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Advances in the Treatment of Hyperphosphatemia: The Role of Lanthanum Carbonate

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Introduction

End-stage renal disease (ESRD) affects 320,000 individuals in the United States (1). Growing evidence suggests that the risk of cardiovascular morbidity and mortality in patients with chronic kidney disease (CKD) undergoing dialysis may be related to high levels of phosphorus in the blood (hyperphosphatemia) and accumulation in body tissues (2-5). Phosphorus is a key element in a variety of cellular processes, and its deregulation in CKD can lead to serious complications.

Conventional pharmaceutical treatments have involved the use of calcium- and aluminum- based phosphorus binders, and more recently, sevelamer (Renagel®, Genzyme Corp, Cambridge, Mass), all of which work by binding dietary phosphorus in the gut, thus preventing its absorption. However, these products have certain limitations and have potential side effects. In part, this explains the finding that a significant number of patients have serum phosphorus concentrations well above acceptable levels. Since uncontrolled phosphorus levels contribute to morbidity and mortality of patients with kidney disease, there is an obvious need for new therapeutic approaches to improve the management of hyperphosphatemia, reviewed by Lowrie and associates (4). One of these new approaches is the novel calcium- and aluminum-free phosphorus binder lanthanum carbonate (Fosrenol®), currently under development by Shire Pharmaceuticals Group. Lanthanum carbonate is a highly potent phosphorus binder that acts throughout the digestive tract (even at the acidic pH of the stomach and small intestine) to bind ingested dietary phosphorus. A series of clinical studies conducted in the United States, Europe, and Asia have shown lanthanum carbonate to be safe and effective for lowering serum phosphorus levels in patients with CKD (6-8).

Hyperphosphatemia

Hyperphosphatemia is defined as a serum phosphorus level >4.5 mg/dL, usually in the form of inorganic phosphate (9). Elevated serum and total body phosphorus burdens are associated with consequences such as secondary hyperparathyroidism, calcification of vascular, cardiac valvular and soft tissues, and renal bone disease (9). The predominant cause of elevated serum phosphorus levels is the impaired renal excretion secondary to decreased glomerular filtration rate (10). An increased phosphorus load via a high-protein diet may contribute to the hyperphosphatemia, as does increased phosphorus release from bone in some patients with metabolic bone disease. Despite the fact that hyperphosphatemia is a well-known consequence of kidney failure in patients receiving dialysis therapy and is associated with poor clinical outcomes, its treatment remains elusive.

Current Therapies

The most direct method of controlling serum phosphorus accumulation is to decrease the available pool of phosphorus for absorption via the diet. Reducing protein intake and avoiding foods high in phosphorus can be beneficial. Generally, dietary control of phosphorus entails reducing intake of dairy products, dried beans and nuts and seeds, as they contribute to an average daily phosphorus intake of 1000 to 1300 mg/d (11-12). Even with dietary control and hemodialysis, phosphorus-binding agents are required to maintain serum phosphorus and total body phosphorus levels at acceptable levels (3.5-5.5mg/dl) (13).

Phosphorus binders lower serum phosphorus levels by binding ingested phosphorus and forming non-soluble complexes. These complexes cannot be absorbed and therefore are excreted in feces. The most common types of phosphorus binders are calcium, aluminum, and sevelamer (Table 1, page 4). Calcium carbonate and calcium acetate are the most common calcium-based phosphorus binders, though calcium citrate, ketovalin, and alginate are also available. The low pH of the stomach allows optimal dissociation of calcium salts and facilitates phosphorus binding (9). While they are efficacious, calcium-based binders are not ideal (14). Indeed, a major risk with the prolonged use of calcium-based phosphorus binders is the possibility of inducing a state of hypercalcemia, with subsequent elevation of the calcium x phosphorus product. The latter is strongly associated with the presence of cardiac calcification and the risk of death (15).

Continued on page 4

From the Editor's Desk

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In This Issue

Advances in the Treatment of Hyperphosphatemia 1

From the Editor's Desk 2

New Directions in Diabetes Care 3

Advances in Practice 8

Kidney Friendly Food Facts 13

RPG Chair Message 15

CRN Chair Message 16

Rehab Corner 17

Renal Nutrition Forum - CPE Answer Sheet .....Insert

Phosphorus Chart of Foods .....Insert

As renal dietitians, we continue to search for the miraculous phosphorus binder that will allow our patients to drink milkshakes with their peanut butter sandwiches! In the meantime, Dr. William Finn, Professor of Medicine in the Division of Nephrology and Hypertension at University of North Carolina, introduces a new binder, lanthanum carbonate, which may allow smaller binder dosages. Dr. Finn has been the principal investigator in the clinical trials of the drug, Fosrenol®, developed by Shire Pharmaceuticals Group in the United Kingdom. Sweden approved Fosrenol for sell in March, so we may have access to it soon in this country. Dr. Finn's article is approved for one hour of continuing professional education (CPE) by the American Dietetic Association (ADA). I would like to thank Lisa Anderson for developing the CPE questions accompanying the article.

Unfortunately, most Americans forsake home-cooked foods for "grab-and-go" meals, and health suffers for the sake of convenience. Due to this fast food craze, our country is in the middle of an obesity epidemic. Phillippa Norton Feiertag's article, "Implications and Treatment Options for Overweight and Obese Patients with Chronic Kidney Disease," promotes aggressive interventions to help renal patients manage caloric balance. We may be so concerned with malnutrition in our patient population that we neglect "over-nourished" individuals who are at higher risk for heart disease, stroke, and post-transplant complications. Kathryn McDougall spearheads the diabetes management program for Renal Care Group. She shares a report card on diabetes complication preventive care in this country. Our grades did not make the honor roll! She urges us to be pro-active with renal patients' medical care to prevent blindness, amputation, and cardiovascular disease in the diabetic population.

Our new RPG chair, Anne Ishmael, shares a message from ADA's Leadership Institute and urges us to lead our profession by drawing upon people's talents. If you are uncertain how to get started in publishing and to share your talent, please read Susan Reams' CRN Chair message, "Searching for Authors!" Having a new avenue for "test driving" writing skills should lessen dietitians' publishing fears and stimulate innovative ideas.

