Compliance and knowledge of hypertensive patients attending PHC centres in Al-Khobar, Saudi Arabia

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الالتزام بالعلاجات ومدى المعرفة والمفاهيم الخاطئة لدى مرضى ضغط الدم المرتفع المترددين على مراكز الرعاية الصحية الأولية بمدينة الخبر بالمملكة العربية السعودية

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خلاصة : تم استقصاء مدى التزام مرضى ارتفاع ضغط الدم بالعلاجات الموصوفة لهم ، ومدى معرفة المرضى ومفاهيمهم الخاطئة حول هذا المرض ، وذلك في هذه الدراسة المقطعية التي شملت جميع المصابين بارتفاع ضغط الدم (190) المترددين على أربعة مراكز للرعاية الصحية الأولية في مدينة الخبر . وكان العمر الوسطي بينهم 49.9 ± 11.7 عاماً . وبلغ معدل الالتزام بالعلاجات 34.2% . وكان هذا المعدل أقل بين المرضى الذين تقل أعمارهم عن 55 سنة بالمقارنة بمن هم أكبر سناً (26.2% في مقابل 48.5% ، P<0.001) . كما كان المعدل أقل بين المتعلمين عنه بين الأميين (30.4% و38.1% على التوالي ، P<0.001) . وكان حوالي 44% من المرضى يعتقدون أن بوسعهم التوقف عن تناول الأدوية بمجرد أن تتم السيطرة على ضغط دمهم ، وكان 66.3% يعتقدون أن الانفعالات النفسيه هي أهم العوامل المسببة لارتفاع الضغط . ويستخلص من هذه النتائج أن هناك حاجة واضحة للتثقيف الصحي للمصابين بضغط الدم المرتفع .

ABSTRACT The compliance of hypertensive patients and patients' knowledge and misconceptions about hypertension were investigated in a cross-sectional study of all hypertensive patients (190) attending four primary health care centres in Al-Khobar, Saudi Arabia. The mean age was 49.9 ± 11.7 years. The overall compliance rate was 34.2%; the rate was lower in those aged < 55 years than older patients (26.2% versus 48.5%; $P < 0.001$). It was also lower among educated than illiterate patients (30.4% and 38.1% respectively; $P < 0.001$). About 44% of patients thought that they should stop drug treatment once they achieved blood pressure control and 66.3% believed that emotional stress was the most important etiological factor in hypertension. The findings indicate that there is a clear need for health education of hypertensive patients.

L'observance thérapeutique, les connaissances et les idées fausses chez les hypertendus consultant dans les centres de soins de santé primaires à Al-Khobar (Arabie saoudite)

RESUME L'observance du traitement chez les hypertendus et les connaissances et idées fausses des patients en ce qui concerne l'hypertension ont été examinées au cours d'une étude transversale de tous les hypertendus (190) consultant dans quatre centres de soins de santé primaires de la ville d'Al-Khobar. L'âge moyen était de 49,9 ans ± 11,7 ans. Le taux d'observance global était de 34,2%; il était moins élevé chez les patients de moins de 55 ans que chez les patients plus âgés (26,2% contre 48,5%; $P<0,001$). Il était aussi moins élevé chez les patients ayant un certain niveau d'instruction que chez les patients analphabètes (30,4% et 38,1% respectivement; $P<0,001$). Environ 44% des patients pensaient qu'ils devaient arrêter le traitement une fois la tension artérielle stabilisée et 66,3% pensaient que le stress émotionnel était le facteur étiologique le plus important de l'hypertension. Les résultats montrent qu'il existe un besoin manifeste d'éducation sanitaire pour les hypertendus.

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Introduction

Hypertension is a common disease. Community surveys in industrialized countries have shown a prevalence of 15%–38% in people aged ≥ 30 years [*1–3*]. The disease continues to be a leading cause of morbidity and mortality from coronary artery disease and stroke [*4,5*]. Studies carried out in Saudi Arabia have revealed a prevalence of hypertension of about 10% [*6,7*]. Significant progress has been made in the drug treatment of hypertension [*8,9*]. Achieving and monitoring control of the disease is a problem that is shared by the patients and their physicians. An important issue in failure to control hypertension is low compliance with treatment, which remains a universal problem [*10–12*]. Compliance involves not only taking the prescribed medications but also adherence to follow-up appointments and maintaining the recommended lifestyle modifications. Furthermore, the patient should be an active participant in the plan of care. Patients' knowledge of hypertension and its complications is an important factor in achieving better compliance, and hence control. A study carried out in Al-Khobar showed a considerable lack of knowledge among patients with hypertension attending the cardiology and nephrology units in a teaching hospital [*13*].

