

Dietitians play a crucial role in providing nutrition education through all stages of kidney disease. Advanced chronic renal failure requires nutrition therapy as a major treatment component as outlined in the information below.



INTRODUCTION –NATIONAL KIDNEY FOUNDATION KIDNEY DISEASE OUTCOME QUALITY INITIATIVE GUIDELINES 2000 FOR NUTRITION

Protein-energy malnutrition (PEM) is very common among patients with advanced chronic renal failure (CRF) and those undergoing maintenance dialysis (MD) therapy worldwide. Different reports suggest that the prevalence of this condition varies from roughly 18% to 70% of adult MD patients. In adults, the presence of PEM is one of the strongest predictors of morbidity and mortality. However, in the poorly nourished pediatric patient, mortality is less common, and growth retardation is an additional and greater concern. Impaired linear growth persists despite ongoing renal replacement therapy with either hemodialysis (HD) or peritoneal dialysis, and improvements in linear growth after successful renal transplantation usually fail to fully correct pre-existing growth retardation unless growth hormone (GH) is administered. Although several factors contribute to the impaired skeletal growth in pediatric patients with chronic renal disease, protein and energy malnutrition play a critical role, particularly during the first few years of life. Additional factors that contribute to impaired growth in pediatric patients include anemia, acidemia, calcitriol deficiency, renal osteodystrophy, and tissue resistance to the actions of GH and insulin-like growth factor-I (IGF-I).

There are many causes of PEM in patients with advanced CRF. These include:

(a) inadequate food intake secondary to:

- anorexia caused by the uremic state
- altered taste sensation
- intercurrent illness
- emotional distress or illness
- impaired ability to procure, prepare, or mechanically ingest foods
- unpalatable prescribed diets

- (b) the catabolic response to superimposed illnesses
- (c) the dialysis procedure itself, which may promote wasting by removing such nutrients as amino acids, peptides, protein, glucose, water-soluble vitamins, and other bioactive compounds, and may promote protein catabolism, due to bioincompatibility
- (d) conditions associated with chronic renal failure that may induce a chronic inflammatory state and may promote hypercatabolism and anorexia
- (e) loss of blood due to:

- gastrointestinal bleeding
- frequent blood sampling
- blood sequestered in the hemodialyzer and tubing

(f) endocrine disorders of uremia (resistance to the actions of insulin and IGF-I, hyperglucagonemia, and hyperparathyroidism)

(g) possibly the accumulation of endogenously formed uremic toxins or the ingestion of exogenous toxins.

Notwithstanding the many causes of PEM in patients with CRF, provision of adequate nutrition is a key component of the prevention and treatment of PEM in adults and children receiving MD. These K/DOQI Nutrition Clinical Practice Guidelines provide recommendations regarding the nutritional assessment of protein-energy nutritional status and the desirable dietary energy and protein intake for adults and children undergoing MD. Guidelines were developed for children treated with MD concerning their nutritional needs for vitamins, zinc, and copper and for their treatment with recombinant human GH. Guidelines are also provided regarding the nutritional intake of L-carnitine for adult MD patients, the nutritional management of the nondialyzed adult patient with advanced CRF, and the management of the acutely ill pediatric and adult patient. For logistical reasons, recommendations for the nutritional management of nondialyzed pediatric patients with advanced CRF were not developed. The decision was made to not address vitamin and mineral needs or the use of anabolic agents in the adult MD patient, because the scope of the subject matter and the volume of scientific literature was considered to be too large for inclusion in this set of guidelines.

The guidelines are based on a structured review of the medical literature and, where insufficient evidence exists, on the expert opinion of the Work Group members. In each case, the guidelines are intended to serve as starting points

for clinical decision making, and it is emphasized that the clinical judgment of the health care practitioner must always be included in the decision making process and the application of these guidelines. The guidelines are not to be considered as rules or standards of clinical practice. At the end of each guideline, recommendations are made for research studies that may enhance the scientific evidence base concerning the subject matter of that guideline. In keeping with the K/DOQI objectives, it is hoped that the information provided in these guidelines and the research recommendations will improve the quality of care provided to children and adults who have chronic kidney disease or are receiving chronic dialysis therapy and will stimulate additional research that will augment and refine these guidelines in the future.

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This information is a part of the National Kidney Foundation Clinical Practice Guidelines. www.kidney.org.