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The Effect of Health Educational Program on Patients' Knowledge About Hypertension and Its' Management (In Sudan - White Nile State)

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Abstract

Background: The incidence of hypertension (HTN) has increased rapidly in the Sudan in the last few years Objective: The present study aimed to examine the hypertensive patient knowledge who receive health education program about hypertension and its management. Methods: This Quasi-experimental study was conducted on 150 patients with hypertension attending outpatient clinics of the two health centres. Demographic and clinical data including the compliance different aspects of hypertension disease including definition, types, risk factors, symptoms, complications, main aspects of self-care, and main aspects of dietary management and importance of physical activity for hypertension patients were collected. The data were collected from all patients and the analysed using SPSS version 19 software, and independent *t*-test was used for significance tests at 0.05 level. Results: Results of the current study, regarding correct knowledge of the studied group before and after the health education program and the different aspects of hypertension, showed that there was a significant improvement of the patients' knowledge concerning the correct knowledge of the definition of hypertension, signs and symptoms of hyper and hypotension, compliance to drug types of treatment dietary management, importance of exercise and complications of hypertension, ($P < 0.001$). Conclusion: The study showed that patients with hypertension in Sudan have low knowledge about hypertension and his managements. Patient education, and public enlightenment are imperative

Keywords

Hypertension, Knowledge, Management, Sudan

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1. Introduction

Hypertension (HTN) is universally accepted as one of the most important risk factors in the development of cardiovascular disease (CVD), stroke and renal disease [1, 2]. There has been a considerable increase in the prevalence of HTN in the Middle East during the last few years. In some Arab countries hypertension has become a major health problem [3]. This drastic increase in incidence of hypertension is specifically caused by a combination of many parameters, including family history [4]. Change in lifestyle, dietary habits and environmental factors [5]. Sudan is considered one of the leading countries in Africa for the prevalence of hypertension [6] However, a proper national registry on hypertension is not available in Sudan and evaluation studies are rarely done [7]. Nevertheless, a recent study showed an increasing incidence of hypertension in Sudan [8]. Which may result in serious health problems in

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the near future if no appropriate measures are taken. The prevalence of hypertension may be a result of the marked shift in the Sudanese diet, which has resulted in increased overweight and obesity [3]. Some studies have claimed the prevalence of hypertension is a cause of the tremendous increase in renal insufficiency [2]. Increased awareness, follow up and control of hypertension in industrialized countries has resulted in a decreased tendency to morbidity and mortality from cardiovascular disease [9]. To reach the level of improvement attained in developed countries, epidemiological studies on the risk factors, control methods, control levels, lifestyle, adherence to medication, and awareness will be crucial for setting control strategies in Sudan. In this study was examine the hypertensive patient knowledge who receive health education program about hypertension and its management

2. Materials and Methods

This A quasi-experimental study was conducted on patients with hypertension This study was carried out in two health centres at White Nile state Kosti city. A total of 150 Sudanese HNT patients were randomly selected from two health centres, On February, 2013. The patients participated registered hypertension patients Age 30 years and above, both sex's male and female, diagnosed with hypertension, able to communicate, visiting the clinic regularly for treatment or follow up. (Monthly or Biannually).

The questionnaire consists of 40 multiple choice questions covering different aspects of hypertension disease including definition, types, risk factors, symptoms, complications, main aspects of self-care, and main aspects of dietary management and importance of physical activity for hypertension patients.

Revised hypertension knowledge Questionnaire was used, on a 4 levels: those who correctly answered less than 15 to 25 hypertension knowledge questions were considered to have poor knowledge, those who answered 25 to 50 of questions as having moderate knowledge, those who answered 51 to 75 of questions as having good knowledge and those who answered more than 76 as having Very good knowledge [10].

The basic information questionnaire was developed with informed consent and validated by nurse educator and then tested on 10 patients. The questionnaire was filled by the researcher through using a clear Arabic language, the questionnaire includes the following sections: Patients file number, place of residence and telephone number, Socio-demographic data: including sex, age, marital status educational level, income level, Anthropometric measurements: including height, weight, body mass index, blood pressure, Hypertension related data: Duration of disease, family history of hypertension, other treatment, and presence of complications, Health Education data: Previous health education programs and Lifestyle data: including smoking, daily and previous physical activity and dietary history.

Data was presented using descriptive statistics including frequency, percentage, mean with standard deviation (SD) and P-value of ≤0.05 was considered statistically significant for relationship investigations. Ethical clearance was obtained from the local Ethics Committees at the National Ribat University, All patients gave their written informed consent to participate in the study.

