) guideline make recommendations on primary care management of hypertension. It includes recommendations on approaches to identifying patients with persistently raised blood pressure (BP), and managing hypertension. This guideline offers best practice advice on the care of adults with hypertension. (Whitworth, 2003; WHO, 1999)

The primary purpose of the study was to survey general practitioners (GPs)in Kuwait about their awareness,and to disclose their reasons for not implementing specific recommendations within the WHO/ISH guidelines.

METHODS:

Setting:

The health care system in Kuwait is divided into five regional health regions. Primary health care (PHC) is provided by 80centers served by 157 family physicians (FPs) and489 general practitioners.(GPs). The study was carried out in the primary health care centers located in all health regions of Kuwait from October to December 2008.

Study design

An observational cross-sectional study design was adopted for this study. All available GPs(428) during the field work period of the study were the target population of this study. Out of them, only 369 agreed to share in the study with an overall response rate of 86.2%.

Data was collected using a predesigned self-administered questionnaire including clinically oriented questions that were settled on the basis of the 1999 WHO/ISH, as standard reference.[9,10]The questionnaire consisted of three parts. The first part includes personal characteristics (age, gender, nationality, duration of work in PHC, specialty, average number of hypertensive patients seen per week). In the second part, questions were related to familiarity, agreement, following WHO/ISH guidelines. It consisted of 20 guideline statements and scenarios explored the level of knowledge and agreement with (WHO/ISH) guidelines as well as implementation of these guidelines. The first 10-items were focusing on diagnostic issues (4 questions), pharmacological therapy (3 questions), treatment strategies (2 questions) and recommended BP (1 question). Another 10 multiple-choice questions in the form of guideline statements exploring the level of awareness about the WHO/ISH guidelines.. The last part includes 6 questions related to barriers for improving their hypertensive patient management. Physicians were asked to pick only one answer for each question within 5 minutes without guessing or discussing the answer with other colleagues.

A pilot study was carried out on 20 physicians(not included in the final study). This study was formulated to test the clarity, applicability of the study tools, accommodate the aim of the work to actual feasibility, identify the difficulties that may be faced during the application. Also, the time needed for filling the questionnaire by the staff was estimated during this pilot study. The necessary modifications according to the results obtained were done.

All the necessary approvals for carrying out the research were obtained. The Ethical Committee of the Kuwaiti Ministry of Health approved the research. A written format explaining the purpose of the research was prepared and signed by the physician before filling the questionnaire. In addition, the purpose and importance of the research were discussed with the director of the health center. In order to maintain confidentiality, questionnaires were made anonymous.

Statistical analysis

The Statistical Package for Social Sciences (SPSS-17) was used for data processing. Simple descriptive statistics were used (mean ± standard deviation for quantitative variables, and frequency with percentage distribution for categorized variables).

RESULTS:

Table1: Characters of participating doctors and their work features

Characteristics	No.	%
Age (year)		
<35	44	11.9
35 -	163	44.2
45+	162	43.9
Gender		
Males	260	70.5
Females	109	29.5
Nationality		
K	24	6.5
NK	345	93.5
Experience (year)		
< 5	23	6.2
5 – 10	31	8.4
≥ 10	315	85.4
Average patients seen per week		
<20	75	20.3
20-	88	23.8
40-	83	22.5
60-	40	10.8
80+	83	22.5
Familiarity with WHO/ISH guidelines*		
Yes very familiar	146	39.6
Yes somewhat familiar	188	50.9
No	35	9.5
Agreement with WHO/ISH guidelines		
Yes	337	91.3
No	32	8.7
Following WHO/ISH guidelines		
Always	102	27.6
Usually	210	56.9
Sometimes	37	10.0
Rarely or never	20	5.4
Total	**369**	**100.0**

*: ISH= International society of hypertension

Table 1 describes the characteristics of participating GPs. Their mean age was 44.2 ± 8.9 years ranged from 26 to 68 years, about 88.1% of them were above 35 years of age. Males were predominating females (70.5% versus 29.5%). Most of the GPs (93.5%) were non Kuwaiti and the majority (85.4%) of them had 10 or more years of experience as PHC physicians. About one fifth (20.3%) of the participating GPs examined less than 20 patients per week, 46.3% examined from 20 to less than 60 patients per week, another one third (33.3%) examined 60 or more patients per week. Also, 39.6% and 50.9% ofGPsdeclared that they were very familiar or somewhat familiar with the guidelines respectively and only 9.5% stated that they were not familiar with them. However, 91.3% mentioned that they were in agreement with WHO/ISH guidelines. More than three quarters (84.5%) of the GPs indicated that they always or usually follow these guidelines when treating patients, 10.0% indicated the use of these guidelines sometimes and 5.4% rarely or never used them when treating patients.

