NUTRITIONAL ASSESSMENT OF HEMODIALYSIS PATIENTS

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Abstract

Introduction: Malnutrition is common in hemodialysis patients and closely related to morbidity and mortality. Therefore, assessment of nutritional status and nutritional management of hemodialysis patients play a central role.
Methods: This study is carried out in three different dialysis centers of Lahore, to determine the frequency and severity of malnutrition in dialysis patients, to evaluate the dietary approach and dietary compliance of dialysis patients, and to recommend an appropriate dietary modality for dialysis patients. For enlightening the quality of life and for decreasing the complications Medical Nutrition Therapy is very important in dialysis patients. This study is based on the nutritional assessment of dialysis patients. It will provide the information about the current nutritional status of dialysis patients whether the patient is well nourished, moderately malnourished or severely malnourished. To assess the biochemical values for sodium, potassium, albumin levels, hemoglobin levels, TIBC levels, iron levels, urea levels and creatinine levels. To assess the diet history, anthropometric measurements, physical examination and life style factors of dialysis patients are also included in this study.

Key Words: *Nutritional Status, Nutritional Assessment, Malnutrition, Morbidity and Mortality Rate*

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INTRODUCTION

The main purpose of dialysis is to remove all waste products like urea, uric acid and creatinine and excess body fluid, due to the dysfunction of kidneys. Dialysis is done by using a special fluid called dialysate. Dialysate, a mixture of pure water and chemicals, is carefully controlled to pull wastes out of the blood without removing elements your body needs.[1] Malnutrition and poor nutrient reabsorption is common in dialysis patients due to the kidney dysfunction. So the nutritional assessment is an important way to determine daily nutrient intake in dialysis patients. Nutritional assessment and diet in dialysis patients aims to maintain nutritional status and prevent mal-nutrition, to avoid the buildup of metabolic waste products and further complications related to renal disorders. Some further complications with improper nutrition may include, hypertension, growth failure, muscle wasting, raised blood lipids, edema, bone diseases, congestive heart failure and anemia.[2] According to Cianciaruso et al "Malnutrition is mild to moderate in about 33% of dialysis patients and severe in approximately 6% to 8%".[3] Medical Nutrition Therapy (MNT) is very important in dialysis patients. For enlightening the quality of life and for decreasing the complications, the purpose of medical nutrition therapy in dialysis patients is to promote the nutrition to the precise patients' appetite, to correct systemic complications due to the loss of nephrons in progress, to reduce of protein catabolism to the lowest level, to relieve or prevent the cardiovascular, cerebrovascular, peripheral vascular diseases formation, to prevent increasing fluid and electrolyte disorders, to reduce uremic symptoms such as itching, nausea, vomiting, loss of appetite and to ensure optimum nutrition.[2]

MNT helps to avoid high potassium and sodium from the diet, preventing cardiovascular complications and to prevent renal osteodystrophy keeping the consumption of calcium and

phosphorus under control. [3-6] The regular nutritional assessment of dialysis patients is very important and can help in the early detection of malnutrition and further complications.[7] The evaluation methods used in the nutritional status showed that 18-75% prevalence of malnutrition in hemodialysis patients, malnutrition could cause a worse outcome and subsequent mortality.[6]

Methods:

It was a cross-sectional descriptive study. The convenience sampling technique was used. Patients from Sheikh Zayed Hospital, Fatima Memorial Hospital and Omer Hospital were selected. Study was approved from the Institutional review board and informed consent was obtained from the patients. Total number of 90 patients selected with a confidence interval of 95% and p value of 0.05. Baseline characteristics, weight, height, body mass index (BMI) were documented. Post-dialysis weight is used to calculate body mass index. Laboratory parameters including albumin, hemoglobin and cholesterol were recorded where available. Food intake recall was done by the first author herself by memory recall over the previous week.

Subjective Global assessment (SGA) rating was used to assess the frequency and percentage for qualitative measurement of nutritional status.[8] Mean and standard deviation were calculated for quantitative variables. Chi Square was used for comparison/association between nutritional variables. Data was analyzed using SPSS version 20.

Results:

There were 44 (48.9 %) males and mean age of males was 46.95± 16.18years and females was 47.27± 14.92. Majority of the patients had Diabetes Mellitus as the underlying cause of CKD, Figure 1. 11% males had BMI <18.5 in the category of underweight and 37% had BMI >25and categorized as overweight and obese, Figure 2: A. Similarly 9%, 44%, 30 % and 17 % of females were underweight, normal weight, overweight and obese respectively, figure 2: B. Thus females were significantly more obese than males,

Figure 3 shows the SGA rating according to the age of dialysis patients.
The type of food intake by food recall is shown in table 1.