3. Results

Table 1. The study showed on 45 (60%) were males and 30 (40%) were females on control group is likely same above value 43 (57%) were males and 32 (42%) were females, (40%) were 40 years old. The mean ± standard deviation of age was 2.15 ± 0.77 for intervention group and 2.01 ± 0.78 for control group. The majority of subjects (72%) were married in intervention group and (73%) for control group. Most of subjects (73%) were working in intervention group and (70%) on control group. There is no significant difference between intervention group and control group on the demographic characteristics at the level of (P 0.05).

Table 1. The socio-demographic variables of the study population (n=75) in Sudan.

Variable	Intervention group		Control group		*t*	P
	No	%	No	%		
Age (years)						
30-	17	23	22	29		
40-	30	40	30	40	1.06	.292
50-	28	37	23	31		
Mean ± SD	2.15±0.77		2.01 ± 0.78			
Sex:						
Male	45	60	43	57	-0.33	.742
Female	30	40	32	42		
Marital status						
Single	14	19	13	17		
Married	54	72	55	73	-0.25	.801
Divorce	5	5	3	4		
Widow	3	4	4	6		

Variable	Intervention group		Control group		*t*	P
	No	%	No	%		
Working status						
Working	55	73	56	75	0.18	854
Not working	20	27	19	25		
Educational level						
Illiterate	17	23	15	20		
Primary	22	29	29	39	-0.09	.931
Secondary	30	40	21	28		
University	6	8	10	13		
Mean ± SD	2.33 ± 0.92		2.35 ± 0.95			

Table 2. Shows The result of the mean value of patient's knowledge regarding definition of hypertension before attending of educational programs was 0.41±0.50 while the mean knowledge of the patients after the program on the same dimension was 0.87±0.34, There is a significant difference (P = 0.001 < 0.05). The mean value of patient's knowledge regarding causes of hypertension before attending of educational program was 0.25±0.44 while the mean knowledge of the patients after the program on the same dimension was 0.92±0.27, there is a significant difference (P = 0.002 < 0.05). The mean value of patient's knowledge regarding signs & symptoms of hypertension before attending of educational program was 0.32±0.47 while the mean knowledge of the patients after the program on the same dimension was 0.93±0.25, there is a significant difference (P = 0.003 < 0.05). The mean value of patient's knowledge regarding signs & symptoms of hypotension before attending of educational program was 0.40±0.49 while the mean knowledge of the patients after the program on the same dimension was 0.88±0.33, there is a significant difference (P = 0.007 < 0.05). The result of The mean value of patient's knowledge regarding Importance of compliance to types of drugs about hypertension before attending of educational program was 0.32±0.47 while the mean knowledge of the patients after the program on the same dimension was 0.55±0.50, there is a significant difference (P = 0.005 < 0.05). The mean value of patient's knowledge regarding Importance of compliance to medication regimen about hypertension before attending of educational program (n=75) was 0.12±0.33 while the mean knowledge of the patients after the program on the same dimension was 0.65±0.48, there is a significant difference (P = 0.004 < 0.05). The mean value of patient's knowledge regarding Importance of compliance to dietary program about hypertension before attending of educational program was 0.23±0.42 while the mean knowledge of the patients after the program on the same dimension was 0.73±0.45, there is a significant difference (P = 0.004 < 0.05). The mean value of patient's knowledge regarding Importance of compliance to exercise about hypertension before attending of educational program was 0.32±0.47 while the mean knowledge of the patients after the program on the same dimension was 0.80±0.40, there is a significant difference (P = 0.004 < 0.05).

Table 2. Distribution of correct knowledge about hypertension disease aspects (N=75).

	Intervention Group				*t*	P
	Before Intervention		After Intervention			
	No (%)	Mean ± SD	No (%)	Mean± SD		
Definition of hypertension	31 (41)	0.41 ± 0.50	65 (87)	0.87 ± 0.34	-06.5	0.001
Causes of hypertension	19 (25)	0.25 ± 0.44	69 (92)	0.92 ± 0.27	-11.2	0.002
Signs symptom of hypertension	24 (32)	0.32 ± 0.47	70 (93)	0.93 ± 0.25	-10.0	0.003
Signs symptom of hypotension	30 (40)	0.40 ± 0.49	66 (88)	0.88 ± 0.33	-07.0	0.007
Importance of compliance types of drugs	24 (32)	0.32 ± 0.47	41 (55)	0.55 ± 0.50	-02.9	0.005
Importance of compliance to medication regimen	9 (12)	0.12 ± 0.33	49 (65)	0.65 ± 0.48	-08.0	0.004
Importance of compliance to dietary program	17 (23)	0.23 ± 0.42	55 (73)	0.73 ± 0.45	-07.2	0.004
Importance of compliance to exercise	24 (32)	0.32 ± 0.47	60 (80)	0.80 ± 0.40	-06.7	0.004

