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Nutritional Status for Patients with Hypertension in Hemodialysis Units at Baghdad Teaching Hospital

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Abstract

Millions of people are affected by chronic kidney disease (CKD) every year, as a result of various health conditions and diseases.The poor nutritional status considered communal among the dialysis patients and lead to opposed consequences, patients who have diabetes or hypertension often go without diagnosis by kidney disease due to poor medical follow-up. This study aims to assessing the socio-demographic data and the nutritional status for patients with hypertensive who undergone hemodialysis, in which an approach of assessment was applied to achieve the mentioned objectives.A descriptive (cross- sectional) design study was conducted during November 15th, 2018 to May 9th, 2019.A purposive (non- probability) sample of 100 patients with hypertension were selected. Data were collected through the use of the questionnaire format by recording the data from patients' charts and dialysis machine.Data were analyzed through the application of descriptive and inferential statistical approaches by using Statistical Package for Social Science (SPSS) version 20.0.The most patients were old age (≥62 years); they're evenly distributed for male and female. The highest percentages of the study sample have loweducational attainment;almost patients have normal body mass index, and the highest percentage of them have stage 2 hypertension.The major percentage of patients have anemia,an elevated level of serum phosphors, blood urea and serum creatinine, respectively.Finally, the study resultsrevealed the patients weren't smoking and they weren't having DM.Based on this, Establishing of nutritional health style for patients with hypertension on hemodialysis and activate the dieticians' role in hemodialysis units.

Keywords: *Nutritional status, Hypertension, Hemodialysis.*

Introduction

Millions of people are affected by chronic kidney disease (CKD) every year, as a result of various health conditions and diseases, It also can occur when patients fail to take prescribed medications for chronic diseases or because of a poor financial situation that prevents patients from seeking treatment [1]. The National Kidney and Urologic Diseases Information Clearinghouse stated in 2010, that more than twenty millions of Americans had CKD [2]. By the US Renal Data System in 2009, data were collected on patients with kidney diseases recorded that there was a 3.3% increase in the treatment of kidney diseases by hemodialysis, peritoneal dialysis, transplants, and other approaches yearly. The incidence of kidney diseases increased among Asians by 8.3%, African Americans by1.1%, Native Americans by 9.9%, and Caucasians by 3.5% during 2008 to 2009, [3]. This study aims to assessing the socio-demographic data and the nutritional status for patients with hypertensive who undergone hemodialysis.

Material and Method

A descriptive (cross- sectional) design study was conducted to achieve the study objectives. The study was carried out during November 15th, 2018 to May 9th, 2019. The study was conducted at Baghdad teaching hospital. A purposive (non- probability) samples of 100 adults with hypertension were selected, those patients undergone thrice weekly treatmentat hemodialysis units. A questionnaire designed and constructed to achieve the study objectives. The validity was determined through the use of panel of (6) experts, they were faculty members from College of Nursing\ University of Baghdad, to investigate the clarity, relevancy, and adequacy of the questionnaire. The experts' suggestions were taken into consideration and modifications were employed

and the final constructed instrument was completed for conducting study. The reliability was determined through the use of Test- retest through the computation of Pearson Correlation Coefficient (r = 0.86). The questionnaire consisted of three parts: the first contained socio- demographic characteristics: age, gender, educational attainment, marital status, occupation, financial status, and residence; the second part contained clinical data: BMI, blood pressure)BP(, Hb, PCV, S. Potassium, S. Phosphor, B.urea, S.creatinine, and S.Albumine; the third part contained the medical history such as: smoking, suffering from diabetes, heart and coronary arteries diseases, intestinal disorders, taking anti-hypertensive medications and food limitations due to the disease. The data have been collected through utilizing the direct interviewing approach. Time from 10 – 15 minutes for each patient was taken to accomplish the questionnaire. The data were collected when the patients on the dialysis machine, the readings of BPwas obtained from the machine monitor. The latest date of diagnostic tests results were obtained from the patients' charts, the patients' height and weight were measured through the tool in the dialysis units used for this purpose. The BMI calculated through an equilibrium BMI=. Data analysis was employed through the application of descriptive and inferential statistical approaches by using statistical package of social science (SPSS) version 20.0.