Sharon Schatz shares some inventive ways for "chillin' and grillin'." She suggests ideas for cooling down this summer without heating up phosphorus levels!

Shelia Gaffney, PTMS, is a guest author for this issue's Rehab Corner. She developed the exercise program for Vanderbilt University Medical Center's dialysis unit and offers her first-hand advice in an easy-to-read question and answer format.

A huge thank you goes to Cathi Martin for leading the editorial board as Managing Editor last year. Her expertise and wisdom set high standards to make the Renal Nutrition Forum a tremendous source of information for members. My mentor, Patricia Weber, is now Managing Editor and continues to dedicate many hours to RPG. As I embark on this position from a small town in Tennessee, I can attest to those of you who live in "the middle of nowhere", that you can still become involved! The quality of our practice group depends on volunteers, so please contribute!

Sarah Carter

New Directions in Diabetes Care
Report Card on Diabetes Preventive Care in the ESRD Population

By Kathryn McDougall, RN, MS, CDE
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End stage renal disease (ESRD) affects close to half a million Americans and their families. Although current data indicate a slowing in the growth of renal disease overall, the proportion of cases caused by diabetes continues to rise. Most ESRD networks reported a doubling of the population of new patients with diabetes between 1991 and 2001. Also significant is the increasing prevalence of people with diabetes in the general population over the past ten years. Today depending on geographic location, age of the patient population, and ethnic cultures served, diabetes may range from 37 to 51 percent or higher in individual dialysis facilities.

Growth projections for chronic kidney disease (CKD) in the next quarter century are rather startling given the parallel growth in minority, aging, and diabetes populations. US Renal Data System (USRDS) predicts the number of incident patients with diabetes will equal the population of patients with all other primary diagnoses combined, perhaps as soon as 2006. By 2030, existing diabetes patients receiving ESRD treatment could equal 1.3 million. If the entire ESRD population reaches numbers of 2.24 million by 2030, as projected, we can expect to see more non-caucasian patients with diabetes aged 65 or older (1).

How this growth will impact the CKD program remains to be seen. Are we ready to take on this growth and its accompanying challenges, particularly with the diabetes population? Certainly the implications of increased morbidity and mortality are apparent. Preventive care measures for people with diabetes are often associated with improved clinical outcomes. Whether these measures are being utilized by the growing number of people with diabetes having end stage renal disease is of concern. Therefore, an assessment of the current state of diabetes care in the CKD program is warranted.

Starting in 2000, USRDS began reporting on diabetes preventive measures related to: dilated eye exams, lipid and glycosylated hemoglobin(HbA1C) testing and use of diabetes testing supplies as compared to the general Medicare population. Knowing that annual eye exams are recommended for all persons with diabetes (2), the most recent USRDS 2003 report found these exams less frequently performed on ESRD patients than non-ESRD Medicare patients. Comparison by modality shows that patients receiving dialysis are less

Continued on page 6

continued from page 1

Aluminum salts have been available since 1941 to treat hyperphosphatemia, the most common form used in the past being aluminum hydroxide, $Al(OH)_3$. Aluminum is a more effective binder of phosphorus than is calcium. However, aluminum salts have serious long-term side effects, including a severe form of bone disease (osteomalacia), dementia, muscle weakness, and anemia (16,17). In addition, attempts at treating aluminum deposition by chelation with desferoxamine have been largely unsuccessful (18). Therefore, aluminum salts are rarely used as chronic therapy for hyperphosphatemia in the United States.

Sevelamer hydrochloride (Renagel®, Genzyme Corp, Cambridge, Mass) is a cross-linked allyamine hydrochloride polymer (plastic) containing multiple amine groups. Protonated amines on the polymer are able to bind phosphorus groups via ion exchange. The benefits of sevelamer include good efficacy and specificity, safety, and minimal intestinal absorption (16,19). Studies have shown that sevelamer is effective in lowering serum phosphorus levels in patients on dialysis (20,21). In addition, sevelamer has secondary effects that are beneficial to dialysis patients, such as lowering of total and low-density lipoprotein cholesterol (21). Sevelamer has the disadvantage of generally needing to be administered in large amounts. This is due to the fact that sevelamer binds optimally to phosphorus at pH levels of 7.0, and phosphorus is mainly absorbed in the upper small intestine where pH levels are well below 7.0.

Another factor to consider with sevelamer treatment is its effect on concomitant vitamin D (calcitriol) therapy. Calcitriol is administered to patients with renal disease to help manage parathyroid hormone (PTH) levels. Preclinical studies suggest that sevelamer may reduce the absorption of fat-soluble vitamins, including vitamin D (22). Finally, sevelamer is significantly more expensive than calcium- or aluminum-based treatments (approximately $3000 per patient per year), and this limits access for many patients.

Lanthanum Carbonate

Lanthanum is a rare metal with an atomic weight of 139 Da. It is present in tap water and it binds phosphorus to form lanthanum phosphorus. Lanthanum carbonate is a novel non-calcium, non-aluminum phosphorus binder under development by Shire for the treatment of hyperphosphatemia. This compound acts throughout the digestive tract to bind ingested dietary phosphorus, and is a highly potent phosphorus binder, even at the acidic pH of the stomach and small intestine (23). Taken with meals, the resultant complexes are unable to be absorbed by the gastrointestinal tract (0.00003% absorption vs. 0.02% for aluminum-based compounds) (23).

