A Study to Assess the Effectiveness of Structured Teaching Programme on Renal Diet on the Chronic Kidney Disease Patients Attending Tertiary Care Centre

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ABSTRACT

Background: *Lot of advancement is taking place every second in the medical field. There is an influx of information available. So, it is important to convey right information to the patients who are affected tremendously by diet. Most of the patients attending the OPDs belong to the old age group. The relationship between dietary protein and renal function has been studied for over half a century. Soon after, it was established that increased protein intake elevated rates of creatinine and urea excretion. Common mechanism underlying increased excretion rates was eventually attributed to changes in GFR.* **Aim:** *To assess the effectiveness of the structured teaching programme of the CKD patients on the knowledge about renal diet.* **Methods:** *The present study was aimed to assess the effectiveness of structured teaching programme regarding renal diet for the CKD patients attending renal OPD. The researcher selected the single group pre and post-test experimental design. An average of 25 to 30 patients attended per day in OPD and a total of 200 to 250 patients attended in a month. 60 samples were selected as per the inclusion criteria for the present study. The sampling technique adopted was convenient sampling method.* **Results:** *Assessment of baseline knowledge of the samples was done using a tool (questionnaire comprising of 20 questions).* **Conclusion:** *The effectiveness of structured programme was evident as 95% of population gained very good knowledge (score between 85-90%) regarding renal diet after the structured teaching programme and 5% of population had good knowledge (score between 75% to 80%) after structured teaching programme.*

Keywords: Renal diet, Structured teaching, Dietary protein, Glomerular filtration rate

Abbreviations: GFR: Glomerular Filtration Rate; CKD: Chronic Kidney Disease; OPD: Out-Patient Department; ESRD: End Stage Renal Disease

INTRODUCTION

Healthy people are those who live in healthy homes on a healthy diet in an environment equally fit for birth, growth, work, healing, and dying. A healthy diet has a direct link to increased cognitive function and memory skills. The medical literature tells us that the most effective ways to reduce the risk of heart disease, cancer, stroke, diabetes and many more problems are through healthy diet and exercise [1]. The term chronic kidney disease (CKD) is used when there is an irreversible loss of kidney function. This condition is usually progressive and eventually a stage is reached when practically entire kidney function is lost. This is called end stage renal disease [2].

"*Let food be thy medicine, thy medicine shall be thy food.*" - Hippocrates (460-377 B.C.)

Diet plays an important role in this matter. There is nothing like a CKD diet. The diet must be individualized because the severity and causes of CKD may vary from patient to patient [3]. The principle of dietary modification should be to minimize the accumulation of waste products and alteration in volume and composition of body water. Dietary modification also has an important role in slowing down the rate at which the kidney function goes down in patients with CKD. The most important fact is that a beneficial effect of dietary modification is retarding the rate of decline in

kidney function when the kidney function is minimally impaired [4]. Unfortunately, most patients and serious attempt of dietary modification do not well appreciate this aspect is made only when the kidney function is too impaired and is at a stage at which not much can be achieved with stringent dietary restriction. It is equally important to ensure that dietary modification does not lead to starvation and state of malnutrition [5].

PATIENTS AND METHODS

In the present study, the researcher selected the single group pre and post-test experimental design. Setting of the study was the renal OPD of a tertiary care hospital. The target population was the patients who attended renal OPD on Wednesdays and Saturdays [6,7]. An average of 25 to 30 patients attended per day in the OPD and an average total of 200 to 250 patients attended in a month. A total of 100 to 150 patients attended the OPD for the span of two months of the study, out of which, 60 samples were selected as per the inclusion criteria. The sampling technique adopted for the study was convenient sampling method. Patients who were diagnosed as a case of CKD (males and females), age above 18 years, who could comprehend Hindi and English and patients who were willing to participate in the study were included. Patients with co morbidities and on dialysis were excluded. Structured teaching programme was the independent variable and knowledge level was the dependent variable [6-9].

Inclusion Criteria

Patients who were diagnosed with CKD (males and females), age above 18 years and who understood Hindi and English.

Exclusion Criteria

Patients with comorbidities and/or on dialysis were excluded.

The tool used was constructed according to the objectives of the study and was validated by the experts in the field of education and renal medicine. It comprised of the following sections:

Section 1: Demographic data of the sample.

Section 2: Questionnaire regarding renal diet.

Feasibility of study was assessed by conducting a pilot study. Sample of 10% of main study (a sample of 6 patients from similar setting) were collected for the pilot study. Reliability and validity of the tool was confirmed by pilot study using the same structured teaching programme in a similar setting as per the set criteria [10].

