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# "A descriptive study was designed "A study to assess the knowledge and practices of dietary regulations in chronic renal failure patients undergoing hemodialysis at K.L.E'S Hospital and MRC Belgaum".

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**Abstract:** *A descriptive study was designed on CRF patients undergoing hemodialysis.*
*The aim of the study was :*

1. *To assess the knowledge of dietary regulations in CRF patients undergoing hemodialysis.*
2. *To findout the practices regarding dietary regulations in CRF patients undergoing hemodialysis.*
3. *To findout the association between knowledge and practices of dietary regulations undergoing hemmodialysis.*

*The structured interview was used to assess the knowledge and practices of dietary regulation in CRF patients undergoing hemodialysis. A total of 51 patients were assessed.*
*The highest level of knowledge was scored by 16.59% (8) subjects only. And the 56.86% (29) subjects had scored between the range of 10-18 practices scores.*
*Chi-square test was done to findout the association between the knowledge and practices, and value showed that there is no statistical significant relationship between knowledge and practices at 0.05 level of significance, (P>0.05).*
*The findings of the study can broaden the horizen of nurses to educate patients about the importance of dietary regulations in CRF patients undergoing hemodialysis.*
**Keywords:** *Assessments; Knowledge; practice; Dietary regulations; Chronic renal failure patients; Haemodialysis; Compliance and Noncompliance; patient reduction.*

## I. Introduction

Chronic renal disease is a major health issue in various parts of the world. The number of patients with end stage renal disease (ESRD) is increasing in both developed and developing countries, greatly expanding the need for chronic dialysis and renal transplantation. In the year 2000, approximately 2,05,000 and 2,40,000 patients with ESRD were maintained on chronic dialysis in Japan and in the United states, respectively, each accounting for roughly 20 and 24% of the estimated world chronic dialysis patients. Although some dialysis patients live longer than 5 to 10 years and are able to work and contribute to the society in which they live, others fare poorly and die within 2 to 3 years. Many times dialysis patients die due to lack of knowledge and practice in their dietary regulations along with other factors. (JAM Soc Nephrol 13:53-56 2002).[1]

Chronic renal failure (CRF) results from partial or total loss of renal function. It exists when residual renal function is less than 15% of normal. Loss of renal function gives rise to uremia, a progressive increase in the level of the metabolites of protein breakdown circulating in the blood, left unchecked, these will rapidly reach toxic and, eventually fatal levels (Nursing times Oct 21, 94,42,1998).[2]

Hemodialysis is one of the important interventions for chronic renal failure. Hemodialysis involves the creation of an extracorporeal circuit. Blood is taken from the circulation to a dialyser for cleansing and then returned to the patients body (Nursing times, Oct 21, 94, 42, 1998).[2]

Hemodialysis is the most common method used to treat advanced and permanent kidney failure.

Diet therapy is the critical component of the treatment of CRF patients undergoing hemodialysis. The dietary restriction is also vital to maintain optimal health for the CRF patients, because certain substances present in the foods and drinks, when taken in excess, damaged kidney may not be able to remove the waste, which are harmful to the body. So the foods and drinks containing those substances, which are harmful to the body, must be regulated. Dietary protein restriction represents an important new development in treatment of chronic renal disease for the last 10 years (Ther Umsch, 1998).

The modification of food cannot directly improve the working of the kidney, but it reduces the excess load on functioning of the kidney and improves the quality of the life of CRF patients undergoing hemodialysis.

Hence assessment of knowledge and practices of dietary regulation in CRF patients undergoing hemodialysis is essential.