The objective of this study was to assess the compliance of hypertensive patients and their knowledge and misconceptions about their disease in a primary health care setting.

Subjects and methods

This cross-sectional study was carried out in Al-Khobar, Eastern Province, Saudi Arabia. Four primary health care centres were randomly selected from a total of 10 centres serving the city's population. All patients who had essential hypertension, for at least one year, and who were registered in those selected centres, were included in the study. Patients were interviewed by trained interviewers using a structured questionnaire. The data obtained comprised age, sex, nationality, marital status, educational level, positive family history of hypertension, smoking status, the presence of other chronic diseases, duration of hypertension, mode of diagnosis of hypertension (whether accidentally or by symptoms), number of drugs taken for hypertension, regularity of taking the drugs, the presence of difficulties in complying with treatment, regularity of follow-up, and whether the patient was seen by the same doctor at each follow-up visit. Patients were also asked their opinion on the possibility of a total cure for hypertension and whether treatment should be stopped if blood pressure were controlled. In addition, the patients' opinions on age and gender susceptibility, causes and complications of hypertension, and if it was possible to prevent the disease were sought.

Weight, height and blood pressure were recorded during the visit. Body mass index (BMI) was calculated as weight in kilograms divided by the square of height in metres. A BMI of ≥ 27.8 kg/m^2 for men and ≥ 27.3 kg/m^2 for women was considered high. Compliance was measured by two methods. The first was the therapeutic outcome method where diastolic blood pressure (DBP) of < 90 mmHg was considered indicative of compliance with treatment [*14*]. The second was the self-reporting method.

Data were assessed using *Epi-Info*. Frequency distributions were generated. Means were expressed as mean ± 1 standard deviation. The chi-squared (χ^2) test was used to assess the possible differences between categories. $P < 0.05$ was considered significant.

Results

Sample characteristics

The sample was composed of 139 females and 51 males who satisfied the criteria for inclusion in the study. The overall mean age was 49.9 ± 11.7 years. Saudi nationals constituted 72.6% of the sample. The overall mean BMI was 30.04 ± 5.64; 27.6 ± 3.98 for males and 30.8 ± 5.96 for females. The overall mean DBP was 89.5 ± 9.92 mmHg and the mean duration of hypertension was 7.03 ± 6.23 years. Diagnosis of hypertension was made accidentally in 83 (43.7%) of the patients, while the rest were diagnosed when presenting with symptoms of hypertension or its complications. A positive family history of hypertension was found in 94 (49.5%) of the patients. Some 58.9% had other chronic diseases, such as diabetes mellitus, ischaemic heart disease and osteoarthritis, and 78.9% were managed on one antihypertensive drug, while the rest were using two or more drugs. Cigarette smoking was prevalent in 7.9% of the patients.

Compliance rate

When assessed according to the therapeutic outcome (DBP method), 65 patients (34.2%) were found to be compliant. On the other hand, the self-reporting method revealed that 142 (74.7%) were compliant. With the therapeutic outcome method, the compliance rate was significantly higher among illiterate patients than educated ones, and among patients over 55 years of age than those who were younger. There was no significant difference in compliance rates between males and females, nor between Saudis and non-Saudis (Table 1).

Patients who were regular on follow-up (82.1%) had a significantly higher compliance rate than those who were irregular (37.8% and 17.6% respectively; $P < 0.02$). The presence or absence of difficulty with compliance, availability of continuity of care, preference for place of care, number

Table 1 **Effect of demographic variables on compliance rate**

Variable	Total	Compliance No.	Compliance %	Significance
Sex				
Male	51	16	31.4	NS
Female	139	49	35.3	
Age (years)				
< 55	122	32	26.2	
55–64	42	20	47.6	< 0.002
≥ 65	26	13	50.0	($\chi^2 = 9.65$)
Nationality				
Saudi	138	46	34.1	NS
Non-Saudi	52	16	34.6	
Educational level				
Illiterate	98	37	37.7	NS
Any education	92	28	30.4	