The concerned authorities and departmental in-charges were briefly informed about the study to gain confidence. Consent of the patients was procured prior to the study and confidentiality regarding the details of the sample were maintained [11].

The knowledge of the selected patients was assessed using the validated tool. Then structured teaching programme was given by the researcher via power point presentation. Effectiveness of the teaching was assessed by administering the same tool for the same patients on the same day itself immediately after the structured teaching programme. Data was collected and analyzed using simple statistical methods of frequency and percentage [12-15].

RESULTS

Based on the objectives of the study, the findings were correlated with selected demographic variables (age, educational qualification, gender, and duration of illness). Regarding the age factor, out of 200 patients who were reported to the OPD, 60 samples of CKD patients were taken as per the inclusion criteria set for age (≥18 years). The age group ranging from 18 to 28 years comprised of 8.33%, the age group ranging from 29 to 38 years comprised of 16.66%, age group ranging from 49 to 58 years comprised of 30%, age group ranging from 59 to 68 years comprised of 20%, the age group ranging from 69 to 78 years were 10%. Table 1 and Figure 1 shows the age distribution of the samples. Around 30% of the samples are from the age group of 49-58 and least are from the age group of more than 78 (1.6%).

Table 1 Frequency and distribution of samples according to the age distribution

Age (Years)	Frequency (N=60)	%
18-28	5	8.33%
29-38	10	16.66%
39-48	8	13.33%

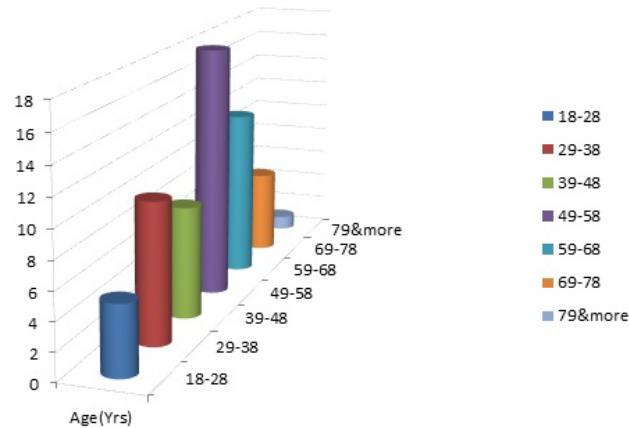| 49-58 | 18 | 30.00% |
59-68	12	20.00%
69-78	6	10.00%
> 78	1	1.60%

Figure 1 Illustration of frequency and distribution of samples according to the age distribution

Educational qualification of samples ranged from illiterate, primary education, secondary education, graduation to post graduation. Out of 60 samples 4 samples were illiterate comprising of 6.6%, 10 samples were educated to primary level comprising of 16.6%, 20 samples were educated to secondary level comprising of 33.3%, 10 samples were educated to graduation level comprising of 16.6% and 6 samples were post graduates comprising of 10% (Table 2 and Figure 2).

Table 2 Frequency and distribution of patients as per the educational status

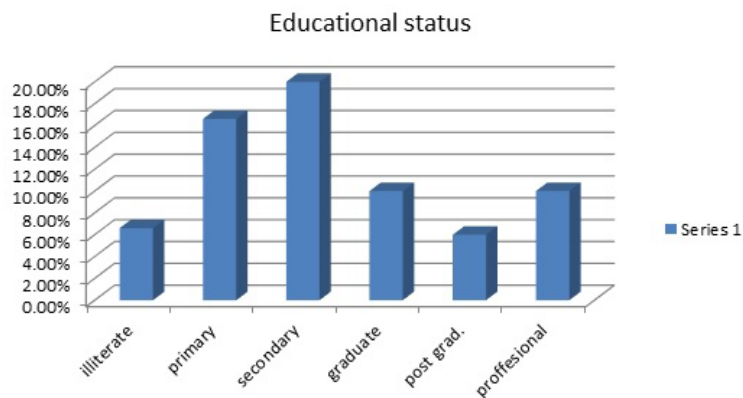| Educational status	No. of samples (N=60)	%
Illiterate	4	6.60%
Primary education	10	16.60%
Secondary education	20	33.30%
Graduate	10	16.60%
Post graduate	6	10.00%
Professionals	10	16.60%

Figure 2 Distribution of samples based on the educational status

Out of total sample population, 28 females comprised of 46.66% and 32 were males comprising 53.33% as described in the Table 3 and Figure 3.