A number of studies have shown that lanthanum carbonate is safe and efficacious in treating hyperphosphatemia in dialysis patients (6,7). The results of a 16-week study investigating the efficacy and tolerability of lanthanum carbonate have recently been published (6). This was a randomized, double-blind, placebo-controlled, parallel-group study. Efficacy assessments focused on the achievement of phosphorus control at levels of 5.9mg/dL, and included measurement of changes over time in serum calcium, calcium x phosphorus product (Ca x P), and PTH levels. The patients receiving lanthanum carbonate showed a rapid and pronounced decrease in serum phosphorus levels that were evident within the first week and sustained for 2.5 months. Serum levels of lanthanum carbonate were detectable at low levels, reaching an early plateau (one week), and showing no further increase during the study. There were no changes in serum calcium levels so that the significant reduction in Ca x P levels achieved during the study was entirely a result of the reduction in the serum phosphorus level. In contrast to the patients receiving calcium-based phosphorus binders, the incidence of hypercalcemia was strikingly reduced, a phenomenon universally observed in other studies comparing lanthanum carbonate with calcium-based phosphorus binders (24). Lastly and as expected, serum PTH levels were significantly lower in lanthanum car-

Continued on page 5

Table 1. Benefits and Limitations of Common Phosphorus Binders

Binder	Benefits	Limitations
Calcium-Based (9.25,26)	• Efficient in lowering serum PO_4	• Absorbed in lower portions of the GI tract • GI upset • Risk of hypercalcemia
Aluminum-Based (9,10,25)	• Efficient in lowering serum PO_4	• Absorbed in lower portions of GI tract • GI upset • Aluminum load may cause osteodystrophy and encephalopathy
Aluminum- and Calcium-Free (sevelamer) (9,10,22)	• Not absorbed • Efficient in lowering PO_4 • Lowers low-density lipoprotein level • Serum calcium levels not altered	• Absorbed in upper portions of the GI tract • GI upset • Optimal binding at pH 7.0, requiring multiple tablet dosing • May reduce vitamin D absorption

continued from page 4

bonate-treated patients when compared to placebo-treated patients at the study end point. The adverse events occurring during the trial were generally limited to nausea, very similar to the events observed in the placebo population. Though lanthanum carbonate was well tolerated during this study, the long-term safety still needs to be established. Obvious toxic effects did not accompany the higher lanthanum concentrations that were noted in the serum of treated patients. However, it is not known what, if any, effect this may have over the long term.

To ensure the advantages of lanthanum carbonate over aluminum-based compounds with respect to development of bone disease, a one-year study using calcium carbonate as control was performed and followed changes in bone-biopsy profiles (7). The results were recently published and indicate no evidence of direct toxic effects on bone tissue and virtually no evolution toward low-turnover bone disease in the patients treated with lanthanum carbonate. Furthermore, patients who were previously taking calcium carbonate compounds and switched to lanthanum carbonate (for the study purposes), demonstrated a change from osteomalacic and adynamic states to more normal bone histology.

Implications for the Treatment of Patients on Dialysis

Maintaining the proper steady-state balance of total body calcium and phosphorus levels and achieving the recommended serum levels in dialysis patients continue to be a challenge. Many comorbidities in CKD patients are associated with the interplay of calcium and phosphorus absorption; changes in parathyroid function (bone metabolism); and soft tissue, cardiac, and vascular calcification. Lanthanum carbonate has the potential to become a first-line treatment for hyperphosphatemia. The drug is well tolerated, efficacious, and is not associated with a high incidence of hypercalcemia and yet is effective in reducing secondary hyperparathyroidism and lowering PTH oversecretion. Lastly, it does not affect bone metabolism, a critical toxic side effect of aluminum-based compounds.

In addition to medical nutrition therapy, it is essential for the renal dietitian to promote and develop methods to educate dialysis patients about the importance of phosphorus and calcium control. The problem of phosphorus control is compounded by the fact that none of the current binders are ideal. Patient education relevant to dietary control is essential, as well as updated knowledge about available phosphorus binders, including lanthanum carbonate.

Renagel is a registered trademark of GelTex Pharmaceuticals, Inc.

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Continued on page 18

New Directions in Diabetes Care

continued from page 3

likely than transplant patients to receive these annual eye exams. On average, 45 percent of dialysis and 55 percent of transplant patients receive dilated eye exams. The lowest rates were among Native Americans and patients age 18-30 on dialysis, each at approximately 33% (1).

Also recommended for people with diabetes is lipid testing at least annually and more often if needed to achieve lipid goals. Those with low-risk lipid values (LDL<100 mg/dl, HDL> 50 mg/dl and triglycerides <150 mg/dl) may only need assessments every 2 years (2). It was found that lipid monitoring is much less likely to be performed in patients with ESRD than for those people in the general population, with the exception of portions of Alaska, Minnesota and New England. Across modalities, 52% of dialysis patients vs. 79% of transplant patients receive testing. Again, least likely to be monitored are Native Americans at less than 40% (1).

The American Diabetes Association (ADA) also recommends HbA1C tests at least twice a year in patients with stable glycemic control and quarterly in those whose treatment has changed or who are not meeting glycemic goals. Here, there has been definite improvement in the ESRD population with 74 % of the patients receiving at least one HbA1C test per year compared to 79% in the general Medicare population. Still, close to 30% receive no HbA1C testing at all and only one-third have testing done quarterly, as recommended by ADA practice guidelines (1).

Self-monitoring of blood glucose is considered an integral component of diabetes therapy and preventive care. The frequency and timing will vary depending on the particular needs and goals of the patient. Last reported by USRDS in 2001, only 40% of ESRD patients with diabetes monitored blood glucose levels at home as indicated by Medicare claims data for diabetes testing supplies (3). Although patients often self-report more frequent testing, recent data have not been reported by the USRDS. Hopefully this rate of monitoring has increased as a result of greater access and improved Medicare reimbursement for testing supplies.

Another critical preventive measure involves foot examinations, by both people with diabetes and their health care providers. It is recommended that those with diabetes check their feet daily and have a foot exam by a health professional at least annually. A National Health Interview Survey (NHIS) in 1989 revealed that only 52 percent of all people with diabetes reported daily foot checks with slightly more self-exams performed by those taking insulin (4). Reports from several nationwide studies indicate that the occurrence of annual foot exams by a health professional is quite variable from 50 to 67 percent in the general diabetes population (5,6,7,8).

As a result of such studies, one of Healthy People 2010 health objectives for the nation calls for an increase in the number of people with diabetes who receive annual foot examinations from 55 to 75 percent (9). Medicare, also recognizing the importance of preventive foot care, covers

Continued on page 7

continued from page 6

as a physician service, routine foot examinations and treatments every 6 months for patients with a documented diagnosis of diabetic sensory neuropathy with loss of protective sensation (10).

