East African Medical Journal Vol. 84 No. 7 July 2007
PATIENTS KNOWLEDGE OF HYPERTENSION AND ITS CONTROL IN EASTERN SUDAN
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ABSTRACT

Objective: **To describe the knowledge of hypertensive patients, in Kassala, eastern Sudan, about the disease, in relation to its control.**
Design: **Cross-sectional study.**
Setting: **Kassala Teaching Hospital, Kassala, Eastern Sudan.**
Subjects: **Patients with hypertension attending referred outpatient medical clinic.**
Main outcome measures: **Blood pressure, control status and hypertension knowledge score.**
Results: **Two hundred and forty two patients were involved in this study, of whom 68 (73.6%) were females and were of middle age. The majority were of low education. One fifth (19.4%) was found to have controlled blood pressure. About two-thirds of patients showed a high score of knowledge about the aetiology and complications of hypertension. Half of the patients knew about treatment of hypertension. Patients have a very low score regarding knowledge of symptoms of hypertension (38.8%).**
Conclusion: **This study showed good patients' knowledge about hypertension, but such knowledge did not seem to have a significant beneficial effect on blood pressure control. Health education is warranted by health care providers and other factors leading to poor control should be identified and managed.**

INTRODUCTION

Hypertension is an important public health problem in the world (1). In sub-Saharan Africa recent studies have indicated a prevalence that is as high as 30% (2). Despite its association with high morbidity and mortality, the status of control of hypertension is far from that required to prevent complications and death (3-5). Factors that contribute to this lack of proper control include low awareness rate (6), lack of skill among health providers to address preventive behavioural changes in hypertensive patients (7), and lack of patient knowledge about the disease (8,9). Improving patient's knowledge about hypertension could be beneficial in order to enable them to comply with medications, and stimulate them to practice life style modification, which will reflect in achieving better control. The aim of this paper was to describe the knowledge of hypertensive patients, in Kassala, eastern Sudan, about the disease, in relation to its control.

MATERIALS AND METHODS

This study was conducted in Kassala town in the eastern region of the Sudan. A sample of 242 hypertensive subjects, constituting a series of patients attending the referred outpatient clinic, at Kassala Teaching Hospital, was studied. The main parameters of the study were the blood pressure control status and the knowledge scores about symptoms, complications, aetiology and

treatment of hypertension. Data were collected using a structured questionnaire. The questionnaire included demographic variables such as age (categorised into less than 35 years, between 35 and 64 years; and 65 or more years), gender, and education level (categorised as low, average and high). It also included disease-related variables such as family history, body mass index, and waist hip ratio. Each patient had his/her blood pressure measured using a mercury sphygmomanometer, with the patient in the sitting position.

Systolic and diastolic blood pressure was determined at phase I and V of the Kortokoffs sounds; respectively. An average of three readings was recorded as indicative of the current blood pressure level. A blood pressure of less than 140 systolic, and less than 85 diastolic was considered as indicative of blood pressure control. Patients weight and height were measured, and recorded to the nearest *0.5* kilogram, and centimeter respectively. The body mass index was calculated as the weight in kilograms divided by the square of the height in meters. A body mass index of more than 25 kilograms per square meter was considered as high. The waist and hip circumference of each patient was measured and the waist hip ratio recorded. A waist hip ratio of more than 1 was considered as high.

The patients' responses to 21 questions regarding their knowledge of hypertension were recorded. The questions were categorised into four themes: knowledge about symptoms (6 questions), complications (5 questions), aetiology (6 questions), and knowledge about treatment of hypertension (4 questions). Each correct answer was scored as "1" and incorrect one as "0". The scores about each theme were computed. The scores were classified as high or low using the median as a cut-off point. Data was entered into an IBM-compatible personal computer incorporating the Statistical Package for Social Sciences (SPSS version 11). Frequency distribution tables were generated. Chi-square test was used to assess the significance of variation between categories. A P-value of 0.05 or less was considered as indicative of statistical significance. The questionnaire reliability using alpha method was 72%.

RESULTS

The total number of patients studied was 242. The majority of the sample members were females (68.3%), and were of middle age (73.6%). Low education was manifested by 73.6% of patients. As regards blood pressure control status, about one-fifth of patients were considered as controlled, half of them had a normal body mass index, and about one-third with abnormal waist hip ratio (Table 1).