Table 1: Daily different categories of food intake among 90 hemodialysis patients based on food intake recall.

Type of Food	One time per day (%)	2 times per day (%)	3-4 times per day (%)
Milk & Dairy products	68	20	1
Cereals	0	7	59
Fruits	65	22	3
Vegetables	50	39	1
Meat	9	43	32
Fat & Oil	50	40	0

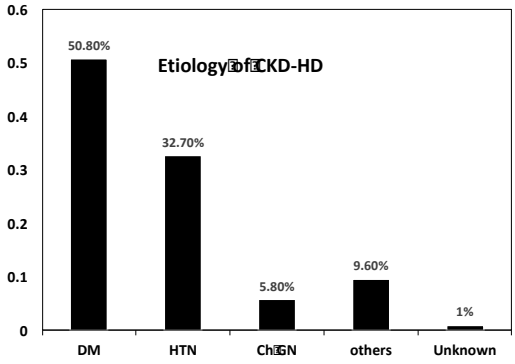

Figure 1: Etiology of 90 Chronic Kidney Disease patients on maintenance hemodialysis.

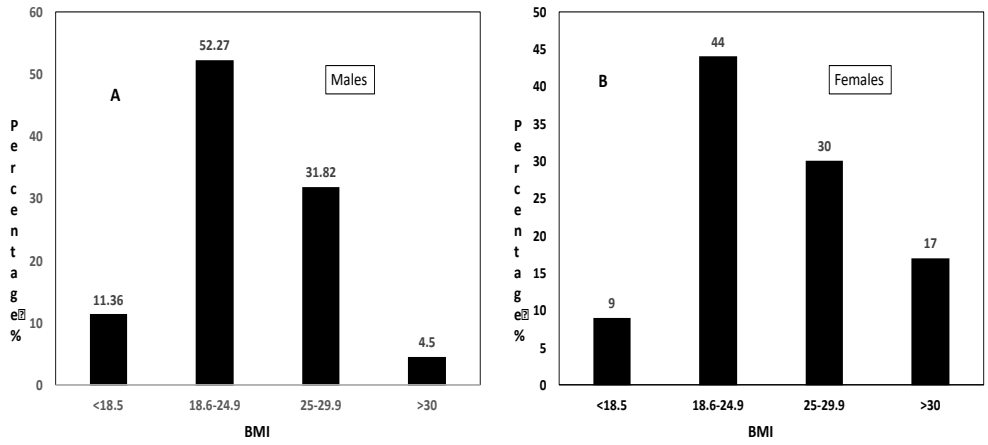

Figure 2: Percentage of 90 hemodialysis patients according to BMI and Gender.

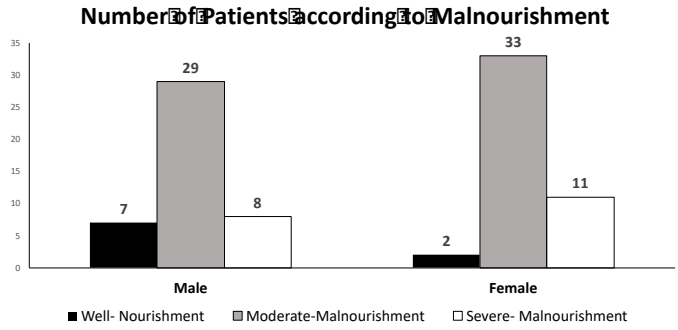

Figure 3: Nutritional status among 90 hemodialysis patients according to SGA rating

Discussions:

In our study we have shown that malnourishment and severe malnutrition is common in hemodialysis patients. This is the first of its kind from Pakistan highlighting the shortcomings in nutritional needs of hemodialysis patients. It is clear from data available in chronic kidney disease (CKD) patients that malnutrition and atherosclerosis is a common occurrence.[9] Release of cytokines and interaction among different variables leads to accelerated atherosclerosis and cardiovascular morbidity and mortality.

Cause of malnutrition is not always CKD and other underlying disease states such as congestive heart failure, diabetes mellitus, chronic liver disease and infections lead to declining nutritional status.[2] Furthermore, once malnutrition sets in, health care costs multiply while managing these patients.[10] It therefore becomes crucial that we take care of the nutritional needs of the hemodialysis patients from the initiation of dialysis. In this regard the SGA rating can help us identify the malnourished and intervene accordingly.[11]

Conclusion:

Our study first of its kind from Pakistan highlights the presence of malnutrition in majority of the hemodialysis patients. SGA rating can identify the malnourishment and timely intervention could avoid huge financial costs of managing sick malnourished patients. Further multicenter studies in predialysis CKD, peritoneal dialysis and transplant patients from Pakistan are needed to assess the extent of malnutrition in all stages of kidney disease patients.

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