Since not currently reported by USRDS, additional data related to the frequency of foot preventive measures for CKD patients are limited. McMurray et al found that in a group of 83 dialysis patients with diabetes, 47-74% reported daily foot checks at home (11). Another study of 184 dialysis patients by Flauto et al indicated that 95% had their feet examined by a physician within the last twelve months (12). More data are needed to better evaluate the occurrence of self and provider foot exams in patients with end stage renal disease. These particular health practices should be a priority based upon the growing need for amputation prevention in this population.

Overall, data to date indicate that diabetes preventive care is slowly improving but continues to be less than optimal, particularly in the CKD population. Of great concern is the lack of lipid testing despite this population's high risk for cardiovascular complications, the number of younger people not receiving eye exams when preservation of eyesight should be a high priority, and the lack of aggressive foot ulcer prevention. It appears that no one entity is responsible or taking accountability for the provision or lack of care. Flauto et al found that although multiple physicians were involved in the care of diabetes patients receiving dialysis, diabetes-related outcomes (i.e. glucose, blood pressure, and lipid levels) were often poor. Also noted in this study was a difference of opinion among roles and lack of communication among the various physicians (12). Comments from McMurray concur that often no physician has been identified or there is little communication as to which physician is managing the diabetes care (13).

Our health care system has long struggled with the challenges of fragmented care. How we address diabetes care for people with CKD will take a coordinated team approach. Most importantly, the health provider of diabetes care needs to be identified for all diabetes patients. Then, strong lines of communication will need to be established and maintained among the various health care providers. Patients themselves often avoid referrals to other health care providers for various reasons including financial limitations, time constraints, or lack of transportation. Therefore, patients will need to be educated about the importance of these practices for preventing further diabetes complications. Ongoing reinforcement will be necessary to ensure that the patient follows through with a particular action, i.e. eye exam, foot check. In the dialysis environment, the entire team can be supportive in this effort. Identifying someone within the dialysis unit to take responsibility for the coordination of diabetes care and referrals would be ideal. Dietitians or primary care nurses may be able to fit into this role. In addition, the concept of access, anemia and bone management managers is not foreign to the dialysis environment. A "diabetes manager" may need to be considered seriously in the future as more patients with diabetes fill our dialysis facilities.

There are many challenges ahead given the increasing population of diabetes patients in the CKD program. Although there seems to be some attention given to diabetes preventive care, it is time to gear up and improve what we do now, to be more efficient in the future. Resources will continue to be tight, so looking at our roles differently will be imperative to successfully managing our patient's clinical care. It is imperative that we continue to monitor our progress in this area with ongoing studies and surveys, for they will not only be important to us today but in the future as well.

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Advances in Practice

Implications and Treatment Options for Overweight and Obese Patients with Chronic Kidney Disease

By Philippa Norton Feiertag, MEd, RD, LD *Philippa is a Clinical Analyst/Renal Nutrition Specialist with Clinical Computing, Inc. in Cincinnati, OH. She can be reached at feier@fusenet.com.*

Patients undergoing maintenance dialysis frequently experience malnutrition, which may develop prior to dialysis initiation, resulting in loss of lean tissue and fat stores, and increased morbidity and mortality (1-3). However, several recent studies report a high prevalence of overweight in the dialysis population that parallels the rapid increase in excess body weight in the non-renal population (4-6).

In the United States, 61% of adults are overweight, as indicated by body mass index (BMI) >25 kg/m^2, and the age-adjusted prevalence of obesity (BMI > 30 kg/m^2) increased from 13% to 23% between 1960 and 1994 (7). When years of life lost due to overweight and obesity was estimated using data from the U.S. Life Tables, Third National Health and Nutrition Examination Survey (NHANES III), First National Health and Nutrition Epidemiologic Follow-Up Study (NHANES I and II) and NHANES II Mortality Study, obesity was found to significantly decrease life expectancy (8).

A study of the influence of excess weight on morbidity and mortality in 1346 hemodialysis (HD) patients in Mississippi revealed that 38% of these patients had BMI > 27.5 kg/ m^2 (4). More recently, 38% of patients in a Spanish HD population were found to have BMI $\geq$ 25 kg/m^2 (6). In addition, data from a national transplant database reveals that 60% of subjects undergoing kidney transplantation are overweight or obese (9).

This column will review the influence of excess body weight on health outcomes in patients with chronic kidney disease (CKD), guidelines for appropriate body weight and interventions to promote weight control in this population.

Excess body weight and health outcomes in patients with chronic kidney disease

Although elevated BMI increases risk of cardiovascular disease (CVD) and mortality in the non-renal population, higher BMI has been associated with improved one-year survival rates in patients undergoing maintenance HD therapy (4,5). In addition, an inverse correlation has been demonstrated between adjusted mortality rate and BMI at initiation of maintenance HD (10).

However, when the association between BMI and survival was investigated in a population of non-diabetic renal patients over a 12-year period, mortality was higher in patients with BMI > 19 kg/m^2 (11). The higher mortality in these patients was associated with CVD risk factors, including low levels of high-density lipoprotein (HDL)-cholesterol and elevated total cholesterol to HDL-cholesterol ratio. Thus, this study indicates that high BMI may have a negative impact on long-term survival in patients undergoing maintenance HD.

It is not clear whether higher BMI is associated with better survival in patients undergoing peritoneal dialysis (PD) because different studies have shown conflicting results. Snyder et al investigated body size and outcomes in 418,000 United States Medicare patients initiating PD between 1995 and 2000, and concluded that overweight (BMI 25.0-29.9 kg/ m^2) and obese (BMI >29.9 kg/ m^2) patients survive longer than those with lower BMI (12). However, when data from the Australia and New Zealand Dialysis and Transplant Registry was used in multivariate analysis of outcomes in all new adult patients undergoing PD between 1991 and 2002, obesity (BMI >29.9 kg/ m^2) was independently associated with death and technique failure (13).

More recent findings from a retrospective study of patients in the United States Renal Data System (USRDS) Dialysis Morbidity and Mortality Wave II Study (DMMS) show no survival advantage for PD patients with BMI $\geq$ 30 kg/m^2 compared with those with lower BMI (14).