Table 2 illustrates the proportion of GPs answered correctly each of 20 statements related to the WHO/ISH guidelines. When they asked about BP values that define elderly (>65 years) as hypertensive after repeated measures, 68.8% mentioned correctly the value ≥ 140/90 mm Hg. Only 32.8% chose correctly the “appropriate examinations to be prescribed for the minimum diagnostic wok-up of hypertensive patient” and 11.7% choose 125/80 mm Hg as correct choice when asked about the “upper normal value for self-measured BP in hypertensive patients on antihypertensive treatment”. However, 81.8% of the physicians correctly define "white coat" or isolated clinic hypertension as high office BP, normal ambulatory BP measurement, and normal self-measured BP.

Table2: Number of physicians with correct answers regarding the WHO/ISH guidelines

Guidelines	No.(369)	%
1. BP values define elderly (>65 years) as hypertensive after repeated measures	254	68.8
2. Appropriate examinations to be prescribed for the minimum diagnostic wok-up of hypertensive patients	121	32.8
3. The upper normal value for self-measured BP in hypertensive patients on antihypertensive treatment	43	11.7
4. Definition of "white coat" or isolated clinic hypertension	302	81.8
5. Duration of asymptomatic patient with recently diagnosed grade I hypertension, and no other risk factors stay out of pharmacological treatment.	113	30.6
6. The target BP to be reached in a hypertensive diabetic patient	262	71
7. The most appropriate antihypertensive drug class for a 50- year old, grade I hypertensive patient with left ventricular hypertrophy at the echocardiogram	87	23.6
8. The most appropriate antihypertensive drug class for a hypertensive patient with diabetic nephropathy	357	96.7
9. The drug of third choice for an essential hypertensive patient whose BP is partially controlled by an ACE inhibitor plus calcium-antagonist	305	82.7
10. Prescription of a low dose Aspirin for primary prevention in hypertension	236	64
11. The lowest SBP at which the physician recommended pharmacotherapy to patient with co-morbidity(<=130)	232	62.9
12. The target SBP the physician would like to achieve for patient with co-morbidity(<=130)	331	89.7
13. The lowest DBP at which the physician recommended pharmacotherapy to patient with co-morbidity(<=80)	182	49.3
14. The target DBP the physician would like to achieve for patient With co-morbidity(<=80)	305	82.7
15. The lowest SBP at which the physician recommended pharmacotherapy to patient without co-morbidity(<=140)	350	94.9
16. The target SBP the physician would like to achieve for patient without co-morbidity(<=140)	279	75.6
17. The lowest DBP at which the physician recommended pharmacotherapy to patient without co-morbidity (<=90)	301	81.6
18. The target DBP the physician would like to achieve for patient without co-morbidity (<=90)	348	94.3
19. First line drug choice for a patient aged 40 years, BP 150/95 with no compelling indications and no co-morbidity	239	64.8
20. The action taken for hypertensive patient on mono therapywith uncontrolled BP for the last 6 month	219	59.3

When the physicians asked about the duration of stay out of pharmacological treatment for “asymptomatic patient with recently diagnosed grade I hypertension, and no other risk factors” only 30.6% choose 6 months as a correct answer.

Blood pressure measurement (<130/80 mm Hg) was correctly selected by 71.0% of the physicians as “target BP to be reached in a hypertensive diabetic patient”, and Angiotensin converting enzyme (ACE) inhibitor was correctly selected by the majority of physicians (96.7%) as “the most appropriate antihypertensive drug class for a hypertensive patient with diabetic nephropathy”. On the other hand, angiotensin receptor blocker was correctly selected by only 23.6% of the physicians as the most appropriate antihypertensive drug class for a “50- year old grade I hypertensive patient with left ventricular hypertrophy at the echocardiogram”.

