



MEDICAL NUTRITION THERAPY IN RENAL DISEASE, A CLINICAL DIETETIC-BASED CASE STUDY

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Abstract

This paper explains the significance of medical nutrition therapy and its application in clinical dietetic practices with the help of nutrition care plan. It contains a case study of an indoor patient diagnosed with chronic kidney disease, diabetes mellitus and hypertension. The BMI was reduced with 0.1 kg/m², blood haemoglobin and calcium levels were raised, and BUN, BGL, creatinine, sodium and potassium were reduced noticeably. The dietary consumption trends were also altered towards the recommended ones. Proceeding through all four steps of nutrition care process i.e. nutrition assessment, nutrition diagnosis, nutri-tion intervention and nutrition monitoring, a complete execution of medical nutrition therapy was observed.

Keywords: medical, nutrition, therapy, renal disease, clinical dietetic

Introduction:

Medical nutrition therapy (MNT) is the basis of clinical dietetic practices. MNT is the actual nutrition services provided by a clinical dietitian to the patients referred by their physician. MNT helps the patients with multiple illnesses and medical conditions to lead a healthy life. In addition to short term dietary inter-ventions based upon current nutritional needs, MNT also includes long term interventions including behav-ioural modifications and lifestyle changes influencing eating habits and health. The core functions of MNT can be precisely described with the concept of nutrition care process NCP. These steps are nutrition assessment, nutrition diagnosis, nutrition planning/intervention and nutrition monitoring and evaluation. The practical application of NCP ensures the completion of whole MNT^{2,3}. This paper contains a case study developed by a clinical dietetic practitioner, in which complete MNT of a renal patient is done with the help of NCP methodology.

Pathophysiology:

In this study, the chief medical diagnosis was renal disease, generally known as chronic kidney disease (CKD), on its fourth stage. According to National Kidney





Foundation (NKF), definition of CKD is “abnormalities of kidney structure or function, present for more than 3 months, with implications for health”. It is classified on the basis of glomerulus filtration rate (GFR). When GFR value lies within 15-29 ml/min CKD is classified as stage. CKD was comorbid with diabetes mellitus (type-2) and hypertension (stage-1). Diabetes mellitus (type-2) is an autoimmune disorder characterized by insulin resistance developed in body cells. Its fundamental etiology lies in genetics but it may also be caused by unhealthy dietary patterns, sedentary lifestyle and obesity. Hypertension is related with increased blood pressure, and stage-1 is due to its peak values i.e. 140/90 mmHg.

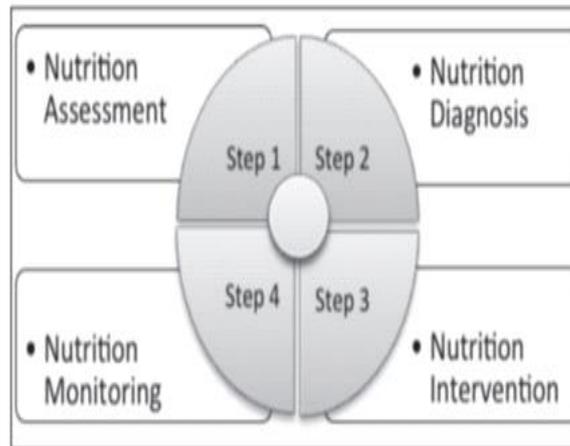
Patient Profile:

The patient RS, a 50 yr old female, was a house-wife having four teenage kids, with middle socioeco-nomic status. She had a medical history of diabetes type 2 and hypertension for past five years. No major surgery or accident had been reported. At hospital, she was received with complain of oliguria, severe lower back pain and dizziness. On checking vital signs, 140/90 mmHg blood pressure and 205 mg/dl random blood glucose level was observed. Physical examination showed edema and visible extreme obesity. The patient was admitted to general ward and her blood and urine samples were taken for biochemical analysis. The biochemical results stated high values for renal function test, abnormal serum electrolytes levels, low levels for complete blood count (CBC) and increased protein levels in urine. With the help of some other diagnostic procedures, patient was diagnosed with chronic kidney disease. Her calculated GFR value was about 28 ml/min so chronic kidney disease was declared at its fourth stage. In the meanwhile, medical treatments including insulin injections, diuretic therapy and later on, bicarbonates were introduced to the patient.

Medical Nutrition Therapy:

After nine days of admission to hospital, the case was handed over to the clinical dietetic practitioner. In order to execute MNT, NCP was applied to the respective case which lasted till discharge. According to the nutrition care process, following procedures were performed step-wise:





Nutrition Assessment:

Nutritional assessment includes four parameters of ABCD; where A – anthropometrics, B – biochemical analysis, C – clinical examination of nutrition related physical signs and symptom, and D – dietary history. The patient was deficient in blood haemoglobin and calcium, and had exceeded levels of random blood glucose, blood urea nitrogen (BUN), creatinine and potassium. These values were obtained from the biochemical analysis in laboratory reports of blood samples. The clinical examination results of pallor eyes and skin reveal iron deficiency anemia, and white tongue and lower eyelid shows dehydration. The dietary history data was collected using 24-hours recall questionnaire. Its results exhibit inadequate dietary intake of macronutrients and excess intake of sodium and fluid in accordance with prescribed restricted intake due to relevant medical conditions.

Diagnosis:

Chronic kidney disease (CKD) can be diagnosed with blood and urine tests. Tests for CKD:-

(1) Blood test:-The main test for kidney disease is a blood test. The test measures the levels of a waste product called creatinine in your blood. This calculation is known as your estimated glomerular filtration rate (eGFR). Healthy kidneys should be able to filter more than 90ml/min. You may have CKD if your rate is lower than this.

(2) Urine test:-check the levels of substances called albumin and creatinine in your urine – known as the albumin:creatinine ratio, or ACR. check for blood or protein in your urine. Other tests,:-Ultrasound scan, MRI scan or CT scan – to see what the kidneys look like and check whether there are any blockages.



Conclusion:

If left untreated, CKD can progress to kidney failure and early cardiovascular disease. When the kidneys stop working, dialysis or kidney transplant is needed for survival. Kidney failure treated with dialysis or kidney transplant is called end-stage renal disease (ESRD). Learn more about ESRD.

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