Table 3. Shows the result of the mean value of patient's correct knowledge regarding vascular complications of hypertension before attending of educational programs was 1.88±0.33 while the mean knowledge of the patients after the program on the same dimension was 1.37±0.49, there is a significant difference (P < 0.05). The mean value of patient's correct knowledge regarding renal complications of hypertension before attending of educational programs was 1.83±0.38 while the mean knowledge of the patients after the program on the same dimension was 1.33±0.47, there is a significant difference (P < 0.05). The mean value of patient's correct knowledge regarding eye complications of

hypertension before attending of educational programs was 1.85±0.36 while the mean knowledge of the patients after the program on the same dimension was 1.21±0.41, there is a significant difference (P < 0.05). The mean value of patient's correct knowledge regarding cardiac complications of hypertension before attending of educational programs was 1.81±0.39 while the mean knowledge of the patients after the program on the same dimension was 1.20±0.40, there is a significant difference (P < 0.05).

Table 3. Distribution of correct knowledge about hypertension complications (n=75).

	Intervention Group				*t*	P
	Before Intervention		After Intervention			
	No (%)	Mean ± SD	No (%)	Mean± SD		
Vascular complications	9 (12.0)	1.88 ± 0.33	47 (62.7)	1.37± 0.49	7.48	0.000
Renal complications	13 (17.3)	1.83 ± 0.38	50 (66.7)	1.33± 0.47	7.02	0.000
Eye complications	11 (14.7)	1.85 ± 0.36	59 (78.7)	1.21± 0.41	10.2	0.000
Cardiac complications	14 (18.7)	1.81 ± 0.39	60 (80.0)	1.20± 0.40	9.45	0.000

Table 4. Shows the result of the mean value of patient's correct knowledge about change the diet program for hypertension disease before attending of educational programs was 1.88 ± 0.33 while the mean knowledge of the patients after the program on the same dimension was 1.33± 0.47, there is a significant difference (P = 0.000 < 0.05). The result of the mean value of patient's correct knowledge about maintaining healthy dietary habits for hypertension disease before attending of educational programs was 1.92±0.27 while the mean knowledge of the patients after the program on the same dimension was 1.09±0.29. There is a significant difference (P = 0.000 < 0.05).

Table 4. Distribution of correct knowledge about hypertension dietary program (n=75).

	Intervention Group				*t*	P
	Before Intervention		After Intervention			
	No (%)	Mean ± SD	No (%)	Mean± SD		
Change in diet program	11 (14.6)	1.88 ± 0.33	50 (66.7)	1.33± 0.47	7.59	0.000
Maintaining healthy dietary habits	6 (8.0)	1.92±0.27	68 (907)	1.09±0.29	17.89	0.000

Table 5. Show The most common source of knowledge related to information about hypertension for the patients in (Intervention group) was found to be Friends/Relatives (41.3%) followed by Mass media: Television/Newspaper (30.7%). In only 21.3% cases the knowledge was obtained from medical and paramedical professionals. And (6.7) from others sources, the percentage is similar for the control group. There is no significant difference (p > 0.05).

Table 5. Distribution of Sources of information knowledge regard hypertension disease.

Source of Knowledge	Intervention group (n=75)		Control group (n=75)	
	No	%	No	%
Friends/Relatives	31	41.3	29	38.7
Media: TV/News paper	23	30.7	28	37.3
Medical professionals: Physicians, Nurses, Nutritionist.	16	21.3	11	14.7
Others	5	6.7	7	9.3

4. Discussion

Regarding concerning correct knowledge of the intervention group in table 2 about definition of hypertension signs & symptoms, causes and etc…., results of the study showed more half of the hypertensive patients 68.0% had average or poor knowledge about hypertension, whereas only 16.0% patients had very good knowledge about the hypertension on the same dimension. It was improve after educational intervention to (73.3). This finding is supported by Williams MV et al [11]. In their study in 402 hypertensive patients, also found 189 patients (47.02%) did not have adequate knowledge about hypertension. Similar inadequacy of knowledge, awareness and practice of hypertension among Indian patients has been reported by (Hemant Mahajan) [12]. Importance of compliance to (drugs, medication regimen, dietary program and exercise) it was improve after educational intervention. However, the scours of knowledge was significantly increased after the educational intervention, demonstrating the beneficial effects of education on the patient's knowledge. This result supported by (Falaschetti E, et al) He said hypertension control signifies a greater need to increase the awareness of hypertension related information among the patients [13]. The possible reasons to lower knowledge may be because of lower literacy, inappropriate perception of medical advice, irregular sources of health related information, or inadequate counselling regarding hypertension possibly due to skewed doctor patient ratio in