Findings and Discussion

Table1. Socio-demographic Characteristics of the study sample

Variables	Frequency	Percent
1. Gender		
Male	50	50.0
Female	50	50.0
Total	100	100.0
2. Age group (year)		
20-25	6	6.0
26-31	10	10.0
32-37	12	12.0
38-43	9	9.0
44-49	11	11.0
50-55	12	12.0
56-61	11	11.0
62 and above	29	29.0
Total	100	100.0
Mean ± standard deviation (49.4 ± 15.5)		
3. Educational attainment		
No read and write	8	8.0
Read and write	18	18.0
Primary school	22	22.0
Intermediate school	21	21.0
Secondary school	19	19.0
College	9	9.0
Others	3	3.0
Total	100	100.0
4. Marital status		
Single	10	10.0
Married	89	89.0
Widowed	1	1.0

Cont ... **Table1. Socio-demographic Characteristics of the study sample**

Total	100	100.0
5. Financial Status		
Sufficient	57	57.0
Barely sufficient	42	42.0
Not sufficient	1	1.0
Total	100	100.0
6. Occupation		
Housewife	40	40.0
Free job	49	49.0
Student	1	1.0
Employee	8	8.0
Retired	2	2.0
Total	100	100.0
7. Residence		
Urban	94	94.0
Rural	6	6.0
Total	100	100.0

As presented in table (1), in term to the age and gender the results revealed that the patients were fifty percent for each male and female. These findings go along with the study [4] that stated the gender were male and female evenly distributed in their study.

A twenty nine percent of them were aged (62) years and more, with a mean age of forty nine years old and four months,which reflect that the older adults have been affected with kidney disorders more than young people regardless if they were being male or female. This result of old age go along with two studies[5],[6]which stated that the age of the patients were older than fifty five years old. In regard to the mean age, a study [4] that reported the mean age was (47.4) years for the patients which considered near to this study outcome. The samples of the study were equally distributed (50%) for each males and females. These findings reflect the effect of HD on the nutritional status for both males and females patients equally.

A highest rate (22%) of the patients were primary school graduated, this reflect they have low educational level. This study outcomes go along with two another studies[7],[8]that reported the patients have lack of education who attendingin the dialysis centers.

The majority (89%) of the patients were married; these findings opposed to the study results [9]that reported majority (74%) of the samples were single.

More than half of the study samples have sufficient monthly income; this perhaps indicates that the poor financial status hasn't an effect on the patients' health-related condition. While the study results [1]has been showed that un sufficient financial status has an effect on patients condition and leads to failure of taking prescribed medications and prevent patients from seeking treatment for chronic diseases.

A forty nine percent of the patients were free job; these results showed there is no effect ofoccupation on nutritional status. A major (94%) were lived in urban areas, this may refer to the peoplewho lived in urban more prone to be affected with renal diseases and hypertension.

Table 2. Biochemistry Characteristics of the Study Sample

Variables	Frequency	Percent	Mean
1- Body Mass Index			
Less than 20 (low weight)	6	6.0	26.4
20-25 (normal)	39	39.0	
26-30 (over weight)	35	35.0	
more than 30 (obese)	20	20.0	
Total	100	100.0	
2- Systolic blood pressure			
< 120 (normal)	5	5.0	152.3
120-139 (prehypertension)	14	14.0	
140-159 (stage 1 hypertension)	36	36.0	
> 160 (stage 2 hypertension)	45	45.0	
Total	100	100.0	
3- Diastolic blood pressure			
< 80 (normal)	13	13.0	93.3
80-89 (prehypertension)	31	31.0	
90-99 (stage1hypertension)	22	22.0	
> 100 (stage 2 hypertension)	34	34.0	
Total	100	100.0	
4- Hemoglobin (Hb)			
Less than normal range	89	89.0	9.1
Normal range	11	11.0	
Total	100	100.0	
5- Packed Cell Volume (PCV)			
Less normal range	97	97.0	27.3
Normal range	3	3.0	
Total	100	100.0	
6- S. Potassium (K)			
Less than normal	8	8.0	4.8
Normal range	65	65.0	
More than normal range	27	27.0	
Total	100	100.0	
7- S. Phosphors (P)			
Normal range	37	37.0	5.5
More than normal range	63	63.0	
Total	100	100.0	
8- Blood urea			
Normal range	3	3.0	123.7
More than normal range	97	97.0	
Total	100	100.0	
9- S.creatinine			
Normal range	1	1.0	8.4
More than normal range	99	99.0	
Total	100	100.0	
10- S. Albumin			
Less than normal	27	27.0	4.040
Normal range	66	66.0	
More than normal range	7	7.0	
Total	100	100.0	

In term to BMI, table (2) showed that (39%) have normal BMI, this result are opposite to the another studies results [10],[11] which stated that the patients have low BMI and this is considered a risk factors for death in kidney diseases.Another study [12] reported that the patients have high level of MBI (>22 kg/m2) and this is associated with increased the morbidity.