In response to the question "which is the drug of third choice for an essential hypertensive patient whose BP is partially controlled by an ACE inhibitor plus calcium-antagonist?",82.7% of the physicians correctly identified diuretics. About two thirds (64.0%) completed correctly the statement stated "A low dose Aspirin for primary prevention in hypertension should be prescribed to" by hypertensive patients with BP well controlled by treatment and high cardiovascular risk.

The correct answers regarding the lowest systolic and diastolic (≤130/≤80 mm Hg)BP at which pharmacological treatment should be started to patients with co-morbidity were reported by62.9% and 49.3% of the GPs. The corresponding proportions of GPs were 94.9% and 81.6% in case of lowest systolic and diastolic blood pressure at which they would recommend pharmacologic treatment for those without co-morbidity (≤140 mm Hg for systolic and ≤90 mm Hg for diastolic).

The majority of the physicians (89.7%) considered the target systolic BP should be ≤130 mm Hg and 82.7% considered the target diastolic BP should be ≤ 80 mm Hg during pharmacological therapy for patients with co-morbidity as recommended by WHO-ISH while 75.6% and 94.3% respectively considered the target systolic BP should be ≤ 140 mm

Hg and the target diastolic BP should be ≤ 90 mm Hg for patients without co-morbidity.

Regarding the use of antihypertensive drugs and when physicians specifically asked about the most appropriate first-step drug for patients who were 40 years old, with BP 150/95 with no contraindication and with no co-morbidity, 64.8% preferred Thiazide-diuretic as the first-line treatment. More than half of GPs (59.3%) indicated that addition of second antihypertensive drug was necessary if mono-therapy had failed to control blood pressure below the target level for the last 6 months.

Figure 1 summarizes the proportions of GPs that answered correctly each of the 20 guidelines statements. The overall score for the participants was 13.2±2.8 statement with a range from 3 to 19. Only 10.6% of the GPs answered correctly less than 10from the 20 statements, 55.0% answered10-14 and only 34.4 % answered≥ 15 statements. None, answered correctly the 20 statements.

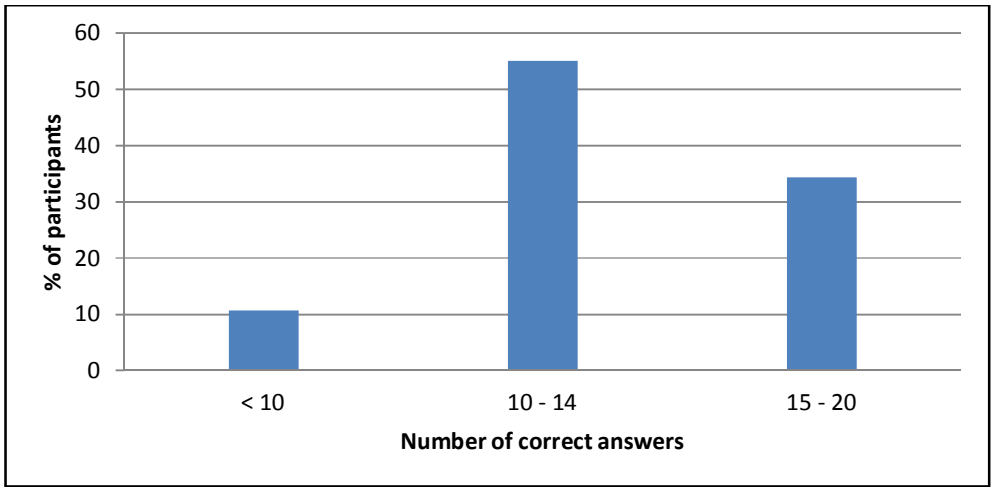

Figure 1: Percentage of participants answered correctly different numbers of statements related to the WHO/ISH guidelines

Table 3 shows perceived physicians barriers to BP control. Poor patient compliance to life style modifications was on the top of the list by 97.8% respondents as important or most important barrier, followed by overcrowded clinics (87.5%), poor patients' adherence to antihypertensive drugs (86.9%), lack of patient knowledge (84.5%), follow up by different physicians (76.9%), and non availability of the drugs in the clinic (73.6%).