Safdar N. etal (1995, Nov) conducted a study on "Noncompliance to diet and fluid restrictions in hemodialysis patients", It was concluded that, attempts are to be made to improve compliance should be aimed by exposing the non-compliant group to nutritional and psychological therapy.[3]

More than 1,00,000 new cases of chronic renal failure are present each year. In India, of these barely 15;000 manage to reach the stage of dialysis. Rest i.e., 85, 000 patients die for want of dialysis (Bombay Hospital Journal Vol. 95, 2003). In Belgaum according to K.L.E.S'S hospital and MRC statistics 1,200 new cases of CRF are subjected for hemodialysis annually.[4]

The nurse plays a central role in renal management by directing the dietary regulations through patient education, and enhance the patients knowledge and practices regarding dietary regulation in patients with CRF undergoing hemodialysis, because it helps in reduction of discomfort, prevention further damage to kidney, by reducing the kidney's work load, and maintenance of health in prolonging life

## II. Need For The Study

The kidney is one of vital organs. Proper function of urinary system is essential to life. Disorders related to the kidney are currently the leading cause of death throughout the world.

Chronic renal failure is the progressive reduction of functioning renal tissue rendering patients totally dependent on hemodialysis for the maintenance of the internal milieu and to avoid uremia. In early stage of renal impairment, symptoms may be minimized through hemodialysis and regulation of diet, control of fluid intake and use of medication, as renal function worsens, these treatment become insufficient.

Hemodialysis cannot replace all the functions of the kidney. The management of chronic renal failure with hemodialysis includes fluid and dietary restrictions. The dietary parameter is one, which requires great compliance and adherence by the patients.

A study conducted by Durose (L, etal (2004 Jan) on "Knowledge of dietary restrictions and the medical consequences of non compliance by patients on hemodialysis, are not predictive of compliance". It showed more than one third of patient were non-compliant with at least one dietary restriction. Phosphorus dietary restriction were the most commonly abused and potassium the least. Patient's knowledge of medical consequences of non-compliance was poorer than knowledge of renal dietary restrictions.[5]

A study conducted by Patel, Bhattacharaji L.I. and Shah BV, on "The role of dietary protein restriction in Indian patients with chronic renal failure". The objective was to determine dietary protein intake in Indian patient with chronic renal failure and impact of prescribing protein restricted diets to these patients. It was concluded that, protein intake of Indian patient with chronic renal failure is usually low even on as unrestricted diet.[6]

A study conducted by Nakao. T et al (2003) on "Nutritional management of dialysis patients, balancing among nutrient intake, dialysis dose and nutritional status". It showed that, the amount of protein intake was significantly correlated with body protein mass and there were significantly positive relationships between the amount of protein intake and energy intake in hemodialysis patients. Where as higher intake of protein requires higher does of dialysis, lower intake of protein with sufficient energy intake required lower does of dialysis and both gave the same effects on nutritional status.[7]

The investigator came across many CRF patients undergoing hemodialysis during his clinical experience in dialysis unit. He noticed that, the hemodialysis patients knowledge and practices of dietary regulations were very poor, even though they were on hemodialysis for more than 1 year. Many patients did not follow dietary regime, as they thought, that only HD is sufficient to prolong their life. Few had poor food intake with marked reduction of fat and muscle tone, which was due to poor economical condition.

The investigator felt that, patients compliance is the key factor in dietary management of CRF while on hemodialysis. Thus, in view of the importance of patient's knowledge and practices of dietary regulations, the investigator has proposed to investigate this topic.

### 1. Objectives of the study :

1.1. To assess the knowledge of dietary regulations in chronic renal failure patients undergoing hemodialysis.

1.2. To findout the practices regarding dietary regulations in chronic renal failure patients undergoing hemodialysis.

1.3. To findout the association between knowledge and practices of dietary regulations in chronic renal failure patients undergoing hemodialysis

### 2. Hypothesis :

There is a significant relationship between the knowledge and practices on dietary regulations among chronic renal failure patients undergoing hemodialysis at 0.05 level of significance.

### 3. Assumption :

3.1. The patient's knowledge and practices regarding dietary regulation varies from patient to patient.

3.2. The knowledge of dietary regulations influences the practices of dietary regulations among chronic renal failure patients.

