Global Approaches to Nutrition Assessment and Intervention for Patients With Kidney Disease

ONE OF THE many special features of the Journal of Renal Nutrition is the multicultural essence of our publications. In this issue, we feature the work of authors spanning 4 continents—from 4 countries in Europe to Africa to 3 countries in Asia to South America. As for the United States, our patients come from many of these continents, lending further credence to the importance of these global reports to the patients in North America and beyond.

We feature two systematic reviews with meta-analysis—one focused on chronic kidney disease (CKD) and the other on dialysis. Contributing to these two treatment approaches for kidney disease are 3 reports of original research in CKD and 5 reports of original research in dialysis-related topics. The last piece in this issue of the Journal of Renal Nutrition is a tutorial for practitioners and patients on handling the kidney diet as recommended in South Africa.

Explore with us the systematic review of Morris et al[1] who embarked on the difficult task of examining evidence for dietary potassium restrictions on outcomes of patients with CKD. The studies examined the hypotheses that dietary potassium restriction was associated with a reduced risk of death and reported a hazard ratio of 0.6 (95% confidence interval: 0.4, 0.9) for 1.7 versus 4.4 g potassium/day, p = .01. However, owing to the low number of randomized controlled trials (RCTs), the evidence cannot be claimed as strong given what the authors referred to as "very-low-quality evidence" and call for high-quality RCTs. We are in a new era, however, where potassium binders are now available and some reports recommend increased potassium diets to ensure higher intake of dietary fibers with more fresh fruits and vegetables[2,3]; it behooves clinical investigators to examine this important question more carefully. We encourage RCTs with distinct differences in the potassium load from different plant-based diets to be performed with the potassium binders now on the market in the hope for more definitive data in this area.

Dekkers et al[4] examined the provocative question of whether liver fat and abdominal visceral adipose tissue, detected by magnetic resonance imaging, are associated with kidney function and, particularly, albuminuria. Their cross-sectional evaluation of over 2,000 participants revealed a positive association between visceral adipose tissue and microalbuminuria in women but not in men. These investigators also provide information on genetic instruments of nonalcoholic fatty liver disease. They conclude that liver fat was not associated with markers of kidney function or microalbuminuria.

In an examination of dietary patterns, Heindel et al[5] evaluated the association of diet patterns with biomarkers of kidney function in nearly 3,000 patients with CKD. A food frequency questionnaire was applied to examine dietary patterns: the dietary approaches to stop hypertension (DASH) diet, Mediterranean diet, and the German Pyramid Index. The study demonstrated a positive association of nuts and legumes (from the DASH dietary pattern), cereals, fish, and unsaturated fats (from the Mediterranean dietary pattern) with higher eGFR, whereas higher intake of dairy was associated with lower eGFR. However, no association was found between dietary patterns and albuminuria. These findings contribute further to the hypothesis that these dietary patterns may be kidney-friendly in the studied population.

In patients with CKD or kidney failure, who are critically ill, being overweight or obese category I or II, appeared to confer a survival advantage. Druml et al[6] examined more than 12,000 patients in an intensive care unit cohort study and found that being underweight or having obesity category III were risk factors for mortality. They suggested that higher tolerance to acute disease processes in obese individuals may offer an explanation for the "obesity paradox" observed in CKD.

The next section of this issue of the Journal of Renal Nutrition focuses on dialysis therapy beginning with a systematic review and meta-analysis on dietary supplementation with pre-, pro-, and synbiotics. In short, March et al,[7] demonstrate that this special class of dietary supplements appear to reduce endotoxin, indoxyl-sulphate, and p-cresyl sulfate but conclude that higher quality trials are needed for future, more reliable meta-analyses.

Currently, no consensus guidelines address the methods for measuring sarcopenia in patients with kidney disease. Slee et al,[8] compared guidelines (the European Working Group for Sarcopenia in Older People[9] and Foundations for the National Institute of Health[10]) for assessing the prevalence of muscle wasting and muscle weakness and

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Address correspondence to Dr. Linda W. Moore, PhD, RDN, CCRP, Surgery, Houston Methodist Hospital, Houston, TX 77030. E-mail: lindawmoorejren@gmail.com

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applied the guidelines to patients receiving chronic hemodialysis. They recruited 87 patients from two dialysis centers and measured a number of anthropometrics, hand-grip strength, and bioelectrical impedance to make comparisons between the guidelines. They noted a 55% prevalence of moderate to severe sarcopenia and 32% prevalence for low appendicular muscle index, and >70% prevalence for muscle weakness in this cohort. The guidelines differed in prevalence rates suggesting that more data will be needed to affirm the most accurate guideline to apply in hemodialysis.

Dietary patterns in patients receiving chronic hemodialysis were examined by Sualeheen et al[11] to determine an association with nutrition risk. Using 3-day food recalls of 382 patients, the investigators compared dietary patterns to the Malnutrition-Inflammation Score (MIS[12]) and the International Society of Renal Nutrition and Metabolism Protein-Energy Wasting (PEW[13]) score. By MIS criteria, 42% were malnourished and 20% exhibited PEW. Rather than applying the more traditional approaches to dietary patterns, they statistically derived the most prevalent patterns. The main differentiator for food pattern was eating out versus eating at home. Patients who followed the home foods pattern had higher hand-grip strength and serum albumin and lower MISs.

Survival on dialysis in Japan was examined by Toida et al.[14] The Japanese Society of Dialysis Therapy Registry contains data on over 6,000 patients, half of whom have diabetes mellitus. They reported a 30% 5-year mortality rate overall that was similar in patients with diabetes. Without adjusting for diabetes, the 5-year mortality of patients receiving hemodialysis in the United States is 58%.[15] Thus, data from the Japanese registry is important to countries such as the United States who seek to improve outcomes. Toida et al found that patients with diabetes who were <60 years of age and were underweight experienced 2-fold higher risk of death. The authors postulate that glycemic control may be a causal factor in the increased risk of death in this younger, leaner group of patients compared with the insulin resistance and overweight of older patients with diabetes. These data may expand the prospect of "obesity paradox" while juxtaposing deleterious outcomes associated with underweight even under diabetes.[16]

This issue of the Journal of Renal Nutrition also includes a report on developing and validating a mobile app specifically for patients receiving chronic dialysis in Brazil. The NefroPortátil, developed by Santos Pinto et al[17] is geared toward fluid and food management and communication between the patient and their health care team. Young Do and Kang[18] described an association between having low muscle mass and developing peritonitis within the first year of peritoneal dialysis. Their evaluation also demonstrated a higher incidence of muscle wasting during the year for patients who experience peritonitis. These findings reiterate the need to pay close attention to patients who have marginal muscle mass. We conclude this issue with a tutorial on simplifying the diet for patients with kidney disease. Zarina et al[19] remind us to emphasize the positive aspects of the diet for kidney disease and include all food groups when educating our patients. In their tutorial (for practitioners and patients), the authors provide a simple, 1-page handout they use; readers of the Journal of Renal Nutrition may also find the handout helpful.

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Linda W. Moore, PhD, RDN, CCRP*
Kamyar Kalantar-Zadeh, MD, MPH, PhD†

*Houston Methodist Hospital, Houston, Texas
†*University of California Irvine, Orange, California*

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