Effect of Nutritional Health Program in Improving the Quality of Life-of Patients with Chronic Renal Failure in Hemodialysis Center of Duhok City

*Miaad Hussein Kadhim ** *Alaa Noori Sarkees*** *Khalida Elias Georgies ****

ABSTRACT

Background and aim: Patients with chronic kidney failure are vulnerable of cognitive impairment. That's why they become more users of pharmacological products and develop comorbidities such as hypertension and diabetes. Therefore, nutritional therapy constantly considered a major feature of Chronic Kidney Failure management. So, the nutritional therapy aimed to attainment the control both metabolic and fluid as well as prevention and correction of signs, symptoms and complications of progressed Chronic Renal Failure. The present study aimed to investigate the effectiveness of the education nutritional health program in improving the quality of life of patients with chronic renal failure.

Materials and method: The present Quazi-experimental study was conducted in hemodialysis center and renal transplantation department in Azadi teaching hospital, from February 15, 2015 through March 1, 2016. The sample of the study was consisted of (30) Non-probability (purposive) patients with chronic renal failure. Data were collected through using questionnaire related to health education nutritional program before and after its application upon patients with chronic renal failure. Analysis of data performed through the application of descriptive data (Frequency and percentage) and inferential data of (T. test) employed statistical application.

Results: The findings of the study had revealed that the experimental group had benefited of the program as supported by their nutritional health-related knowledge improvement. Furthermore, the result indicated that the highly significant differences between pre and post educational intervention regarding patients level of physical and psychological quality of life.

Conclusion: The health education nutritional program was confirmed its effectiveness throughout the study, the findings can be interpreted so that the group had benefited from the health education nutritional program and evidenced improvement in their knowledge related to nutritional behavior and quality of life.

Recommendation: The study recommended that the Ministry of Health in Kurdistan Region of Iraq should sponsor the health education nutritional program to be applied by nephrology nurses in hemodialysis centers considering its potential addressing patients' specific needs and problems.

Keywords: Nutritional Health Program, Quality of Life, Chronic Renal Failure.

INTRODUCTION

Chronic Renal Failure (CRF) describes abnormal kidney function and structure. There is evidence that nutritional treatment can prevent or delay the progression of (CRF), reduce or prevent the development of complications, and reduce the risk of cardiovascular diseases (CVD) (Fogarty, 2011).

Patients with (CRF) are usually treated with hemodialysis centers three times a week, with each session lasting about three to five hours. The primary purposes of dialysis are to replace the functions the patients' kidneys, removing waste products and excess fluids and maintaining electrolyte balance (Toneli *et. al*., 2011). Patients on hemodialysis experience decreased quality of life (QOL) and significantly higher rates of malnutrition, inflammation, hospitalization and morta-lity when compared with the normal population(Abboud *et. al*., 2010).

Although the modern treatment of CRF is addressed to reduce progression of renal failure to prevent uremic complication and to improve survival, new challenges must be considered in order to prevent disability to improve quality of life and to maintain physical performance (Toneli *et. al*., 2011).

Throughout the course of CRF, diet is widely recommended not only for improving the effects of drug and dialysis treatment but also for offering specific benefits on quality of life and health status perception (Fogarty, 2011).

Nutrition in patient with CRF in hemodialysis is important in decreasing complication and improving quality of life of patients, in addition nutritional program helps to avoid high potassium and sodium from the diet, protein restricted diets are able to prevent uremic symptoms or complications, such as metabolic acidosis, protein urea, hypertension and fluid retention. In order to prevent pulmonary edema, hypertension, and heart failure keeping the consumption of calcium and phosphorus under