**4. Delimitation's**

4.1. The study was delimited only to patients with chronic renal failure undergoing hemodialysis

4.2. The study was delimited to the patients who were willing to cooperative in this study.

**5. Projected out come :**

This study will provide base line data :

5.1. For preparing planned teaching programme

5.2. To develop a module for dietary regulations and display in the dialysis unit for the benefit of chronic renal failure patients.

5.3. To create an awareness on dietary regulations among chronic renal failure patients undergoing hemodialysis.

5.4 It will help in identifying the faulty practices on dietary regulations.

**6. Inclusion criteria :**

6.1. The patients who were diagnosed as chronic renal failure and undergoing hemodialysis for more than three months.

6.2. The patients who were willing cooperate in this study.

6.3. The patients who were able to read / speak Kannada and English.

**7. Exclusion criteria :**

7.1. The patients who were undergoing peritoneal dialysis.

7.2. The patients who were not willing to cooperate.

7.3. The patients in critical condition.

**8. Operational definitions :**

**8.1 Knowledge:**

It refers to the correct response received from chronic renal failure patients undergoing hemodialysis on various items of dietary regulations.

**It is graded as :**

8.1.1. Poor knowledge refers to $<X - 1$ SD.

8.1.2. Average knowledge refer to $X - 1$ SD to $X + 1$ SD.

8.1.3. Good knowledge refers to $\geq X + 1$SD.

**8.2 Practice :**

It refers to the verbal expression about the regulations of diet in their daily dietary pattern, which they actually follow in their day to day life.

**It is graded as :**

8.2.1. Non beneficial practices refers to 0-13 score.

8.2.2. Beneficial practices refers to 14-26 score.

**8.3. Chronic renal failure patients :**

It refers to clients who were diagnosed as chronic renal failure and undergoing hemodialysis for more than 3 months.

**8.4. Hemodialysis :**

If refers to a medical procedure for the removal of certain elements like, urea, uric acid, creatinine from the blood in chronic renal failure patients.

**8.5. Dietary regulation :**

It refers to the food practices of the patients according to their disease condition from the time they were diagnosed as chronic renal failure and are undergoing hemodialysis.

**8.6. Variable**

**Independent variable :** Knowledge and practices of dietary regulations in CRF patients undergoing HD.

**Dependent variable :** CRF patients undergoing hemodialysis.

## III. Methodology

The research methodology adopted by the investigator to study and analyze the knowledge and practices in CRF patients undergoing HD.

The various steps undertaken to conduct the study include research approach, research design, setting, population sample and sampling technique of data description of the tool, procedure and technique of collection of data and plan for data analysis.

**9.1. Research approach :**

An descriptive research method is used to assess the knowledge and practices in CRF patients undergoing HD.

**9.2. Research design :**

Non experimental descriptive design was adopted to find out the level of knowledge and practices in CRF patients undergoing hemodialysis.

**9.3. Research setting :**

The study was conducted in the dialysis unit of K.L.E'S Hospital and MRC, Belgaum.

K.L.E.S Hospital and MRC is an institute for comprehensive and dedicated medical care to all category in CRF patients undergoing HD.

**9.4. Population :**

In this study the population were chronic renal failure patients under going hemodialysis in dialysis unit of K.L.E. Hospital and MRC Belgaum.

**9.5. Sample size :**

The sample cluster consisted of "51" chronic renal failure patients under going hemodialysis for more than three months.

**9.6. Sample Technique :**

A technique of purposive (non-probability) sampling was adopted.

## IV. Criteria for sample selection :

**10.1. Inclusion criteria :**

10.1.1. The patients who were diagnosed as chronic renal failure and undergoing hemodialysis for more than three months.

10.1.2. The patients who were willing to cooperate in this study.

10.1.3. The patients who were able to read / speak Kannada and English.

**10.2. Exclusion criteria :**

10.2.1. The patients who were undergoing peritoneal dialysis.

10.2.2. The patients who were not willing to co-operate

10.2.3. The patients in critical condition.

## V. Methods Of Data Collection

A structured interview schedule in the form of checklist was developed after extensive reading of related literature and in consultation with experts in the field in order to assess the knowledge and practices of dietary regulations in chronic renal failure patients under going hemodialysis.