Table 3: Physician related barriers to hypertension management

Barriers	Most important		Important		Less important		Total	
	No.	%	No.	%	No.	%	No.	%
Poor patient compliance to life style modifications	212	58.9	140	38.9	8	2.2	360	100.0
Overcrowded clinic (lack of time)	209	57.9	107	29.6	45	12.5	361	100.0
Poor adherence of patients to their medications	131	37.2	175	49.7	46	13.1	352	100.0
Lack of patient knowledge	99	28.0	200	56.5	55	15.5	354	100.0
Follow up by different physicians	113	31.7	161	45.2	82	23.0	356	100.0
Non availability of the drugs in the clinic	102	29.3	154	44.3	92	26.4	348	100.0

DISCUSSION

Although guidelines are accepted and recommended standards of health care, many studies reported that they have not been as widely accepted and followed by GPs as their developers have expected. (Rutschmann, 2004; Brouwers, 2004) The present survey showed that in spite of that 39.6% and 50.9% of GPs stated that they were very familiar or somewhat familiar with the WHO/ISH guidelines, only 84.5% of the respondents closely follow these guidelines when treating hypertensive patients. In contrary, other studies reported that many physicians accept the concept of the recommended guidelines but, for different reasons, do not effectively implement them into their daily practices. In a Canadian survey, only 52% of the participating physicians reported that they used guidelines at least once a month. Also, more than

25% attributed their non-adherence to guidelines for concerns about the source of the guidelines, their rigidity, and the fear that physicians might lose their sense of professional autonomy if they followed the guidelines. (Grol et al., 2003)

The findings of the present study, is not going with the results of a preliminary survey conducted in Italy which indicated that only 20% of respondent physicians had adequate knowledge regarding guidelinesabout diagnosis, treatment and follow-up of hypertension. It argued that physicians and patients might disagree with the recommendations of a guideline. (Cuspidi et al., 2002; Veatch, 2000) Several other factors might affect the adoption of GPs in their practice including the quality and applicability of the guidelines, the personal characteristics of the physician, working conditions and incentives, and patient compliance. (Davis and Taylor-Vaisey, 1997)

Regarding the correct answers of the guidelines statements, 62.9% and 49.3% respectively answered correctly the values of the lowest systolic and diastolic blood pressure for initiation of pharmacological therapy for patients with co-morbidity. Furthermore, 89.7% and 82.7% of our respondents respectively set correctly the target systolic and diastolic PBin patients without co-morbidity. These results suggest that many physicians were aware enough in treating hypertension. Similar findings have been reported in many other studies. (Oliveria et al., 2002; Hajjar et al., 2002)

About two thirds of GPs defined correctly the BP value as hypertensive for elderly after repeated measures. This goes with reports from other studies using the definition of hypertension according to WHO/ISH guidelines. (Menotti et al., 2001; Colhoun et al., 1998; Burt et al., 1995)This documents that a relatively high proportion of GPs has limited knowledge about three essential issues of the 1999 WHO/ISH guidelines. The low rate of correct answers regarding the definition of the upper normal value of self-measured BP may be due to different normality thresholds defined in the major hypertension guidelines.

In agreement with another study, and as recommended in the 1999 WHO/ISH guidelines, diuretics are correctly chosen by 82.7% of the GPs as a drug of the third choice for essential hypertensive patients partially controlled by an ACE inhibitor plus calcium antagonist. The ALLHAT trial indicated that thiazide-type diuretics are superior to doxazosin, an alpha-blocker, in preventing one or more major forms of cardiovascular disease (CVD). (ALLHAT, 2000) In spite of the low cost and clearly defined clinical efficacy of diuretics, it was not the first-line drug of the physicians who participated in the survey, as only 7.1% of them would initiate drug therapy with a diuretic.Physicians may believe,without pharmacological basis, that longer time may be required to see the effects of drug. (Ferrari et al., 2004)

