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Determination of Dietary Knowledge among Patients Suffering from Chronic Renal Failure

Sania Saher, Maria Aslam, Sidra Khalid[*]

University Institute of Diet and Nutritional Sciences, Faculty of Allied Health Sciences, The University of Lahore, Lahore, Pakistan

Corresponding Author's Email: *sidrakhalid.uaf@gmail.com

ABSTRACT: *Chronic renal diseases are usually mentioned as decreased functioning of kidneys. The main symptoms includes in this disease are kidney damage, greater loss of albumin in urine and a reduced glomerular filtration rate (GFR). The present study was aimed to determine the dietary knowledge about the patients that suffered in chronic renal failure along with various other impediments. A transverse study was performed for 4 months in Sir Ganga Ram Hospital and data of one hundred patients with chronic kidney failure and impediments were selected. A non-probability sampling method was used to conduct this study. Out of the total 100 patients, 36% of patients knew the renal diet. While, only 28% of patients knew about potassium, 16% about phosphorous and 20% about salt restrictions. Similarly, 57% knew about red meat and 56% knew about pulses restriction. The symptoms of studied disease was more prevalent in males as compared to females which showed gender as major factor for the renal failure. The majority of sufferers were unaware of the renal diet and electrolyte restriction in diet. Moreover, patients were also using excessive fluid against the advice of doctors. It was concluded there is need to conduct such studies to aware the necessity of appropriate dietary in control of chronic renal failure.*

Keywords: *Chronic, kidney, failure, symptoms, electrolyte, restrictions*

INTRODUCTION

Chronic kidney diseases (CKD) are prevailing worldwide as a major health issue. Ten to fourteen percent of the world's adult populace is put up with this disease (White et al., 2008; Saher et al., 2020). As per WHO's Global Burden of renal disease study (2015), 1.2 million people lost their lives because of renal failure worldwide. While, an average of 5-10 million people lost their life yearly due to this disease. In various

countries such as America (16.8%), Norway (10.2%), Taiwan (7%), and Iceland (5%) the occurrence is found high (Eriksen and Ingebretsen, 2006; Hsu et al., 2006). Only in Pakistan, 21 million people are hurting in third and fourth stage CKF (Seher et al., 2020). The danger to suffer in CKF enhanced with certain other diseases such as diabetes mellitus, hypertension, obesity, and cardiovascular diseases. A number of other factors like environmental pollution, excessive use of pesticides, painkillers, and use of unregulated food additives etc. (Ayodele and Alebiosu, 2010; Agyei-Mensah and Aikins, 2010; Engelgau et al., 2011). Regular screening of blood and urine can help in the prevention of these kidney diseases (Jha et al., 2013). Hypertension and diabetes mellitus are the major risk factors of CRF. About 75% of people with CRF also have hypertension. Moreover, lifestyle contributes a lot to the development of CKF, hypertension and diabetes mellitus. Smoking and alcohol should be prohibited in renal patients to avoid renal failure (Unger and Scherer, 2010). A moderate exercise of 30-60 minutes can help lower blood pressure and blood sugars level. Exercise can help maintain blood glucose levels (Vaziri and Norris, 2011). Victims of CKF can be suggested with a low Potassium (K) diet because as glomerular filtration rate decreased the levels of potassium because kidneys are the site for the filtration and secretion of potassium (Noori et al., 2010). Phosphorous from animal sources and food additives have high availability, whereas plant source phosphorous has a low availability. Therefore, CKF patients should be given a mixed animal and plant sources diet that is rich in phytic acid. Phosphorous from additives should be strictly restricted in CKF patients (Wolf, 2009). Victims of CKF faced various nutritional shortages as on hemodialysis they mostly suffer in Vitamins ($B_{6,}$ and B_{12}), folate and iron. The presence of these nutrients becomes very necessary to compensate the deficiencies (Kalantar-Zadeh et al., 2010). The main causes that lead to severe anemia are deficiency of hormone erythropoietin produced by kidneys that has a key role in the production of red blood cells, malnutrition, inflammation, iron deficiency and according to some recent studies Vitamin D deficiency (Moll and Davis, 2017). Intravenous supplements of iron can improve iron levels in hemodialytic patients. Similarly, the administration of oral supplements of Vit B_6 leads to an improvement in its levels (Kalantar-Zadeh et al., 2009).

The present study was carried out to find out the dietary knowledge of patients suffering from chronic renal failure who also have diabetes mellitus and hypertension. After the determination of the dietary knowledge of patients, awareness through health education could be given to patients about healthy food choices. So that the burden of renal disease could be reduced and patients may have a better quality of life.

METHODLOGY

Ethical statement

For the present study ethical approval was taken from the Institutional Review Board (IRB) of the University of Lahore (UOL).

Study design

A cross-sectional study was conducted in Sir Ganga Ram Hospital, Lahore, for the 4 months. 100 adult patients of both genders of chronic renal failure with diabetes mellitus and hypertension were selected by non-probability convenient sampling. Data were collected from a pre-tested questionnaire. Prior to study a written informed consent was taken from all the participants.