A structured interview schedule is a questionnaire that is read to the respondent. So that even illiterate subjects also could answer the questions.

**10.3. Development and description of the tool :**

To prepare the tool, the following steps were carried out.

10.3.1. Literature review.

10.3.2. Preparation of blue print.

**11.1.1. Literature review :**
Literature from books and journals were reviewed and were used to develop the tool.
**11.1.2. Preparation of blue print :**
The blue print (Appendix-D) pertaining to the domain of learning i.e., knowledge and practices was prepared.
**11.2. Description of the tool :**
The interview schedule was structured in to two parts.
**11.2.1. Part One :**
The tool consisted of interview schedule in the form of check – list for assessing the knowledge of dietary regulations in chronic renal failure patients undergoing hemodialysis. The knowledge part constituted of total 40 questions, which were divided in to A, B, C, D parts. Each question had two choices, true/false.
Those subjects who gave correct answer were given score one. Those who gave wrong answer were given zero score and it was graded as :

11.2.1.1. .<X – 1SD - Poor knowledge.
11.2.1.2. X – 1SD to X + 1SD - Average knowledge.
11.2.1.3. ≥X +1SD - Good knowledge.

**11.2.2. Part two :**
The practices in chronic renal failure patients regarding dietary regulation were found out with the help of checklist questionnaire (Yes or No). Totally there were 26 question, which were divided into A and B, two different areas of practices regarding dietary regulations. Only obvious and significant practices were then analysed, the common responses were grouped as :

11.2.2.1. Beneficial practices 0-13 score.
11.2.2.2. Non-beneficial practices 14-26 score.

**Analysis and interpretation of data:**
This chapter deals with analysis and interpretation of data collected to assess the knowledge and practices of dietary regulations in chronic renal failure patients undergoing hemodialysis, in dialysis unit, in K.L.E.S's Hospital and MRC Belgaum.
The analysis and interpretation of the data of this study were based on data collected through structured interview schedule of chronic renal failure patients undergoing hemodialysis, (N=51).
The results were computed using descriptive and inferential statistics based on the objectives of the study. The data has been organised and analyzed under the following headings.

1. Distribution of knowledge scores of dietary regulations in CRF patients undergoing hemodialysis.
2. Mean, median and standard deviation of knowledge scores of dietary regulations in CRF patient undergoing hemodialysis.
3. Distribution of level of knowledge scores of dietary regulations in CRF patients undergoing hemodialysis.
4. Distribution of practices scores of dietary regulations in CRF patients undergoing hemodialysis.
5. Mean and standard deviation of knowledge scores of dietary regulations in CRF patients under going hemodialysis.
6. Distribution of classification of practices scores of dietary regulations in CRF patients undergoing hemodialysis.
7. Association between the knowledge and practices of dietary regulation in CRF patients undergoing hemodialysis.

**Figures and Tables:**

**Table I :Distribution of knowledge scores of dietary regulations in CRF patients undergoing hemodialysis. N=51**

| Knowledge score intervals | Frequency | Percentage |
|---|---|---|
| 11-20 | 8 | 15.69% |
| 21-30 | 35 | 68.62% |
| 31-40 | 8 | 15.69% |
| Total | 51 | 100% |

Table No. I depicts description of knowledge scores of dietary regulations in CRF patients undergoing hemodialysis.
It is evident from table No I that, 15.69% of patients scored between the range of 11-20. 68.62% of patients scored between the range of 21-30. 15.69% of patients scored between the range of 31-40.