Obesity has been more strongly linked with increased risk for calciphylaxis, which frequently occurs within the first year after initiating maintenance dialysis therapy (15). This condition leads to calcification of the walls of small blood vessels, resulting in ischemia and necrosis of the skin, subcutaneous fat, visceral organs and skeletal muscle, and causing significant morbidity in the form of pain, infection and organ failure.

In the early stages of CKD, obesity may promote the progression of renal disease (16). Severe obesity is associated with increased blood flow to the kidneys, higher glomerular filtration rates (GFR) and development of glomerulopathy (17). Renal biopsies performed on severely obese adolescents (BMI 46 ± 11 kg/m^2) with unexplained heavy proteinuria (3.1 ± 1.3 g/dL) revealed glomerular hypertrophy and focal glomerulosclerosis (18).

The association between severe obesity and glomerulosclerosis may lie in the increased serum leptin concentrations exhibited by these individuals. Leptin is a hormone produced by the ob gene in adipose tissue and linked with regulation of food intake (19). However, leptin is also a renal growth factor. In animal studies, leptin infusion causes proliferation of glomerular endothelial cells, resulting in glomerulosclerosis and proteinuria (20).

Hypertension, which often accompanies obesity, also contributes to renal dysfunction by increasing glomerular pressure, capillary damage and proteinuria (21). When obese patients lose weight, blood pressure control improves, and GFR and proteinuria are both reduced (17,18,22). In the Trials of Hypertension Prevention, Phase 1, hypertensive men and women ages 30-54 assigned to an 18-month lifestyle modification program for weight loss showed a 77% reduction in risk for

Continued on page 9

continued from page 8

hypertension after seven years, compared with controls (22).

The influence of obesity on outcomes following renal transplantation has also been studied. Obese patients (pre-transplant BMI $\geq$ 30 kg/m^2) have a significantly higher incidence of delayed graft function and wound infections post-transplant than a matched non-obese control group (pre-transplant BMI < 30 kg/m^2) (23). In addition, obesity is often accompanied by hyperhomocysteinemia after kidney transplantation, which independently increases risk of developing atherosclerosis and CVD (24).

Guidelines for appropriate body weight in patients with chronic kidney disease

While obesity clearly impacts health outcomes in patients with CKD, there is little consensus on what constitutes appropriate body weight for this population. Fleischmann et al concluded that morbidity and mortality might be reduced in HD patients through proper nutrition directed to achieve BMI at the high end of the normal range (20-27.5 kg/m^2) (4). On the basis of epidemiological data, Kopple et al established a goal of maintaining BMI in the upper 50th percentile ($\geq$ 23.6 kg/m2 for men and $\geq$ 24.0 kg/m^2 for women) in adult maintenance dialysis patients (5). In an editorial comment on the relationship between body weight and survival in the dialysis population, Salahudeen recommended that patients maintain a high-normal BMI (25). The recently published Guidelines for Nutrition Care of Renal Patients suggest a goal BMI of 20-25 kg/m^2 for adult dialysis patients (26).

The Kidney Disease Outcomes Quality Initiative (K/DOQI) Clinical Practice Guidelines for Nutrition in Chronic Renal Failure use standard body weight (SBW) to define an appropriate body weight for patients with CKD (27). Based on data from NHANES II, SBW is the 50th percentile for body weight for healthy Americans of the same age range, gender, height and frame size as the patient in question. The guidelines recommend that patients maintain a weight that is 90 - 110% of SBW and that body weight $\geq$ 115% SBW indicates obesity.

Interventions to promote weight control in patients with chronic kidney disease

The K/DOQI Nutrition Clinical Practice Guidelines recommend using edema-free body weight (BWef) to prescribe calories for adult maintenance dialysis patients (27). BWef is the post-dialysis weight for HD patients, and weight after drainage of dialysate in PD patients. The recommended daily calorie intake is 35 kcal/kg for maintenance dialysis patients under the age of 60 years, and 30-35 kcal/kg for those aged 60 or older.

However, for patients with BWef >115% SBW, use of adjusted edema-free body weight (aBWef) is recommended (27):

$$aBWef = BWef + [(SBW - BWef) \times 0.25]$$

Basing calorie prescription on aBWef in obese dialysis patients takes into account the lower calorie requirements of adipose tissue, compared with lean body mass.

Behavioral weight reduction programs have been implemented successfully to achieve and maintain weight loss in obese HD patients (28). Nevertheless, patients attempting weight reduction face the same obstacles to behavior change as patients trying to adopt a therapeutic diet for chronic disease. These obstacles include problems selecting and preparing foods, poor palatability, lack of support, difficulty in choosing appropriate foods at restaurants and social gatherings, and loss of autonomy (29-33). Renal dietetics professionals can help these patients achieve their weight loss goals by individualizing dietary interventions and providing regular follow-up.

There are no guidelines for managing obesity specifically in nondialyzed patients with CKD and educational materials are not readily available. However, weight reduction is an essential step in controlling hypertension, which is associated with obesity and increases risk for renal diseases (34, 35). In line with National Heart, Lung and Blood Institute (NHLBI) guidelines, a reasonable initial goal for this population is to reduce body weight by approximately 10% from baseline (36).

Two articles from an educational website directed at patients with CKD emphasize gradual weight loss through diet and exercise, and warn against use of amphetamine-like products, prescription medications and herbal supplements (37, 38). However, intervention by a registered dietitian is needed to translate general information on weight control into an individualized eating pattern.

Patients with CKD approaching the need for dialysis, and those already undergoing maintenance dialysis therapy, may be motivated to lose weight in order to increase their eligibility for a renal transplant. Among patients undergoing maintenance dialysis therapy, those with BMI > 28.7 kg/m2 have lower rates of enrollment on the renal transplant waiting list than those with BMI 24.5 - 28.7 kg/m^2 (39). In addition, obese patients gain more weight after transplant surgery than non-obese patients (40).

