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A descriptive study to assess the knowledge regarding dietary management among chronic renal failure patients undergoing haemodialysis in selected hospital, Bangalore

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Abstract

Kidneys are the vital organs of our body and regulate body fluid volume, acid and electrolytes, thus maintaining normal body composition. When kidneys are damaged, they stop working completely. This condition is called uremia and azotemia. Chronic renal failure is a slow, progressive and irreversible deterioration of kidney function. Untreated Chronic kidney disease can result in end stage of kidney disease, which is the final stage of renal failure. Chronic kidney disease is the 12th leading cause of death and 17th cause of disabilities. The goal of the management is to maintain kidney function and is accomplished primarily with medications and diet therapy.

Renal replacement therapy is only one option at this stage. The main renal replacement therapy includes haemodialysis. Malnutrition is common in dialysis patients that can lead to a higher risk of infection, hospitalization, and even death. Diet is important for patients on hemodialysis because of the effects of uremia. Goals of nutritional therapy are to minimize uremia symptoms and fluid and electrolytes imbalances; to maintain nutritional status. The aim of the study is to assess knowledge regarding dietary management among chronic renal failure patients undergoing hemodialysis.

Materials and methods: A descriptive study was employed to assess knowledge regarding dietary management among chronic renal failure patients undergoing haemodialysis in tertiary hospital, Bangalore. Non probability convenient sampling technique was used to select 110 chronic renal failure patients undergoing haemodialysis. Structured knowledge questionnaire was used to collect data.

Results: Majority of the subjects 58.1% had moderately adequate knowledge, 16.4% of the subjects had adequate knowledge and 25.5% of the subjects had inadequate knowledge regarding dietary management. The mean knowledge score was 19.9 with standard deviation of ±4.259 There was statistical association between knowledge regarding dietary management and socio-

demographic variables with regard to age **(p=0.012)**, duration of hemodialysis **(p=0.002)** and frequency of hemodialysis **(p=0.001).**

Conclusion: The study concluded that chronic renal failure patients undergoing haemodialysis had moderately adequate knowledge.

Keywords: knowledge, dietary management, chronic renal failure patients undergoing heamodialysis.

Introduction

Chronic renal failure is a slow, progressive, and irreversible deterioration of kidney function with decrease of glomerular filtration rate < 60 ml/min/1.73 m2 for 3 or more months. Chronic renal failure is associated with decreased quality of life, increased health care expenditures, and premature death. Untreated Chronic kidney disease can result in end stage of kidney disease, which is the final stage of renal failure [(1)]

According to Indian Journal of Nephrology (2017), Chronic kidney disease is the 12th leading cause of death and 17th cause of disabilities and its approximate total burden is 800 per million globally. CKD is now the 3rd most common non-communicable disease in India. Most chronic patients reporting to tertiary care centres in India are in the final stage where renal replacement therapy (RRT) is the only option at this stage. [(3)]

It is estimated that only 10-20% of ESRD patients in India continue long term renal replacement therapy. [(4)]

The goal of management is to maintain kidney function and homeostasis for as long as possible. Management is accomplished primarily with medications and diet therapy, although dialysis may also be needed to decrease the level of uremic waste products in the blood and to control electrolyte balance. [(5)]

According to Clinical Journal of American Society of Nephrology, 2018. Chronic kidney disease with its high prevalence, morbidity and mortality is an important public health problem. In India there are over 130,000 patient receiving dialysis, and number is increasing by about 232 per million population. [(6)]

Malnutrition is common in dialysis patients and with a lack of knowledge and inadequate nutritional intake that can lead to a higher risk of infection, hospitalization, and even death. Diet is important for patients on haemodialysis because of the effects of uremia. Goals of nutritional therapy are to minimize uremia symptoms and fluid and electrolytes imbalances; to maintain nutritional status. The special diet is essential because dialysis alone does not effectively remove all waste products. These waste products can build up in the body between dialysis treatments. These changes achieved if patients have adequate knowledge regarding disease and therapeutic regimen. With the initiation of haemodialysis, the patients usually require high biological protein, some restriction of sodium, potassium, phosphorus, and fluid intake. [(7)]

Materials & Method

A. Study Design: Descriptive research design was used in this study.

B. Variables

Study variable: Knowledge regarding dietary management.