NS = not significant

Table 2 **Effect of treatment variables on compliance rate**

Variable	Total	Compliance No.	Compliance %	Significance
Difficulty with compliance				
Present	36	13	36.1	NS
Not present	154	52	33.8	
Follow-up				
Regular	156	59	37.8	< 0.02
Not regular	34	6	17.6	(χ^2 = 5.05)
Continuity of care				
Present	92	34	36.9	NS
Not present	98	31	31.6	
Preference for place of care				
PHC centre	77	28	36.4	NS
Hospital	29	8	27.6	
Number of drugs				
One	150	55	36.7	NS
Two or more	40	10	25.0	
Mode of presentation				
With symptoms	107	36	33.6	NS
Accidental finding	83	29	34.9	
Other chronic diseases				
Present	112	43	38.4	NS
Not present	78	22	28.2	

NS = not significant

of drugs taken for hypertension, mode of diagnosis of hypertension and presence or absence of other chronic diseases did not significantly affect the compliance rate (Table 2).

Knowledge of patients about hypertension

Less than half (41.6%) of the patients thought that hypertension could have a permanent cure and 43.7% that medications could be stopped once control was achieved. As regards susceptibility to hypertension, 40.0% of patients thought that females were more susceptible than males and 56.3% thought that elderly people were more likely to suffer from the disease than younger ones (Table 3).

Almost two-thirds of the patients (66.3%) thought that the main etiological factor for hypertension was emotional stress, while only 1.6% acknowledged the role of heredity in causing the disease. About one-third of the patients (31.6%) did not know the complications of hypertension, while 42.1% knew that it might lead to neurological complications and 1.6% were aware that the disease might lead to renal complications (Table 3).

Table 3 **Knowledge of hypertensive patients (n = 190) about disease aspects**

Disease aspect	No.	%
Can hypertension be cured?		
Yes	79	41.6
No	111	58.4
Can drugs be stopped once control is achieved?		
Yes	83	43.7
No	107	56.3
Which sex is more susceptible to hypertension?		
Males	37	19.5
Females	76	40.0
Both males and females	71	37.4
Don't know	6	3.2
Which age groups are more susceptible?		
Elderly persons	107	56.3
Middle-aged persons	37	19.5
Young persons	1	0.5
All ages equally susceptible	45	23.7
What causes hypertension?		
Emotional stress	126	66.3
Obesity	19	10.0
Excessive salt intake	18	9.5
Heredity	3	1.6
Don't know	24	12.6
What are the complications of hypertension?		
Neurological	80	42.1
Cardiovascular	47	24.7
Renal	3	1.6
Don't know	60	31.6

Discussion

The concept of management of hypertension in primary health care centres is strongly justified and widely practised [15–18]. Our study explored the state of care of hypertensive patients in primary health care, especially when considered in light of patients' compliance with treatment and their knowledge of the disease and its treatment.

The patients studied were predominantly middle-aged hypertensive women, with a fairly high rate of positive family history of hypertension, who were overweight and had a low compliance rate. The last two features and the opinions of the patients reflect poor management of the disease among the sample studied.

The compliance rate in our study is low compared with earlier findings in Tabuk, Saudi Arabia [*19*], although there are differences in the methods used. Our data did not show a significant variation of compliance with sex, nor with nationality, but relatively young patients had a lower compliance rate than older ones. This probably reflects the traditional emphasis on family care for the elderly in the community. This finding is similar to that of earlier studies [*20*]. We are aware that more accurate estimations of compliance are currently being achieved by newer methods [*21*].

We also explored factors associated with patients' attitudes and behaviour towards care for hypertension, such as regularity of follow-up, continuity of care with one physician and preference for place of care. The results clearly reveal the importance of regular follow-up in achieving better compliance, emphasizing the need for health education to enforce this habit. The recent practice of monotherapy for hypertension was prevalent in this study although it did not have a significant impact on the compliance rate.

The relationship between patient misconceptions about the disease and poor compliance has been documented [*22*]. In this regard, our results revealed that a considerable proportion of the patients had misconceptions about the treatment of hypertension, such as believing in a permanent cure for essential hypertension and discontinuation of drugs once control is

achieved. Since these misconceptions have a considerable impact on compliance, it is imperative that primary health care physicians correct them through health education. Screening for hypertension will undoubtedly be affected if there are misconceptions such as those related to age and gender susceptibility, as observed in this study. Furthermore, many patients believe that emotional stress is an important etiological factor for hypertension and are ignorant of other contributing factors which can be corrected, such as excessive salt intake and obesity. Although the frequency of positive family history of hypertension was high (49%) among the sample, only 2% of patients were aware of the role of heredity in the etiology of the disease. These findings emphasize the important role of primary health care physicians in educating patients about hypertension.

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