Epidemiological analyses and randomized clinical trials have demonstrated the impact of elevated BP as a risk factor for both microvascular and macrovascular disease in diabetes. (Phillips and Branch, 2001; Buse et al., 2007; Bakris et al., 2007) The current study revealed that 71.0% of the GPs answered correctly that patients with diabetes should be treated to a systolic blood pressure <130 mm Hg and a diastolic blood pressure <80 mm Hg.Combined two or more drugs are usually needed for achieving the target BP of <130/80 mmHg. (JNC, 1997; national kidney Foundation, 2002) Thiazide diuretics are indicated for reducing CVD and stroke frequency in patients with diabetes. (ALLHAT, 2002) ACE inhibitor - or Angiotensin receptor blocker (ARB)favorably affect the progression of diabetic nephropathy and reduce albuminuria. Also, ARBs have been proven to reduce progression to macroalbuminuria. (Brenner et al., 2001) In agreement with that our study revealed that 70% of the participating physicians answered correctly the target BP <130/80 and 96.7% answered correctly the appropriate antihypertensive drug for hypertensive patients with diabetic nephropathy. This means that the majority of the physicians were aware about the guidelines.

Regarding statements related to patients with or without co-morbidity, more than 80% of physicians, when asked about their treatment goals for a patient with co-morbidity, said they would be satisfied if the patient's BP dropped to 130/80; and for those without co-morbidity to 140/90. Based on clinical trial evidence, and also on extrapolation from epidemiological studies, a target of <130/<80mmHg seems appropriate. Effective blood pressure control has considerable and immediate benefits in patients with established cardiovascular disease, diabetes, and renal insufficiency. (Kjeldsen et al., 2002; Zanchetti and Ruilope, 2002; UKPDS, 1998; Parving et al., 2001)

The present study has found that most GPs are relatively aware of the recommendations of hypertension guidelines, as about 90.0% of GPs choose correctly more than 10 statements out of 20 related to guidelines. Phillips and colleagues have proposed that the reason for this may be due to overestimation of adherence to guidelines. (Phillips and Branch, 2001) Numerous surveys have shown that about three- quarters of all patients with hypertension do not have optimal blood pressure control. (Psaty et al., 2002; Marqus-Vidal and Tuomilehto, 1997; Primatesta et al., 2001) Cabana et al. (1999) reviewed 76 studies that investigated barriers to physician implementation of clinical practical guidelines. Few studies examined all barriers that may affect the use of practice guidelines. Lifestyle modification, such as low salt and high potassium diet, regular exercise and weight reduction, facilitates pharmacological control of blood pressure should be recommended to all patients whenever appropriate. (Cuspidi et al., 2002) Lifestyle modification has been one of the most frequently cited impediments to blood pressure control. (National Institute of Health, 1989)

In the present study, 97.8% of the physicians reported poor patient compliance to life style changes act as a barrier for BP control. Moreover, 84.5% of physician ranked lack of patient knowledge as most important or important barrier, 73.6 ranked non-availability of the drug in clinic, while, 76.9% attributed the poor control to follow up by following up with

different physicians, and 87.5% of GPs reported lack of time due to overcrowded clinics. A survey that was conducted in England on a group of GPs, defined different barriers to the use of hypertension treatment guidelines. (Cranney et al., 2001) Some physicians did not think of the guidelines as applicable practiceto their patients. Other physicians did not follow the guidelines as they thought they were out of date, or they simply were not aware about them. Still others attributed the non-use of guidelines to the time and financial pressures they felt. On the other hand, adherence of patients to prescribed drugs has been identified as a main reason for uncontrolled hypertension. (WHO, 1999; Cuspidi et al., 2002) Consistent with previous findings, most of our respondents (97.8%) reported poor adherence to antihypertensive drugs as the leading patient-related barrier to blood pressure control. The costs of medication and hospital visits have been identified as a major contributing factor for poor patient adherence to pharmacological treatment by one study. (Haynes et al, 1996) This is not the case in Kuwait as medication is free in all PHC centers**.**

CONCLUSION

Several factors may be associated with physicians' lack of adherence to practice guidelines for hypertension including lack of patient knowledge and overcrowded clinic. The results of this survey indicate that there is a need to establish nationwide educational and quality monitoring programs to facilitate the correct implementation of hypertension guidelines in PHC clinical practices in Kuwait.

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