Table 3 Frequency and percentage of gender distribution of sample

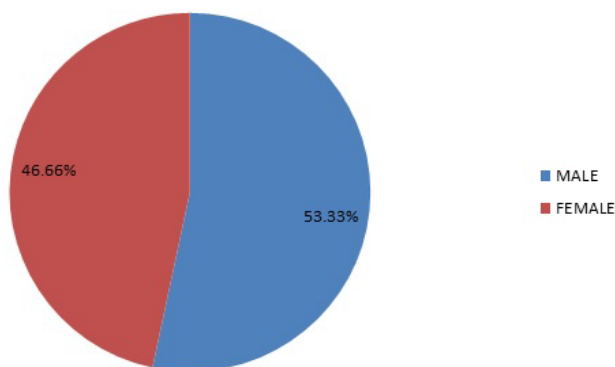| Gender	Frequency (N=60)	%
Male	32	53.33%
Female	28	46.66%

Figure 3 Percentage distribution of gender

The patients with duration of illness ranging from less than 1 year were 26.66%, 1 to 5 years were 53.33%, 5 to 10 years were 13.33% and more than 10 years were 6.66%. This indicates that majority of patients fall in the range of 1 to 5 years of duration of illness as shown in Table 4 and Figure 4.

Table 4 Duration of illness of the sample

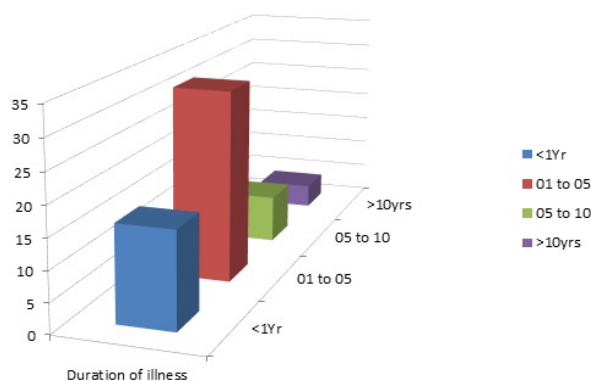| Duration of illness	Frequency (N=60)	%
<1 year	16	26.66%
01 to 05 years	32	53.33%
05 to 10 years	8	13.33%
>10 years	4	6.66%

Figure 4 Percentage distribution of duration of illness of samples

A questionnaire with total 20 objective questions was taken as a tool of structured teaching programme, to assess the knowledge of CKD patients based on renal diet before teaching programme and after the teaching programme, which were consisting of one or more than one option for answer. Selected questions were taken to analyze, interpret and evaluate the effectiveness of structured teaching programme after the pre-test and post-test.

Out of total 20 questions, 5 questions (Question no. 1, 2, 3, 4 and 20) were excluded to interpret the exact knowledge level regarding the renal diet as they were related to the knowledge about diets in general. Only 12% had the idea about renal diet in the pre-test and 54% had idea regarding renal diet after the structured teaching programme.

Question no. 5 asked which fruits are to be taken by CKD patients. Only 13 patients answered correctly in the pre-test whereas 47 answered correctly in the post-test.

Question no. 6 asked which fruits are to be avoided by the CKD patients. Only 8 patients out of 60 answered correctly in the pre-test and 35 patients answered correctly in the post-test.

Question no. 7 stated what amount of salt to be taken in one day. Only 17 patients answered correctly in the pre-test and 42 patients answered correctly in the post-test.

Question no. 8 asked the type of protein to be taken by CKD patients. Only 15 patients answered correctly in the pre-test and 44 answered correctly in the post-test.

Question no. 9 asked which type of protein to be taken by CKD patients. Only 6 patients answered correctly in the pre-test 46 patients answered correctly in the post-test.

Question no. 10 asked which calcium source should be taken by CKD patients. Only 11 patients answered correctly in the pre-test and 50 patients answered correctly in the post-test.

Question no. 11 asked the source of potassium. Only 12 patients answered correctly in the pre-test whereas 40 patients answered correctly in the post-test.

Question no. 12 asked whether the patients should be on fluid restriction or not. Only 17 patients answered as 'yes' in pre-test whereas 48 answered 'yes' in post-test.

Question no. 13 asked the reason for fluid restriction in CKD. Only 10 answered correctly in the pre-test and 50 answered correctly in the post-test.

Question no. 14 asked how much calorie to be taken by CKD patients.16 answered correctly in the pre-test and 46 answered correctly in the post-test.