The results of patients reveal they have a stage 2 systolic hypertension which formed a (45%). A (34%) were stage 2 diastolic BP readings also, a study [13] revealed that increasing frequency of hypertension lead to increasing the epidemic of cerebrovascular diseases. This study results opposite with study [14] that reported a temporary reduction in BP during the dialysis nutritional examination for patients with hemodialysis.

In relation to Hb and PCV for the study sample,less than normal value formed the majorities (89% and 97%) respectively; this indicates the reduction in kidney functions of erythropoietin secretion by the adrenal glands. This study results corresponds with systematic review, carried out in the United States [15] presented that patients on dialysis having anemia and it should be treated.

In regard to the potassium level, it was within the normal level for more than half (65%) of the study sample. A study [16] stated that as the potassium acceptable upper limit is (5.3 mmole\l) and potassium level (6.0 mmole\l) is considered hyperkalemia and responsible for (3%- 5%) deaths in hemodialysis patients.

The study results show that a (63%) have had elevated level of phosphors due to disturbance in the kidney functions.

In this study the B.urea and S.creatinine levels were elevated for the patients (97% and 99%) for each, respectively, these outcomes go along with a study [9] thatmentioned the elevated B.urea and S.creatinine levels for patients on hemodialysis.

In relation to the S.Albumin level, a (66%) of the samples have normal values. The study results [17]revealed that patients in dialysis having hypoalbuminemia due decrease protein intake or due to inflammation process. While another study [18] revealed that a higher levels of S.Albumin is due to an increase in protein intake over time or higher dietary protein intake, alsoa study [19]shown the elevated albumin level in hemodialysis patients due to oral nutritional intake and parenteral nutrition during dialysis.

Table 3. Clinical Characteristics of the Study Sample

Variables	Frequency	Percent
1- Smoking		
Yes	14	14.0
No	86	86.0
Total	100	100.0
2- Having Diabetes Mellitus (DM)		
Yes	25	25.0
No	75	75.0
Total	100	100.0
3- Having Heart Diseases		
Didn't have	88	88.0
Angina	1	1.0
MI	1	1.0
Atherosclerosis	2	2.0
Heart Failure	8	8.0
Total	100	100.0
4- Hypertension Medications		
Yes	90	90.0
No	10	10.0
Total	100	100.0
5- Having an Intestinal Diseases		
Didn't have	85	85.0
Cereal Diseases	1	1.0
Irritable Bowel Syndrome	14	14.0
Total	100	100.0
6- Limitations of Food		
Yes	85	85.0
No	15	15.5
Total	100	100.0

Table (3) presented that the majority (86%) weren't smoking; these findings indicate that smoking may not disrupting the kidney functions and doesn't matter whether the patients on hemodialysis were being smoking or not.

In relation to having DM, the findings revealed that (75%) weren't have DM, a study results [20] weren't resemble to this study results; which stated that a lot of hemodialysis patients have DM.

The results showed (88% and 90%) haven't heart diseases and they're taking hypertension medications regularly, respectively. The results of Epidemiology of Diabetes Intervention and Complications/ Diabetes Control and Complications Trial study[21]indicated that reduced use and reduced antihypertensive drugs prescription can lead to reduction in cardiovascular likelihoods and reduce hypotension for patients during hemodialysis.

In regard to food limitations that lead to decrease the elevated BP, the majority (85%) were followed food limitation, this results go along with study results [22] thatimplemented different dietary approaches included low and limiting total dairy fatty foods, saturated fat, and cholesterol to stop hypertension. These approaches lead to decrease BP.

Conclusions

1. The study findings showed male and female evenly distributed, and the most patients were old age.

2. The study findings reflectingthe patients have low educational attainment; they're a primary school education,

3. The results showed that more than half having sufficient financial status, and the majority of the samples were lived in urban areas, this may refer to living in urban areas may be more prone to hypertension.

4.The highest percentage have normal BMI, and most of them have stage 2 hypertension.

5.The major percentage of the patients have anemia, this is appear through the findings of low Hb and PCV value as a result of disturbed kidney functions.

6.The study results reflecting an elevated level of S.phosphors, B.urea and S.creatinine, respectively due to disturbance in normal kidney functions.

7. The major percentage of the samples weren't smoking and they weren't have DM, this may be a good sign for patients with hypertension who undergoing hemodialysis.

Recommendations

1. Establishing of nutritional health style for patients with hypertension on hemodialysis.

2. Activate the dieticians' role in hemodialysis units.

Ethical Clearance: No

Source of Findings: Self

Conflict of Interest: Nil

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