**Table II Mean median and standard deviation of knowledge scores of dietary regulations in CRF patients undergoing hemodialysis. N=51**

| Mean | Median | Standard deviation |
|---|---|---|
| 26.039 | 26 | 5.23 |

Table No. V shows that, the mean, median and standard deviation of knowledge scores of dietary regulations in CRF patients undergoing hemodialysis. The mean 26.039, median 26 standard deviation 5.23.

**Table III Distribution of level of knowledge scores of dietary regulations in CRF patients undergoing hemodialysis. N =15**

| Level of knowledge | Frequency | Percentage |
|---|---|---|
| Less X 1SD <21-poor | 8 | 15.69% |
| X-1SD to X + 1SD (21 to 31) – Average | 35 | 68.62% |
| ≥ X + 1SD ≥ 32- Good | 8 | 15.69% |
| **TOTAL** | 51 | 100% |

Above table III shows the levels of knowledge scores of dietary regulations in CRF patients undergoing hemodialysis.

The level of knowledge was categorized on the obtained mean and standard deviation of total correct knowledge scores 15.69% patients had high or good knowledge ($\bar{X}$ + 1SD). 68.62% patients had average knowledge ($\bar{X}$ 1SD to $\bar{X}$ + 1SD). 15.69% patients had poor knowledge ($\bar{X}$ -1SD).

**Distribution of level of knowledge of dietary regulations in CRF patients undergoing hemodialysis.**

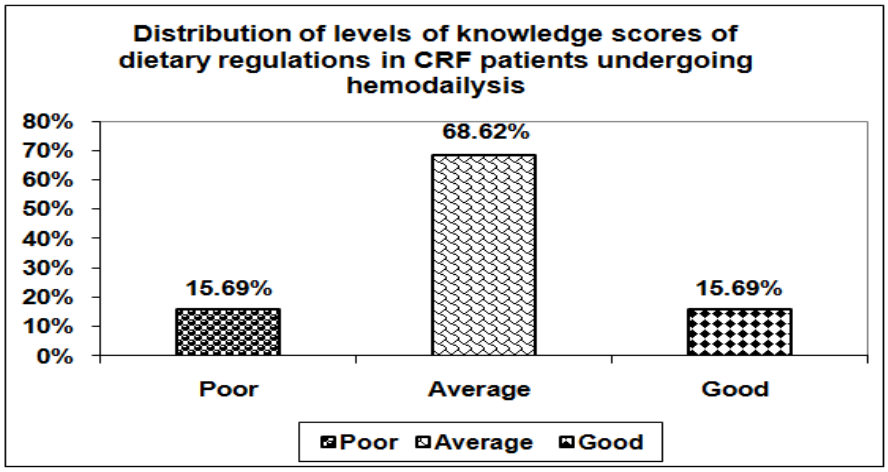


**Table IV Distribution of practice scores of dietary regulations in CRF patients undergoing hemodialysis. N=51**

| Practices score intervals | Frequency | Percentage |
|---|---|---|
| 1-9 | 1 | 01.96% |
| 10-18 | 29 | 56.86% |
| 19-26 | 21 | 41.18% |
| Total | 51 | 100% |

Table No IV shows description of practices scores of dietary regulations in CRF patients undergoing hemodialysis.

It is evident from the table no IV that, 01.96% patients scored between range of 1-9 56.86% patients scored between the range of 10-18. 41.18% patients scored between the range of 19-26.

**Distribution of practice scores of dietary regulations in CRF patients undergoing hemodialysis.**

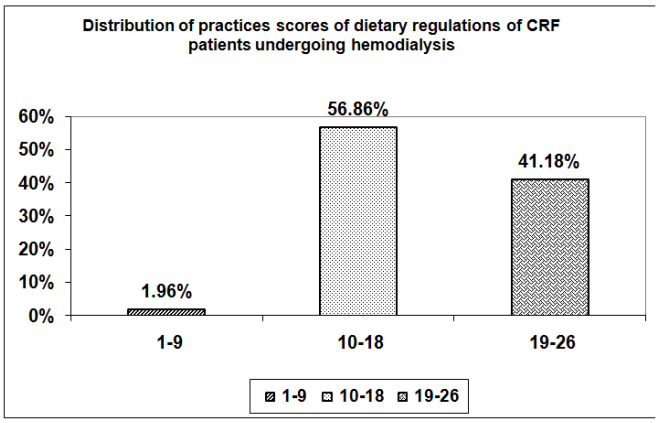


**Table V Mean and standard deviation of practices scores of dietary regulations in CRF patients undergoing hemodialysis. N = 51**