Attribute variables: Age, gender, education, occupation, family income, dietary pattern, frequency of haemodialysis, medical insurance, comorbidities such as hypertension and diabetes, family history of kidney disease, Body mass index.

C. Setting of the study

The study was carried out at haemodialysis unit of Ramaiah Memorial Hospital, Bangalore, which is 1050 bedded multispecialty hospital equipped with latest infrastructure and modern technologies. The current dialysis unit is having 45 dialysis machines which provide services around 100 patients every day and provides 24/7 service. The nurse patient ratio of 1: 3 is maintained at the dialysis unit. The criteria for selecting this setting were geographical proximity, feasibility of conducting the study, availability of the samples and familiarity of the investigator with the setting.

D. Sample size: 110 chronic renal failure patients undergoing haemodialysis.

E. Sampling technique: Non probability convenient sampling technique was used to select the samples.

F. Inclusion and exclusion criteria: Inclusion criteria: Patients undergoing haemodialysis who are:

- Age group >20 years
- Patients available during period of data collection
- Able to understand English or Kannada

Exclusion criteria: Patients who are:-

- Undergoing peritoneal dialysis.
- Not willing to participate in the study.

G. Development of tool

After an extensive review of literature, discussion with experts and professional experience. A structured knowledge questionnaire regarding dietary management was developed by the researcher. The questionnaire included various items on consumption of right amount of fluid, sodium, protein, potassium and phosphorus. In addition, information regarding socio-demographic variables of subjects was collected.

H. Validity

The validity of the tool was established by inviting suggestion from subject experts that included 2 Dieticians, 2 Nephrologist, 1 general surgeon and 6 nursing personnel. Tool was modified as per the suggestions provided from the experts.

I. Reliability

The tool was tested for reliability using split-half method. The r value was 0.75 and 0.78 for English and Kannada version respectively.

J. Ethical clearance

The ethical clearance for the study was obtained from the Ethical Committee of Ramaiah Medical College.

K. Pilot study

Pilot study was conducted at Tertiary care hospital, Bangalore. A total of 10 subjects who fulfilled the inclusion criteria were selected for the study. On completion of pilot study, it was found that the study was feasible to undertake the main study.

L. Data collection procedure

A written formal permission was obtained from the Hospital Administrators and Nursing superintendent of Ramaiah Memorial hospital, Bangalore. A total 110 subjects who met the inclusion criteria were selected using non probability convenient sampling technique. Subjects were given detailed information about the study and informed consent was obtained from all participants. Tool was distributed to each subject and informed to read the instructions carefully. Data was collected using structured knowledge questionnaire on dietary management. The confidentiality of the subjects were maintained. The average time taken by each subject to complete the tool was about 25-30 minutes. Approximately 10- 15 subjects were assessed per day.

The collected data were coded and entered in the master sheet.

M. Statistical method

The data analysis was done by using descriptive and inferential statistics. SPSS (version 20) was used to analyse the data.

1. Frequency and percentage distribution were computed for socio-demographic variables.
2. Frequency and percentage distribution were computed for knowledge regarding dietary management.
3. Mean and Standard Deviation of knowledge score regarding dietary management.
4. Association between knowledge regarding dietary management and selected socio-demographic variables.

Results

The collected data were analysed according to the objectives of study. The findings are presented below

I: Socio demographic variables of the subjects.

Frequency and percentage distribution were computed for socio-demographic variables of the subjects. It was observed that majority of the subjects, 34.5% belongs to the age group of (57- 65) years, 58% were male and 66.4% of the subjects were married. Majority of the subjects, 66.4% belongs to Hindu religion and 43.6% had completed graduation. 34.5% of the subjects were homemaker and 38.2% of the subjects had family monthly income of Rs.49, 962 - 74,755.

Majority of the subjects, 75.5% consumed non vegetarian diet, 40.9% had been on haemodialysis ≥5 years and 80% of the subjects had received haemodialysis treatment thrice a week. More than half of the subjects, 59.1% had medical insurance and 46.4% of the subjects had preexisting hypertension. Majority of the subjects (85.5%) were having normal Body Mass Index.

