# Nutritional Knowledge Among Patients on Maintenance Hemodialysis in Al Muthana City: A Cross Sectional Study

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**Abstract**

Objective: To assess the nutritional knowledge of patients undergoing maintenance hemodialysis regarding renal appropriate diet Patients and methods. A total of 50 patients study 24 (48%) of them were male and 26 (52%) were females from the haemodialysis unit ( HD) were included in this descriptive cross sectional study conducted from August 2022 to January 2023 ,their knowledge was assess by a well prepared questionnaire contain the main renal affecting items beside the use of subjective global assessment( SGA),anthropometric measures and Body mass index. Results: The highest percentage of participants knowledge was about fluid requirements in hemodialysis patients which was ( 84%) followed by knowledge about sodium sources in diet and its health effects about ( 68%) ,the least knowledge was about phosphorus related information which was only about (28%) , Diabetes and hypertension were the most common etiologies of ESRD ( 22%) and (20 %), respectively,there were significant association (P< 0.05(P > 0.05)between period of dialysis and BMI, knowledge of Malnutrition prevalence in HD patients and Phosphorus health effects .With p value of ( 0.29), ( 0.04)and ( 0.04)respectively.in the other hand, the insignificant association(P > 0.05) was between period of dialysis and knowledge about anemia causes in HD patients and safe portion size for them with p values of ( 0.27), ( 0.72) respectively, Conclusion: There is a variable degrees of nutritional knowledge among paitents under study ,unrelated to educational level so the mass training of health staff in order to provide the appropriate dietary informations and individualized diet plan counseling to the patients as well as their relatives will definitely improve the outcome .

Keywords: Al Muthana City; patients; nutrition

## 1. Introduction

The number of patients undergoing dialysis worldwide has reached 2.62 million in 2010 and is expected to double by 2030 [1] . 10% of the population worldwide is affected by chronic kidney disease (CKD), and millions die each year because they do not have access to affordable treatment . [ 2] This is particularly true in the developing world where resources are limited. CKD is a prevalent non-communicable disease in the world and the Arab region including Iraq and it can be advanced to ESRD which necessitates either dialysis or kidney transplan Nutrition is critical to the maintenance and stability of hemodialysis treatment, emphasizing the importance of adhering to the renal diet. Several factors can affect the compliance level of HD patients and one important factor is Knowledge, Nephrologists and nurses lack the time and / or sufficient to establish Patient knowledge of hemodialysis and end stage renal disease (ESRD) is crucial to effective self-management and improved outcomes and the paitent family is acorner stone in achivingagood adherence to the healthy renal diet since most of paitent is totally dependent on them to companste social and psychological impact of disease itself and the future complication as well. . This study looked at the impact of a short-term, one-on-one educational program for ESRD patients on patient knowledge. monitor adherence to an individualized diet knowledge .

## 2. Methodlogy

### Objective

To assess the knowledge of adult hemodialysis (HD) patients regarding macro and micronutrients related to dietary management of end-stage renal disease also to assess the malnutrition score for each one

### Patients and methods

The study will include a cross sectional methodology involving hemodialysis patients at hemodialysis (HD) units of southern provinces of Iraq in alhussain teaching hospital in Almuthana governate from august 2022 to January 2023 .

We included patients with ESRD who were scheduled to undergo regular HD (at least two sessions per week for >3 months) for 3hours for each session.

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## Data collection

Data were collected by direct interviews using a preconstructed questionnaire consisting of two parts. The first part include the history of socio-demographic characteristics (age, sex, marital status, residence, occupation, and educational level). In addition to the medical history regarding the main cause of kidney disease, information on the type of dialysis access, and the date since starting maintenance HD was also collected and then to asses their individual knowledge about nutritional aspect interm macro and micronutrients and the exercise as well, the related anthropometric measures was also included like dry weight and length, the ulnar length method was used and hence BMI was calculated. The second part include the conventional SGA tool, which was based on the history and physical examination of the participants., proceeded by apilot study to estimate the patient response .

The stastical analysis was through spss version 24

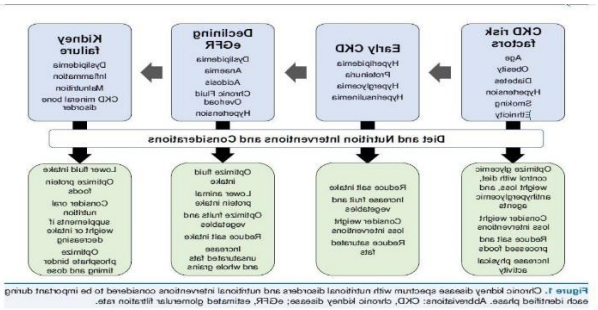
# 3. Discussion

The global increment in the prevalenceof end stage kidney diseases(ESKD) over the last years mandates the early interventions especiallynutrition related tools to decrease the subsequent morbidity and mortality. Taiwan, the United States, the Jalisco region of Mexico and Thailand reported the highest incidences of treated ESKD (493, 378, 355, and 346 pmp/year, respectively). The lowest treated ESKD incidences, ranging from 22–85 pmp/year, were reported by South Africa, Ukraine, Belarus, Bangladesh, Russia, Jordan, Peru, Colombia, Iran, Albania, and Estonia [3] .

The need for a Regisrated nutritionist and well-trained medical staff starting even in primary health level was established in order to increase early interventions to decrease prevalence as in (Fig 1) [4].

All that mentioned beside focusing on a healthy diet options and alternative medical plans individualized for CKD patients as in (Fig 2) will represent a great health benefits [4] .