Question no. 15 asked do the patients need to take high protein diet before dialysis. Only 13 answered correctly in the pre-test and 42 answered correctly in the post-test.

Question no. 16 asked the type of oil to be consumed. Only 6 answered correctly in pre-test and 52 answered correctly in the post-test.

Question no. 17 asked the water intake in one day to be followed in CKD. Only 14 answered correctly in the pre-test and 40 answered correctly in the post-test.

Question no 18 asked the type of roots (tapioca, sweet potato, potato) to be consumed. Only 16 answered correctly in the pre-test and 42 answered correctly in the post-test.

Question no. 19 asked importance knowledge of renal diet. Only 20 answered correctly in the pre-test and 50 answered correctly in the post-test (Figure 5).
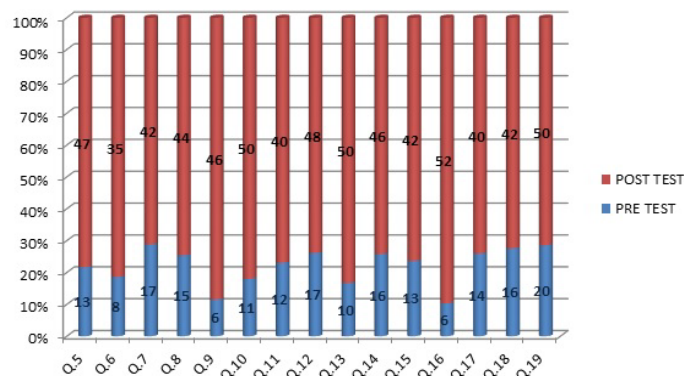

Figure 5 Knowledge of the CKD patients regarding renal diet in pre and post-test

DISCUSSION AND ANALYSIS

Majority (30%) of sample population with CKD was found to be between 49 to 58 years of age. It implies that the early elderly patients are affected most by the disease condition which is congruent to the study conducted in Bhopal

University and Research Centre where the mean age of patients with ESRD was found to be 47 years [16].

Majority of samples had educational qualification up to secondary level and minority (6.6%) were illiterate. It implies that the understanding level of maximum samples was basic and the structured teaching programme was conducted according to their level of knowledge and understanding [17].

The outcome of the analysis regarding gender prevalence of CKD was found to be congruent to the study conducted in Bhopal University and Research Centre which implies that both the gender among population sample are affected equally with CKD [18].

Findings about the duration of illness in the present sample implies that the maximum (53.3%) sample population falls in the range of duration of illness between 1 to 5 years. Hence there is need of conducting a structured teaching programme to enhance the knowledge level of CKD patients in this category to prevent them from the harmful sequel of the disease which is aggravated by following the wrong diet.

One of the prominent findings from the questionnaire was that when asked that what amount of salt to be taken in one day (Question no. 7), only 17 patients answered correctly in the pre-test and 42 patients answered correctly in the post-test. This is congruent to the study which was conducted at University of Caminas, Brazil which determined the relationship between belief regarding low sodium diet in chronic renal failure patients on dialysis. It was positively correlated with the interdialytic weight gain and negatively correlated with the educational level of subjects. Patients with lower educational status have less knowledge and consumed more salt in their diet [19].

CONCLUSION

In this study, a huge improvement in the knowledge of CKD patients regarding renal diet was seen after the structured teaching programme. The effectiveness of structured programme was evident as 90% of population gained good knowledge (score between 85-90%) regarding renal diet after the structured teaching programme and 10% of population had good knowledge (score between 75%-80%) after structured teaching programme. Thus, it is evident that it is imperative for the health team to focus on the dietary aspects to prevent complications in the CKD patients. A well-tailored diet for a renal patient will prolong the impending ESRD (end stage renal disease) also enhance the effectiveness of renal replacement therapy and dialysis. As diet is a very important factor for good outcome from illnesses, informing the patients regarding the same is of utmost importance. Health education regarding renal diet will help the patient in regaining his/her self-confidence and will make them feel empowered which will give them a sense of well-being and will ensure better compliance to the treatment regime. It will decrease their dependency on others.

RECOMMENDATIONS

Keeping in view the findings of the study, the following recommendations are made:

- To make wider generalization of the study findings the study can be conducted on a larger sample size of CKD patients with comorbidities.

- A separate department can be started in the Renal OPD exclusively for conducting the health teaching programmes by trained professionals.

DECLARATIONS

Conflict of Interest

The authors have disclosed no conflict of interest, financial or otherwise.

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