II. Frequency and percentage distribution of knowledge regarding dietary management

Majority of the subjects 58.1% had moderately adequate knowledge, 16.4% of the subjects had adequate knowledge and 25.5% of the subjects had inadequate knowledge regarding dietary management.

III. Mean and Standard Deviation of knowledge score.

The mean knowledge score was 19.9 with Standard Deviation of ±4.259.

IV. Association between knowledge regarding dietary Management and selected socio-demographic variables

Chi square was used to find the association between socio-demographic variables and knowledge regarding dietary management. It was observed that there was statistical association between knowledge regarding dietary management and socio-demographic variables with regard to age (p=0.012), duration of hemodialysis (p=0.002) and frequency of hemodialysis (p=0.001) as calculated p value was less at 0.05 level of significance. Hence research hypothesis (H1) is accepted.

Discussion

Chronic kidney disease is a major health problem in India, and its prevalence is rapidly increasing among population. Chronic kidney disease is a major risk factor for end stage renal disease, cardiovascular disease and premature death. The goal of the management is to maintain kidney function and is accomplished primarily with medications and diet therapy. Renal replacement therapy is only one option at this stage. The main renal replacement therapy includes haemodialysis. Malnutrition is common in dialysis patients that can lead to a higher risk of infection, hospitalization, and even death. Diet is important for patients on haemodialysis

because of the effects of uremia. Goals of nutritional therapy are to minimize uremia symptoms and fluid and electrolytes imbalances; to maintain nutritional status.

This present study was determined to assess the knowledge regarding dietary management among patients showed that majority of the subjects 58.1% had moderately adequate knowledge, 16.4% of the subjects had adequate knowledge and 25.5% of the subjects had inadequate knowledge regarding dietary management.

A similar study was conducted by Saini P, Arora S. in New Delhi, India (2017) showed that 10% of the subjects had poor knowledge, 73.3% of the subjects had average knowledge and 16.7% of the subjects had good knowledge.[8]

Similar result was observed in descriptive study conducted by Fernandes S and Silva F in Mangalore, India (2020) showed that that only 2% of the patients undergoing haemodialysis had good knowledge, 58% had average level of knowledge and 40% had poor level of knowledge about their dietary management. [9]

In contradiction a study conducted by Murkute U and Joseph J in Maharashtra (2021) showed that 58.3% had highly adequate knowledge, 40% had moderately adequate knowledge and only 1.7% had inadequate knowledge. [10]

The findings of the study showed that there was statistical association between knowledge regarding dietary management and sociodemographic variables with regard to age (p=0.012), duration of hemodialysis (p=0.002) and frequency of hemodialysis (p=0.001) as calculated p value less at 0.05 level of significance. Hence research hypothesis (H1) is accepted.

A similar study conducted by Peter R. et. Al (2021) showed that there was significant association between knowledge regarding dietary management and socio-demographic variable age (p=0.039).

In contradiction a similar study conducted by Murkute U and Joseph J (2021) showed that there was no significant association between knowledge regarding dietary management and socio-demographic variables with regard to age (p=0.18), duration of haemodialysis (p=0.31) and frequency of haemodialysis (p=0.20) **(**10).

In present study there was no statistical association between knowledge regarding dietary management and socio-demographic variables such gender (0.448), marital status (0.215), religion (0.072), educational status (0.137), occupation (0.332), monthly family income (0.939), type of diet (0.278), medical insurance (0.117), comorbidities (0.338) and Body Mass Index (0.795) as calculated p values was more at 0.05 level of significance. Hence research hypothesis (H1) is rejected.

(2014) showed that there was significant association between knowledge regarding dietary management and socio-demographic variable such as gender (p=0.03), religion (p=0.043 and educational status (p=0.001). **(11)**

Limitation

- Authenticity of the information regarding socio-demographic variables is based on the response of the subjects.
- Limited sample size.

Conclusion The study concluded that chronic renal failure patients undergoing haemodialysis had moderately adequate knowledge. Therefore, nurses should develop awareness regarding dietary management in order to improve health and avoid life threatening complication among haemodialysis and should develop comprehensive plan for hemodialysis patients including medications, dietary modifications, screening malnutrition and early detection of complications.

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