Intensive post-transplant dietary counseling is necessary to control weight gain in renal transplant recipients. Patel studied thirty-three renal transplant patients receiving similar immunosuppressive therapy who were divided into two groups (41). One group received no dietary advice or follow-up post-transplant. Patients in the other group were advised on diet, exercise and weight control before leaving the hospital; the dietary advice was individualized and follow-up was provided at regular intervals up to four months post-transplant. Dietary information comprised advice on complex carbohydrates, sugar, fiber, fat and protein, and included individualized meal and exercise plans. During follow-up sessions, additional information was provided on shopping, convenience foods, appropriate snacks and strategies for weight maintenance.

Comparison of the two groups at four months post-transplant showed an average weight gain of 1.4 kg in those who received dietary advice, and 7.1 kg in the control group. At one year post-transplant, average weight gain was 5.5 kg in the intervention group and 11.8 kg in the control group. While this study demonstrates that

Continued on page 11

Advances in the Treatment of Hyperphosphatemia: The Role of Lanthanum Carbonate

By Dr. William Finn

Objective: Participant will learn advances in treatment of hyperphosphatemia in renal disease.

A. The participant will be able to state benefits and limitations of conventional and new treatments for hyperphosphatemia.

B. The participants will be able to state current and future implications for the treatment of hyperphosphatemia with lanthanum carbonate.

This activity is approved for 1.0 hour, Level 2 CPEU, by the Commission on Dietetic Registration (CDR) for registered dietitians and dietetic technicians, registered who are members of the Renal Practice Group. Valid through May 31, 2005. After reading the continuing professional education article, please answer the following questions by indicating your responses on the self-assessment questionnaire form. Please be sure to submit your registration number, or you will not receive credit. Once the questionnaire has been mailed to the assistant editor, you may fill out the Certificate of Completion on page 17, keep it in your portfolio, and record the activity on your Step Activity Log. Answers to the continuing professional education questionnaire can be found on page 17 .

Multiple Choice

1. Lanthanum Carbonate is made by Genzyme Corp, Cambridge, Mass. and is also known as Fosrenol®.
   A. True
   B. False

2. Lanthanum Carbonate has the following benefits except one:
   A. Lowers LDL
   B. Reduces secondary hyperparathyroidism
   C. Lowers serum phosphorus
   D. Lowers incidence of hypercalcemia

3. Aluminum phosphate binders have all the following common side effects except one per William Finn, MD article "Advances in the Treatment of Hyperphosphatemia: The Role of Lanthanum Carbonate"
   A. Osteomalacia
   B. Anemia
   C. Dementia
   D. May reduce Vitamin D absorption

4. Phosphorus is mainly absorbed in the lower small intestine.
   A. True
   B. False

5. Lanthanum carbonate has been proven safe in long-term studies.
   A. True
   B. False

6. Lanthanum carbonate, as a phosphate binder, has the following adverse event during trials.
   A. Hypocalcemia
   B. Hyperparathyroidism
   C. Nausea
   D. Diarrhea

7. The study group who utilized Lanthanum carbonate for one year demonstrated bone changes from osteomalacia and adynamic states to more normal bone histology as demonstrated by bone biopsy profiles.
   A. True
   B. False

8. Lanthanum Carbonate is currently under development by Shire Pharmaceuticals Group.
   A. True
   B. False

9. Less Common phosphate binders include:
   A. Calcium citrate
   B. Alginate
   C. Ketovalin
   D. All of the above

10. Hyperphosphatemia is caused by:
    A. An increased phosphorus load via a high-protein diet.
    B. Impaired renal excretion secondary to decreased GFR.
    C. Phosphorus release from bone in metabolic bone disease.
    D. All of the above

Apology:

In the Spring 2004 (Vol. 23, No. 2) Issue of Renal Nutrition Forum, a copy of the Sensipar four page journal advertisement was inadvertently inserted into the center of the journal without an accompanying brief summary of prescribing information. Please note that the advertisement is again included in this issue; this time with the appropriate accompanying information.

continued from page 9

dietary advice and follow-up reduce weight gain in renal transplant recipients, it also emphasizes the need for continued follow-up beyond four months post-transplant to manage body weight.

Another approach to the management of severe obesity in renal transplant recipients involves gastric bypass (GBP) surgery. Morbidly obese patients (200-260% of their ideal body weights) who were six to eight years post renal transplant experienced significant weight reduction, and improvements in hypertension and hyperlipidemia, following Roux-en-Y gastric bypass (42). During this procedure, a small stomach pouch is created to restrict food intake. In addition, a Y-shaped section of the small intestine is attached to the pouch, allowing food to bypass the lower stomach, duodenum and first part of the jejunum. By 12 months post GBP, weight loss reached a plateau as patients achieved 100-150% of ideal body weight. GBP has been used to alleviate co-morbid conditions and improve quality of life in obese HD patients with BMI $\geq$ 35 kg/m^2 and awaiting transplant (43). Some of these patients subsequently received a renal transplant.

Vertical banded gastroplasty (VBG) has also been used to promote permanent weight loss and enhance quality of life in the obese transplanted population (44). In VBG, a band and staples are used to create a small pouch in the upper stomach. This restricts food intake and prolongs satiety, without producing malabsorption.

VBG has the advantage over GBP of allowing absorption of nutrients and immunosuppressive medications from the upper gastrointestinal tract, but GBP promotes greater weight loss (43,44). There are no published guidelines for nutritional care of patients with CKD and GBP. However, these patients must be monitored closely to ensure adequate intake of protein, folic acid, vitamin B12, magnesium, iron and calcium (43).

Summary

The renal dietetics professional has early and ongoing contact with patients with CKD, and therefore plays a vital role in implementing lifestyle interventions to optimize health. This member of the renal care team also has the expertise to evaluate nutritional needs and provide individualized dietary advice to promote weight control in this population. Management of obesity in patients with CKD may slow the progression of renal disease, improve long term survival in maintenance dialysis patients, decrease risk of calciphylaxis and increase eligibility for renal transplantation.

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Continued on page 12

continued from page 11

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Kidney Friendly Food Facts

Chillin' and Grillin'

By Sharon Schatz, MS, RD, CSR, CDE
Sharon is a renal dietitian with Gambro Healthcare in Lumberton, NJ. She can be reached at Srsmsrd@aol.com or sharon.schatz@us.gambro.com.