Table 1

Demographic and disease-related variables in hypertensive patients (n = 242)

Variable	No.	(%)
Gender		
Males	77	31.8
Females	165	68.2
Age distribution (years)		
<35	31	12.8
35–64	178	73.6
65+	33	13.6
Education level		
Low	188	77.7
Average	30	12.4
High	24	9.9
Blood pressure		
Controlled	47	19.4
Uncontrolled	195	80.6
Body mass index		
Normal	131	54.1
High	111	45.9
Waist/hip ratio		
Normal	154	63.6
High	88	36.4

The correct responses of patients about the 21 knowledge questions are shown on Table 2. There were generally low rates of correct responses regarding questions about symptoms and treatment of hypertension than in case of knowledge about complications and aetiology of hypertension.

About two-thirds of patients had shown a high score of knowledge about the complications and aetiology of hypertension. On the other hand, slightly over a half of patients had shown a high score of knowledge about treatment of hypertension. Regarding the score of knowledge of symptoms, only 38.8% of patients had shown a high score (Table 3).

Table 2

Knowledge regarding symptoms, complications, aetiology and treatment of hypertension (n = 242)

Knowledge Aspect	No.	(%)
Symptoms of hypertension		
Headache	42	17.4
Excessive sleep	97	40.1
Lack of sleep	137	56.6
Epistaxis	121	50.0
Nervousness	62	25.6
Dizziness	63	26.0
Complications		
Paralysis	187	77.3
Heart attack	186	76.9
Renal failure	153	63.2
Blindness	172	71.1
Heart failure	176	72.7
Aetiology		
Excessive sleep	138	57.0
Excessive weight gain	179	74.0
Excessive salt intake	191	78.9
Alcohol intake	118	48.8
Physical exhaustion	112	46.3
Psychological stress	51	21.1
Treatment		
Permanent cure is possible	161	66.5
Drugs may cause ill-health	143	59.1
Garlic treats hypertension	75	31.0
Treatment can be stopped in absence of symptoms	152	62.8

Table 3

Knowledge scores regarding hypertension in 242 hypertensive patients

Knowledge Score	No.	(%)
Knowledge of symptoms score		
High	94	38.8
Low	148	61.2
Knowledge of complications score		
High	155	64.0
Low	87	36.0
Knowledge of aetiology score		
High	149	61.6
Low	93	38.4
Knowledge of treatment score		
High	136	56.2
Low	106	43.8

Table 4

Effect of knowledge scores on blood pressure control

Variable	Total	Number controlled		P-value
		No.	(%)	
Knowledge of symptoms score				
High	94	20	21.3	Not significant
Low	148	27	18.2	
Knowledge of complications score				
High	155	31	20.0	Not significant
Low	87	16	18.4	
Knowledge of aetiology score				
High	93	18	19.4	Not significant
Low	149	29	19.5	
Knowledge of treatment score				
High	136	28	20.6	Not significant
Low	106	19	17.9	

As shown in Table 4, blood pressure control status was more among patients who showed high knowledge scores regarding complications and aetiology, but the difference was not statistically significant.

DISCUSSION

This study has shown a low rate of control of blood pressure, together with a high rate of obesity. A low rate of blood pressure control seems to be a prevalent finding in most parts of the world especially the developing countries (10). The reasons for this are poor compliance with treatment as well as the presence of misconceptions about the disease due to poor knowledge (11). This is also made even worse with the finding that staff caring for hypertensive patients were also suffering from lack of knowledge about hypertension (12). Solution for this rests in patients education, as well as in care provider education and training in blood pressure management (13).

On the other hand, hypertensive patients often exhibit misconceptions and incorrect knowledge about symptoms of the disease. This study revealed that patients believed in the presence of headache, sleep disturbances, epistaxis, dizziness, and nervousness. This finding is not different from that cited from developed as well as developing countries (8,14). The danger of adopting this type of understanding is that patients may lose compliance with treatment, in case they do not feel any symptoms, which may expose them to poor control of hypertension, and hence susceptibility to complications. In this regard doctors should educate patients that the only certain way of blood pressure assessment should only be sought by physical examination. Likewise, as much as a third of the patients involved in this study had a belief that garlic is an effective treatment for hypertension. Recently some doubt has been shed on the effectiveness of this food substance as a treatment for the disease (15). The patient's knowledge about the complications of hypertension revealed in this study seems to be satisfactory. Nevertheless, this did not correlate positively with blood pressure control. The issue of blood pressure control needs further care in the form of doctors adhering to national and international guidelines, and educating patients regarding compliance with drugs and life-style healthy behaviours (16). Inadequate functional health literacy is common, but its impact on patients with chronic disease is not well described. Because knowledge of high blood pressure seems mainly to be derived from sources other than the health care system, in particular from the media and local believes, assessment of patient's knowledge of high blood pressure is essential in order to plan effective health education strategies that aim to deepen patients understanding of their state of health.

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