| Mean | Standard deviation |
|---|---|
| 17.647 | 2.7659 |

The table no V shows the mean and SD of practices scores. Mean 17.647 and S.D 2.7659.

**Table VI Distribution of patients beneficial and non-beneficial practices on then obtained scores.**

**N = 51**

| Practices | Score intervals | Frequency | Percentage |
|---|---|---|---|
| Non-beneficial | 0-13 | 3 | 5.88% |
| Beneficial | 14-26 | 48 | 94.12% |

The table No VI shows the description of practices scores of dietary regulation in CRF patients undergoing hemodialysis.

It is evident from table No VI that majority of patients scored 94.12%, between the range 14-26, their practices were beneficial and patients scored 5.88% between the range 0-13, their practices were non-beneficial.

**Distribution of patient's beneficial and non-beneficial practices on then obtained scores.**

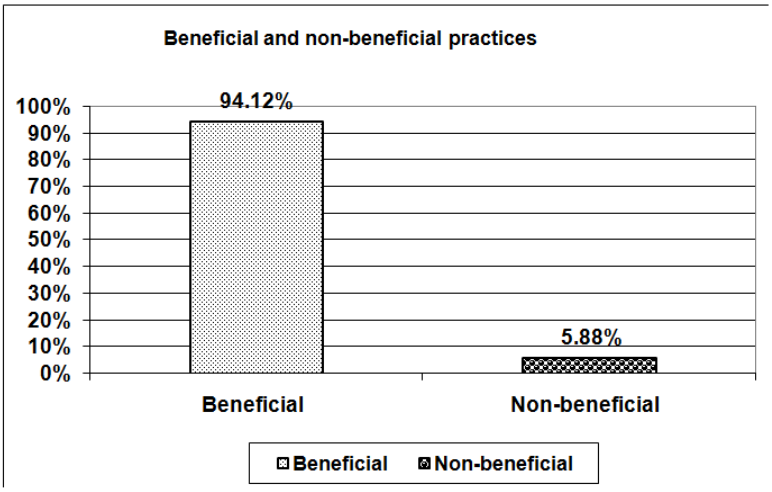


**Table VII Association between knowledge and practices of dietary regulations in CRF patients undergoing hemodialysis. N = 51**

| Level of knowledge | Beneficial | Non-beneficial | Total | |
|---|---|---|---|---|
| | N | N | N | % |
| Poor knowledge | 6 | 2 | 8 | 15.69% |
| Average knowledge | 34 | 1 | 35 | 68.62% |
| Good knowledge | 8 | 0 | 8 | 15.69% |
| Total | 48 | 3 | 51 | 100% |

$x^2 = 2.83$ df = 1 p> 0.5

Table No VII shows association between knowledge and practices of dietary regulations in CRF patients undergoing hemodialysis. There is no significant association between the knowledge and practices of dietary regulations in CRF patients undergoing hemodialysis at 0.05 level. Hence, hypotheses was rejected

## VI. Conclusion:

Hence, from the basis of findings, the following conclusions were drawn :

1. Knowledge of dietary regulations in CRF patients undergoing hemodialysis was average.
2. Practices of CRF patients undergoing hemodialysis was average.
3. There is no significant association between knowledge and practices at 0.05 level of significance. Hence it can be concluded that though the patients have knowledge, they do not comply with the dietary regime.

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