* *Assistant Lecturer / College of Nursing / University of Duhok*

** *Lecturer / College of Nursing / University of Duhok / Email: alaa.sarkees@uod.ac*

*** *Assistant Professor / College of Nursing / University of Baghdad .*

control. Protein and sodium restriction are target of the nutritional therapy for chronic renal diseases (Mitch and Remuzzi, 2004; Locatelli and Del Vecchio, 2014). This therapy helps to better management of water and sodium restriction, control blood pressure in addition to reduction of proteinurea. But, it is important to ensure that the diet therapy is not the way of restriction only, it is the way of meeting full energy requirement for patients with chronic kidney diseases, prevent protein catabolism, maintain both neutral nitrogen balance and adequate nutritional status, and body composition (Bellizzi et. al., 2016). Moreover, the plan for diet must be consider the increasing other nutrient substances intake in order to maintain body calories requirements because these calorie requirements are also may influence by Chronic Kidney Disease (CKD) (Thomas *et. al*., 2015; Dong *et. al*., 2015). The present study ought to investigate how nutritional program can effects on patients with chronic renal failure to improve quality of life.

MATERIALS AND METHOD

The health education nutritional program was comprised of components that represented patterns related to chronic renal failure. The present Quazi-experimental study design was conducted in hemodialysis center and renal transplantation department in Azadi Teaching Hospital in Duhok City, from February 15, 2015 through March 1, 2016. The sample of the study was consisted of (30) Non-probability (purposive) patients with chronic renal failure agreed to participate in present study. This number because their critical health problem. After obtaining approval of Ethical Committee in Health Directorate of Duhok Governorate and patients oral consents, those patients were tested as pre exposure to health education nutritional program to be as control group of present study. Then they exposed to the health education nutritional program, and then they were tested again as post exposed to such program in order to determine the effectiveness of this program on their quality of life.

For the purpose of the current study, an instrument of three parts was constructed as: demographic data sheet which included five items as age, sex, marital status, level of education and occupation status. Health Education Nutritional Program of patients with CRF questionnaire. Total of (30) items were included in the questionnaire. Finally, Chronic Renal Failure Quality of Life check list. The validity of the health nutritional program and questionnaire was determined through penal of experts. They were five faculty members from the College of Nursing, and College of Medicine at University of Duhok. Data was analyzed through the use of descriptive data statistic, (Frequencies and percentages) and inferential data statistic of (T-test) in order to compare between the pre and post test of data collection. Furthermore, patients' level of knowledge towards their nutritional behavior was determined through the application of cut of point as Poor (25-42), Fair (43-59), and Good (60-75).

RESULTS

Table (1):Distribution of the samples' demographic characteristics.

Demographic Characteristics	f	(%)	Mean	SD
1. Age (Years)				
39-48	9	30	52.10	±7.897
49-58	12	**40**		
59-more	9	30		
Total	**30**	**100**		
2. Gender				
Male	22	**73.3**	1.27	±0.450
Female	8	26.7		
Total	**30**	**100**		
3. Marital Status				
Single	1	3.35	2.03	±0.414
Married	28	**93.3**		
Divorced	1	3.35		
Total	**30**	**100**		
4. Education				
Illiterate	2	6.7	4.67	±1.826
Read and write	4	13.3		

Primary school graduate	3	10		
Secondary school graduate	7	23.3		
Institute graduate	12	**40**		
College and higher education graduate	2	6.7		
Total	**30**	**100**		
5. Occupation				
Governmental employed	17	**56.6**	2.27	±1.660
Unemployed	2	6.7		
Retired	3	10		
Housewife	2	6.7		
Free job	6	20		
Total	**30**	**100**		

f: Frequency, %: Percent, SD: Standard Deviation

Table (2):Level of Patients' nutritional knowledge before and after health education nutritional program.

Level of Patients' knowledge	Before		Mean	SD	After		Mean	SD
	F	(%)			F	(%)		
Poor	5	16.7	1.83	±0.379	2	6.7	2.53	±0.629
Fair	25	**83.3**			10	33.3		
Good	0	0			18	**60**		
Total	**30**	**100**			**30**	**100**		

f: Frequency, %: Percent, SD: Standard Deviation

Table (3): Number of patients' admission to the hemodialysis center before and after health education nutritional program.