government run hospitals [14]. Regarding sources of knowledge for hypertension the patients reported to have derived their knowledge about Hypertension majorly from non-medical sources like friends/relatives and mass media communications. (72%) and only (21.3%) of sources were from medical professionals like doctors, specialist paramedical staff, which form the more reliable source to provide health related information. Therefore the patient has to be alerted to scrutinize the information received, from their doctors and work in collaboration with health providers to get valid information. The knowledge from such unreliable sources may be the cause of lower awareness among the population. Considering the influence of mass media on the population, a possible alternative to increase awareness may be by means of delivery of such information using mass media. This findings supported by (Hroscikoki MC, et al) [14]. Reported that positive role of pharmacist mediated counselling of hypertensive patients, regarding risk factor and associated co-morbidities, while some other studies suggest that knowledge transferred from medical staff is an important factor in inducing patient to comply with lifestyle modification [14]. Nevertheless; low counselling rates were reported in similar studies [15, 16]. About knowledge about lifestyle modifications (change the diet program and maintaining continuous follow up) study showed most of hypertensive patients knowledge about lifestyle modifications (32.0%) before education program, It was improve after educational intervention to (74.7). These result supported by many authors (Chiu CW, Ostovan MA) They said Patient's involvement in self-monitoring and management, together with continuous follow up has also been recommended by others [17, 18]. Similarly, Wang YR et al. emphasized that the most important points for BP control were lifestyle modifications, home BP monitoring, reinforcement of healthy behaviours, and continuous follow up [19]. In (Aubert et al) study, most patients believed that salty diet, obesity and smoking are important factors in hypertension. They mentioned that physical activity and exercise are very important factor in hypertension management [20]. Regarding hypertension complications the study showed patient's knowledge (15%) before attending of educational programs it was improve after educational intervention to (75%). These findings were supported by previous study results shown a positive relationship between patients' knowledge about the hypertensive complications and adherence [21]. In addition, they are aware of hypertension complications and advantages of lowering blood pressure Most cases agreed that decreasing blood pressure (even a little bit) could be effective on health and decrease there complications [22].

The strengths of this study include the study conducted in developing countries with limited resources. The study limitations were; the study was conducted as a descriptive study; interventional studies will yield more useful results if conducted on more sample with complete randomization all over the country.

5. Conclusion

After the analysis of the study variables the researcher justify the findings and conclude that: The results from this short educational intervention program on hypertensive patients in health clinic in Kosti City indicated that knowledge changes in a positive results in all the variables related to patients knowledge. In the current study, the majority of the patients did not have sufficient knowledge to complications of hypertension at the pre-test phase, education program effect and improve their knowledge about complication post-test there is a significant difference ($P < 0.05$).

Also in the current study, the majority of the patients get information about hypertension and its management from non-medical sources (from friends/Relatives (41.3%) followed by mass media: Television/Newspaper (30.7%). In only 21.3% cases the knowledge was obtained from medical and paramedical professionals. In the current study, the most of the patients did not have controlled blood pressure at the pre-test phase only 32% of patients controlled blood pressure, Post-test after intervention 92% of patients controlled blood pressure and good knowledge to adjust their blood pressure lifestyle changes involving dietary and exercise being effective in significant decrease in weight, and effective in improving patient's knowledge.

Recommendations

After obtaining the study findings based on the conclusion, the researcher recommended that: The educational intervention program should be developed in hypertension clinics in primary health care centres in Sudan. Since primary health care providers have a better chance to meet with patients, promotion of hypertension educational intervention programs by these centres will increase the effectiveness of hypertensive therapy and will delay the onset or the progression of complications, improve the quality of life for hypertensive patients and reduce the associated medical costs. Educating the patient's family about hypertension disease meal planning and their dietary management and the relationship between obesity and the chance of disease occurrence. Educating the family about the importance of involvement of hypertensive patient s food with family food. The ideal treatment would consist of a comprehensive and multidisciplinary Hypertension disease team. (Physician,

Nurse, Nutritionist, Pharmacist, Social worker, foot specialist and others). Training of the hypertensive care team on the management of hypertension and how to educate the hypertensive patients Establishment of regional records for hypertensive patients in order to facilitate health care and health education for them.

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