I discovered an alternative for ice creams, sherbets, and sorbet - frozen apple sauce! This may sound odd, but give it a try. I accidentally "developed" this when I put an individual portion into the freezer for a quick chill and forgot about it. The consistency is similar to frozen cups of Italian water ice, icy and flaky, with a rich fuller mouth feel. It's quenching and filling without adding more fluid while being fat-free and low in calcium and phosphorus. Flavored apple sauces come in 4-ounce ready serve cups.

Knouse Foods (www.knouse.com accessed May 31, 2004) packages the Lucky Leaf and Musselman's brands of apple sauce. In addition to plain sweetened apple sauce, Lucky Leaf offers cinnamon apple sauce, a natural (unsweetened) version, plus "No Sugar Added" Lite ones that are sweetened with Splenda (Cherry Fruit 'N Sauce, Orange Mango Fruit 'N Sauce, Raspberry Fruit 'N Sauce, and Strawberry Fruit 'N Sauce). Musselman's has the same flavors, as well as Lite "No Sugar Added" Apple Sauce and Peach Fruit 'N Sauce. I was unable to obtain potassium data when I contacted the parent company; but judging from the food ingredient list and portion size, they should be usable.

From the label of Musselman's Lite Orange Mango Fruit 'N Sauce: apples, mango puree, water, natural flavors, calcium lactate, ascorbic acid, and sucralose. Calories 60, Protein 0, Fat 0, Sodium 10 mg, Total Carb. 14 g, Fiber 1 g, Sugars 9 g. %DV: Vitamin A 4%, Vitamin C 6%, Calcium 6%, Iron 2%

Mott's (www.motts.com accessed May 31, 2004) has 3.9-4.0 ounce cups in base flavors of original, Cinnamon, and Natural (unsweetened). There are eight Mott's Fruitsations available in banana, cherry, mango peach, mixed berry, pear, strawberry, strawberry banana, and tropical blend with 70 mg potassium each per their telephone customer service representative. Mott's Healthy Harvest, an unsweetened apple sauce made from all natural ingredients, is available in five varieties: country berry, peach medley, summer strawberry, Granny Smith, and pineapple pleasures.

From the label of Mott's Healthy Harvest Country Berry: apples, water, raspberry and strawberry puree concentrates, fruit and vegetable juices for color, blueberry puree concentrate, ascorbic acid, natural flavors. Calories 50, Protein 0, Fat 0, Sodium 0, Total Carb. 13 g, Dietary Fiber 1 g, Sugars 11 g. %DV: Vitamin A 0%, Vitamin C 25%, Calcium 0%, Iron 0%

For comparison, below is a table of other frozen dessert items. Rounded off data is from ESHA Food Processor version 8.2.

Summer is often synonymous with outdoor cooking and grilling. In the past I have put together recipe hand-outs that include marinades, oils, and rubs for alternates to bottled barbecue sauces that may be high in sodium and/or potassium. The following books will provide a wealth of ideas: *Barbecue! Bible: Sauces, Rubs, and Marinades, Bastes, Butters & Glazes* by Steven Raichlen, Workman Publishing, 2000; *Marinades: Dry Rubs, Pastes & Marinades for Poultry, Meat, Seafood, Cheese & Vegetables* by Jim Tarantino, The Crossing Press, 1992; *Marinades, The Secret of Great Grilling* by Melanie Barnard, Harper Perennial, 1997. If you can't find them in your local bookstore, check out Jessica's Biscuits (http://www.ecookbooks.com/index.html accessed May 31, 2004) or Powell's Books (http://www.powells.com/home.html accessed May 31, 2004). For recipes that are not salt free, the ingredients could be modified to lower the sodium.

A blurb in the local newspaper's food section led me to the web site of www.marshmallowfluff.com (accessed May 31, 2004). Per e-mail from Lynne White, customer service, "Marshmallow Fluff contains 10 mg sodium per 2 Tbsp. It is not a significant source of Calcium, Potassium & Phosphorus". I downloaded The Yummy Book, a recipe book, from which I learned that "one jar (7 1/2-oz) measures approximately 2 1/2 cups and equals about 32 marshmallows and there's no cutting or melting necessary! The 16-oz plastic tub of Marshmallow Fluff measures about 5 cups and equals about 5 1/2 dozen marshmallows. One tablespoon Marshmallow Fluff equals about 1 marshmallow". Recipes could be used as is or may need to be modified. These are samples that would be cooling treats.

Continued on page 15

Item	Amount	Wt (g)	Kcals	Prot g	Carbg	Fatg	Ca mg	Phosmg	Kmg	Na mg
Haagen Daaz orange sorbet & cream ice cream	.5 cup	106	190	2.0	24.0	9.0	80	64	115	45
Haagen Daaz raspberry sorbet & cream ice cream	.5 cup	106	190	3.0	23.0	9.0	80	64	115	45
chocolate ice cream	.5 cup	66	143	2.5	19.0	7.3	72	71	164	50
rich chocolate ice cream	.5 cup	74	189	3.5	15.4	12.6	105	85	176	42
vanilla ice cream	.5 cup	66	133	2.3	15.6	7.3	84	69	131	53
rich vanilla ice cream	.5 cup	74	184	2.6	16.5	12.0	87	78	116	45
Drumstick ice cream bar	1 each	60	159	3.3	18	9.0	66	82	145	44
English toffee ice cream bar + choc coating (Heath)	1 each	68	206	2.0	17.4	15.2	70	62	126	43
Fudgesicle ice cream bar	1 each	73	104	3.2	17.5	3.4	101	98	221	60
ice cream sandwich	1 each	59	144	2.6	22	5.6	60	64	122	36

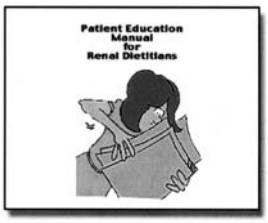
Products of the ADA Renal Practice Group (Marketed through the Kidney Thinking Company) www.kidneythinking.com

BONE STORE - A motivational program/game startup kit that includes all the materials needed to help start motivating dialysis patients toward better phosphorus control. This is a product of the ADA's Renal Practice Group. All materials in the kit are camera-ready for your copying pleasuer.