Number of patients' admission to the hemodialysis center	Before		Mean	SD	After		Mean	SD
	F	(%)			F	(%)		
Two times a week	0	0	3.03	±0.183	17	**56.7**	2.43	±0.504
Three times a week	29	**96.7**			13	43.3		
Four times a week	1	3.3			0	0		
Total	**30**	**100**			**30**	**100**		

f: Frequency, %: Percent, SD: Standard Deviation

Table 4: Levels of physical quality of life domain before and after of health education nutritional program.

Levels of physical quality of life domain	Before		Mean	SD	After		Mean	SD
	F	(%)			F	(%)		
Low physical quality of life	16	**53.3**	1.53	±0.629	1	3.3	2.33	±0.547
Average physical quality of life	12	40			18	**60**		
High physical quality of life	2	6.7			11	36.7		
Total	**30**	**100**			**30**	**100**		

f: Frequency, %: Percent, SD: Standard Deviation

Table 5: Levels of psychological quality of life domain before and after of health education nutritional program.

Levels of psychological quality of life domain	Before		Mean	SD	After		Mean	SD
	F	(%)			F	(%)		
Low psychological quality of life	13	43.3	1.63	±0.615	3	10	2.27	±0.640
Average psychological quality of life	15	**50**			16	**53.3**		
High psychological quality of life	2	6.7			11	36.7		
Total	**30**	**100**			**30**	**100**		

f: Frequency, %: Percent, SD: Standard Deviation

Table 6: Comparative differences between the pre and post tests patients' responses to nutritional knowledge.

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre Test - Post Test	-12.367-	6.739	1.230	-14.883-	-9.850-	-10.051-	29	0.000

Std: Standard, t: Statistical t, df: Degree of freedom, Sig: probability level at ≤ 0.05

Table 7: Comparative difference between the pre and post tests responses to physical quality of life domain.

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre Test - Post Test	-7.733-	2.840	0.518	-8.794-	-6.673-	-14.916-	29	0.000

Std: Standard, t: Statistical t, df: Degree of freedom, Sig: probability level at ≤ 0.05

Table 8: Comparative difference between the pre and post tests responses to psychological quality of life domain.

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre Test - Post Test	-10.433-	2.431	0.444	-11.341-	-9.526-	-23.508-	29	0.000

Std: Standard, t: Statistical t, df: Degree of freedom, Sig: probability level at ≤0.05

DISCUSSION

Regarding the age, it was ranged within the 39-59 years and more. The considerable percentage of the participants (40%) were adults with ages from 49-58 years, and the lowest percentage was (30%) in the other groups of age. About the gender distribution, the result revealed that (73.3%) were male, while (26.7%) were female. Regarding to the marital status, the result showed that the highest percentage of the participants was married (93.3%) while others were single or divorced. This table also indicated that less than half of the sample (40%) was institute graduate. In respect to the occupational status of the participants, the governmental employed dominated the rate which was (56.6%), while only (6.7%) them were unemployed (Table 1). Table (2) presented that (83.3%) scored fair in their level of knowledge before health education nutritional intervention, while (60%) reported good knowledge after application of such program.Table (3) shows that (96.7%) were admitted to the hemodialysis center three times a week, with each session lasting three hours, this is before application of health education nutritional program. While (56.7%) of them had two times a week after such program. Table (4) shows that the proportion of low physical quality of life was (53.3%) before health education nutritional program comparing to the patients after such program were (60%) who indicated average physical quality of life. While only (3.3%) of them reported low physical quality of life. Table (5) indicated that the highest percentage for average psychological quality of life was (50%) and the lowest percentage (6.7%)

was within high psychological quality of life before health education nutritional program, comparing to the patients after such program (53.3%) indicated average psychological quality of life, and the lowest percentage (10%) reported low psychological quality of life. Table (6) presented highly significant difference between pre and post tests regarding patients' nutritional knowledge. Table (7) showed a highly significant difference was noted between the pre-test and post-test regarding to patients physical quality of life domain. Table (8) presented a highly significant difference was determined between the pre-post tests regarding patients' psychological quality of life domain.