Statistical Analysis

Data were tabulated and analyzed with the help of SPSS version 23.0. The quantitative variables like age, income, etc. was assessed by using mean, standard deviation and standard errors. The qualitative variables were reported using percentages and frequencies.

RESULTS

In the present study it was noticed that majority of patients were unaware of the diet that should be given to patients with chronic renal failure. 36% of patients knew the type of diet for renal patients, 47% knew about dairy restriction, 57% knew about red meat restriction, 48% knew about foods restricted in the renal diet and 56% knew about pulses restriction. Analysis of results of the conducted study showed that 28% of patients knew about potassium restriction, 24% knew about food sources of potassium, 12% about food sources of phosphorous, 16% about phosphorous restriction, 20% about salt restriction, 10% about hidden sources of salt, 24% soaked vegetables before cooking, 96% knew that soaking vegetables before cooking leach extra potassium from vegetables, 12% knew about the high amount of salt in preserved foods and 7% patients knew about the high amount of phosphorous additives in soft drinks, as shown in Fig. 1.

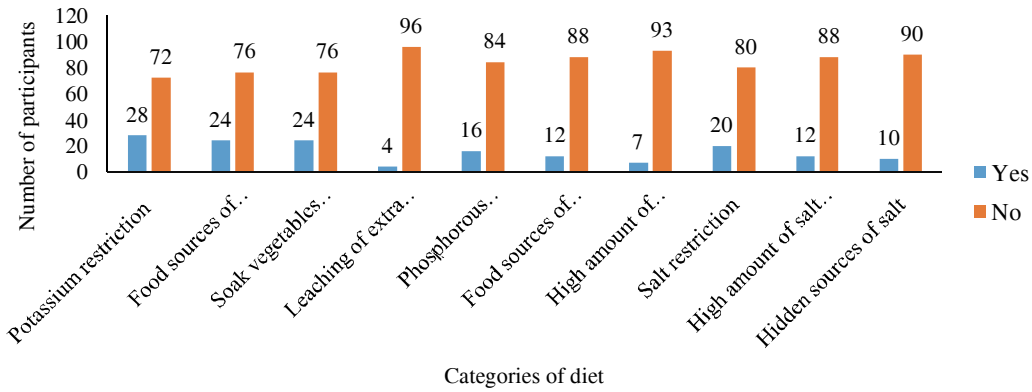

Fig. 1. Knowledge of Patients regarding Dietary and Electrolyte Restriction

Analysis showed a significant association of patients' knowledge about renal diet with socioeconomic status, p = 0.018. Whereas, there was an insignificant association of patient's knowledge about renal diet with gender (p=0.146) and body mass index (BMI) (p =0.255), as shown in Table 1.

Table 1: Association between Patient's Knowledge about Renal Diet and socio-demographic variables

Sr. No	Socio-demographic variables		Knowledge of Patients about Renal Diet		p-Value
			Yes	No	
1.	Socioeconomic Status	Low	8	29	0.018
		Middle	26	35	
		High	2	0	
2.	Gender	Male	22	48	0.146
		Female	14	16	
3.	Body Mass Index (BMI)	Underweight	13	35	0.255
		Healthy	9	15	
		Overweight	12	12	
		Obese	2	2	

DISCUSSION

The lack of knowledge about dietary restrictions is usual among CKD patients. Knowledge about renal diet and dietary restrictions is necessary for renal patients to improve their quality of life. Decreased urine output is a major indicator of a disturbed renal system. Analysis of the current study revealed that only 36% of patients knew renal

diet. A study was conducted by Karavetian et al. (2015) showed that 15%-40% of patients knew renal diet. However, that knowledge increased up to 90% after providing education by a dietitian. This study also showed that the serum potassium levels of patients dropped significantly after providing them knowledge about restrictions in renal diet (Karavetian et al., 2015). A study conducted by Betz et al. (2021) showed that the knowledge of patients regarding electrolyte restrictions was low and has no significant association with their intake of restricted items. The patients who knew and those who did not knew about restrictions were equally consuming a high amount of restricted items. The intake of phosphorous was 59-70% high and that of sodium was 67-91% high (Betz et al., 2021). Another study also reported similar to our findings that there is little knowledge in the renal patients were found regarding diet (Srinivassan, 2014). The current study also analyzed that the patients were having very little knowledge about electrolyte restriction and were consuming a high electrolyte diet on daily basis. The study showed that only 12% of patients knew about salt restriction and 16% about phosphorous restriction. Hoever, Vulpio et al. (2021) reported that advising in nutrition has ability to improve with renal failure on maintenance hemodialysis (MHD). So, MHD patients' knowledge about nutrients and subsequently dietcomposition and phosphate intakewas needed to improve.

CONCLUSION

The study concluded that chronic renal failure was more prevalent in males as compared to females and genetic factor was a common risk factor of renal failure. The majority of patients were unaware of the renal diet and electrolyte restriction in diet. Most of the patients were consuming a low caloric diet due to lack of appetite and were underweight. So, there is need to aware patients regarding improvement in diseases while using appropriate diet is very important.

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