They may face a special challenges, such as obesitymanagement, secondary prevention of cardiovascular disease, and maintaining a high-quality diet while suffering from reduced glomerular filtration, all that mentioned is hand by hand with shortage in the local registrations can demonstrate the event



In our study group the highest level of knowledge was in term of fluids requirements and sodium related information in ERKD patients, probably because they are common habits especially for those with chronic morbidities. In the other hand the least percent of information was those related to phosphorus in diet which can negatively impact the HD outcome since Dietary phosphate restriction is a fundamental component of the recommendations issued by the KDIGO (kidney disease: Improving Global Outcomes) guidelines [5], [6].

Beside the wide range of hidden source of phosphate especially that's in dairy products which may be an additional risk factor for cardiovascular hazards .

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**Table 2.** Nutrition Interventions in CKD When Individualized Medical Nutrition Therapy Is Not Available

| Nutritional Consideration | Rationale | Examples of Interventions |
|---|---|---|
| Maintaining health and minimizing risks from comorbid conditions (eg, diabetes, CVD, hypertension, obesity) | Dietary pattern impacts on disease risk more than individual nutrients or foods. Lower salt intake reduces risk factors. | • Cook from fresh ingredients when possible.<br>• Include vegetables and whole grains with meals every day.<br>• Choose legumes or plant-based meat alternatives, reduce meat portions, and limit processed meats.<br>• Personalize meal plans to meet energy needs. |
| Addressing barriers to changing eating behaviors | Food choices are multifactorial. | • Individualize strategies for addressing identified barriers.<br>• Use behavioral therapy techniques such as self-monitoring and self-directed goal setting. |
| Hyperkalemia | Consider all possible causes before reducing high nutritional value fruits and vegetables. Use fruit and vegetables to reduce net acid load and provide dietary fiber. | • Stage 1: Address possible nondietary causes such as hyperglycemia, acidosis, constipation, recent medication changes, or use of potassium-sparing diuretics.<br>• Stage 2 (if required): Reduce lower-nutritional value foods such as potato chips, fruit juices, and chocolate.<br>• Stage 3: Peel, chop, and boil vegetables, access pictorial or color-coded resources for lower-potassium-containing fruits and vegetables, and maintain recommended number of servings per day. |
| Hyperphosphatemia | Consider food additives, protein requirements, and dialysis adequacy. | • Limit processed meats, processed cheese, and processed cheese products.<br>• Choose fresh meat, poultry, or fish without added phosphates (read food labels).<br>• Legumes, soy products, nuts, and whole grains have lower phosphate availability as they contain nondigestible phytates.<br>• Ensure phosphate binder doses are matched to mealtimes and protein/phosphorus intake. |
| Optimizing nutritional status | Reduce mortality risk, and improve quality of life. | • Personalize meal plans to meet energy needs.<br>• May need supplemental nutrition when fatigue is limiting factor or intake is poor. |

Abbreviation: CKD, chronic kidney disease; CVD, cardiovascular disease.

The period of dialysis was also an important determinant since the patients whom below one year on HD, were have more an3accurate answers than older patientsprobably because the latter have lost their diet related interest since most of them have denoted most foods because of anorexia, fatigue, food eversion and other comorbidities, diminished daily activities and the most serious offender …the depression.

In term of further analysis of our study (multiple comorbidities )was the main primary cause of ESkD in the study group about( 28%)followed by diabetes and hypertension of( 22%)and( 20%) respectively , in contrast to other study in Bagdad in 2021of ( Nutritional Status of Iraqi Adults on Maintenance Hemodialysis) [7] .

Which demonstrate that diabetes was the second after hypertension also , higher knowledge score was associated with middle age rather than younger age in most of dietary items with most correct responses .

This result is not consistent with asmilar study of (HadeelTashani ,SihamHleihel ) ( Lebanese American University) (2021) . Moreover, there was no significant association shown in our study between knowledge and education levels in some of study items including safe portion size and protein need in HD paitents which goes with above mentioned study In fact ,In HD and PD ( peritoneal dialysis,) there is an absence of randomized controlled trials for protein intake and outcomes. Based on observational studies, the recommended protein intake is 1.0-1.2 g/kg per day when in a stable metabolic state and with adequate energy intake. With diabetes, [4] .

higher protein intake may be required to achieve glycemic control

The protein requirement knowledge in our study group was only (34%) whom have the right answers and since it an important determinant and predicting factor for future malnutrition in those4patients what mandate a great effort sto increase the awareness to provide lifesaving nutritional interventions.Anemia is a prevalent complication of chronic renal disease, which is linked to a high rate of morbidity. Renal failure anemia appears early in the course of kidney disease and gradually worsens as the kidneys deteriorate. Although the fundamental deficiency is diminished erythropoiesis owing to insufficient erythropoietin (EPO) production, a number of additional variables may also be involved [8] .

A typical consequence of CKD is normocytic normochromic anemia. Iron deficiency or aluminum poisoning may cause a microcytic and hypochromic blood appearance. B12 and folate deficiency are the most common causes of macrocytic anemia. In CKD patients, both forms of anemia may occur. [9] [11] .

We found that only ( 58 %) of them have the sufficient informations regarding the possible etiology of such clinical manifestation in HD patients and since an reversible outcome especially in early stage where an evidence based nutritional handouts for the patients as well as their families will be effective

## 4. Limitations

The fluctuations in health status of some paitents since the interview was during their dialysis sessions

## 5. Acknowledgment

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### Conflicts of interest

There are no conflicts of interest

## 6. Conclusion

This study show avaring degree of patient knowledge regarding renal diet items, with emerging need for Public health education that can be made through different types of communication media to inform the whole population about dietary risk factors of CKD progression and the nutritional management . More awareness of doctors and primary health care centers about CKD and early diagnosis, good treatment, early referral to nephrologist. With subsequent studies to valuate response for both staff and patients with more advance nutritional tools including bioelectrical impedance

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