Throughout the course of the data analysis, the findings presented that the majority of the sample (73.3%) was male and (40%) were adult with age from 49-58 years. Concerning their marital status, most of them were married (93.3%). Relative to their educational status, most of the participantsgroup was institute graduate (40%). Concerning to their occupational status of the participants, the government employed dominated the rate which was (56.6%), while only (6.7%) of them were unemployed.

In order to determine the impact of the health education nutritional program upon the chronic renal failure patients' knowledge-related nutrition, the study attempted to compare between the pre and the post tests, the findings were interpreted, so that the post test had benefited out of the program and evidenced improvement in their knowledge was reported. Such improvement had provided a meaningful and supportive fact that the program was effective. Support for this finding was reported by Condé *et. al*. (2010) that health nutritional program can promote long-term benefit in preventing, monitoring care to patients with CRF. Furthermore, it was documented that eating the right foods can help improve dialysis and health and improve the effectiveness of dialysis. Also study results which are stated by Bellizzi et al were in agreement with the present study findings, that indicated integrated program of diet for patients with dialysis which is consisted of very low-protein diet (0.3-0.4g/kg/day), and accomplished for six days a week with ketoacids, essential aminoacids, severe restriction of sodium and water, in addition to one hemodialysis session per week (Bellizzi *et. al*., 2016).

According to Ameh *et. al*. (2016) the education and re-education of CKD patients at a clinic or dialysis visits by multi-disciplinary (nephrologists, nurse and dietitians) team on nutritional and dietary needs which enables them to meet the nutritional goals and slow CKD progression especially daily protein requirements and the role the unrestricted protein, fluid, fat intake and hidden surges, also ensure the energy from the dextrose for the patients with dialysis (Fouque *et. al*., 2007; National Kidney Foundation, 2000; Dombros *et. al*., 2005). In general, the energy intake is recommended for patients with CKD to be sufficient enough in order to maintain the balance of neural nitrogen (Kopple *et. al*. 1986, Slomowitz *et. al*., 1989). The results of the study show that the mean of scores is highly significant differences between pre and post regarding to patients level of physical and psychological quality of life. Support for this finding the study by Kalender *et. al*. (2007) who was indicated in their study that the quality of life are decreased in chronic renal failure and health related quality of life is one of the best predictors for morbidity and mortality in chronic renal failure. Patients suffering CKD can show confidence reduction and risk of injuries as a result of substantial contribution of wasting of body muscles and limitation in their physical performance. The main abnormality that can present in muscles function is a measurements reduction in speed of walking and the "timed and up and go" testing (Mitch and Remuzzi, 2016).

CONCLUSION

The study can conclude that the most of the patients were male and they were married. The health education nutritional program was confirmed its effectiveness throughout the study, the findings can be interpreted so that the study group had benefited from the health education nutritional program and evidenced improvement in their knowledge related to nutritional behavior. There was a highly significant difference between pre and post tests regarding patients' knowledge about health education nutritional program.There was a highly significant difference between the pre-test and post-test regarding to patients' levels of physical and psychological quality of life domains.

RECOMMENDATIONS

The researchers recommend that The Ministry of Health in Kurdistan Region of Iraq should sponsor the health education nutritional program to be applied by nephrology nurses in hemodialysis centers. Further studies can be

conducted with larger sample size and in different city. It is also suggested to incorporate health education nutritional program into a routine nursing intervention at the urology centers. Provision of scientific books and journals on health education nutritional program in Arabic and Kurdish languages for nephrology nurses.

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