$10.00

PATIENT EDUCATION MANUAL - A collection of the "best of" the patient education materials included in the Renal Forum, a quarterly publication of the ADA's Renal Practice Group. All materials in the kit are camera-ready for your copying pleasure.

$10.00



EATING SIMPLY WITH RENAL DISEASE PAMPHLET - Brought to you by the Renal Practice Gruop of the American Dietetic Association is the long awaited simplified version of the National Renal Diet. It is a colorful, low literacy pamplet that provides some basic information about calories, protein, salt and diabetes. T0plet opens up to aproximately 14x22 (fits on the freezer door of the fridge). The inside sections includes the green light "go foods" and "yellow light cautions light foods" for potassium and phosphorus as well as information on fluids, protein and a sample menu sec tion. The pamphlets are packaged in packs of 25's.

1-3 $15.00/Pack, 4-7 $15.00/Pack
8-10 $14.50/Pack, 10+ $14.00/Pack

Kidney Thinking Company
17 Cotley Street
Berkley, MA 02779

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To order visit our website at www.kidneythinking.com or fill out and return the form below:

Name:_____

Mailing Address:_____

City:_____State:_____Zip Code:_____

Item	Quantity	Price per Unit	Total
Bone Store		$10.00	
Patient Education Manual		$10.00	
Eating Simply with Renal Disease		$15.50 for 1-3 packs $15.00 for 4-6 packs $14.75 for 7-10 packs $14.00 for > 10 packs	
		Total	
	Shipping & Handling: 0-$49.99 = $5.50, $50.00-$99.00 = $10.50, >$100.00 = $15.50 Plus		
		Total Enclosed	

RPG Chair Message

By Anne Ishmael, MS, RD, LD
Anne is a renal dietitian for Gambro Healthcare, San Jacinto in Houston, TX and can be reached at auto63347@hushmail.com.

The American Dietetic Association (ADA) hosted its first Leadership Institute February 19-22 in Tucson, Arizona. ADA's Leadership Institute is an intensive certificate-training program in the theory and practice of leadership in dietetics. " The purpose of the program was to enhance the leadership competencies of ADA members through a combination of information, skill development and intensive practice-based educational experiences," said registered dietitian and ADA President Marianne Smith Edge.

"The program was designed to strengthen dietetic professionals' ability to lead within ADA and in their places of employment, to assist other ADA members in mastering change in their environments and to advance the goals of the dietetic profession," Edge said.

We the members of an association (practice group / council) are the association. Each of us has the ability to shape our association's course. One challenge of leadership is to identify and maximize our resources by using people's talents, not just their time. A proposed leadership template from the Leadership Institute is 1) articulate the vision 2) communicate the strategy to accomplish the vision 3) honor and recognize people carrying out the strategy 4) communicate how the vision relates to the stakeholders and 5) lead in all directions (communicating outward.) Instead of micro thinking about macro problems, our profession is better served when we practice the art of the long view in anticipating and planning for emerging change. In other words "Think globally, act locally."

The Renal Practice Group (RPG) and Council of Renal Nutrition (CRN) have a vision for the role of the mid level provider caring for people with Chronic Kidney Disease. We continue to work collaboratively on projects thanks to the foresight of Jill Goode MS, RD, LD, Jenny Smothers RD, LD, Susan Reams RD, CSR, LD and other dietitians. Both CRN and RPG have a crossover of members in our talent pool and we have a vested interested in staying the course while working together to accomplish more.

ADA's first Listen and Learn Teleseminar titled, "Advanced Renal Patient Management", by Pamela S. Kent MS, RD, CSR and Carolyn Cochran MS, RD, CDE was held on February 12, 2004. Thanks to both presenters for an informative session. Do congratulate our newly elected voting board members RPG Chair-elect Cathi J. Martin RD, CSR, LDN and Secretary Cathy M Goeddeke-Merickel MS, RD, LD. Please thank Mary Ann Thornton, RD for successively completing her two-year role as RPG Secretary and thank Caroline Chinn, MS, RD for continuing in her role as our treasured Treasurer. Thanks to the efforts of Web mistress Goeddeke-Merickel, the RPG website has been redesigned (www.rpgdpg.org.) Due to the dedication and support of many members, RPG and CRN continue to flourish.

Continued on page 18

Kidney Friendly Food Facts

continued from page 13

Molded Fruit Salad

1 3-oz package fruit-flavored gelatin
1 1/2 c drained diced mixed fruit
1/2 c Marshmallow Fluff
2 c hot water

Dissolve gelatin in hot water; stir in Fluff. Mix thoroughly, then chill until thickened and mounds when dropped from a spoon. Fold in fruit and turn into individual molds or custard cups. Chill until firm. Makes 6 servings.

Fluffy Strawberry Sorbet

1 16-oz bag unsweetened frozen strawberries, partially thawed
1 tsp lemon juice
1/2 c water
1 - 7 1/2 oz jar Marshmallow Fluff

In a blender of food processor, combine strawberries, water, and lemon juice until berries are fairly smooth but some chunks of fruit remain. Whirl in Fluff until blended. Pour into an ice cream maker and freeze as manufacturer directs. Or, pour into a shallow bowl and freeze 3 to 4 hours or until slushy. Beat with electric mixer or in food processor to break up ice crystal. Return to freezer and freeze until firm. Makes 1 1/2 cups.

Item	Amount	Wt g	Kcals	Prot g	Carb g	Ca mg	Phosmg	K mg	Na mg
Marshmallows - regular	1 each	7.20	23	0.1	6	0.2	0.6	0.4	6
Marshmallows - regular or miniature	1 oz	28.35	90	0.5	23	0.9	2.3	1.4	23
Miniature Marshmallows	1 TBSP	3.13	10	0.1	2.5	0.1	0.3	0.2	3
Miniature Marshmallows	1 each	0.70	2	0	0.6	0	0.1	0	1
Marshmallow Creme Topping	0.5 oz	14.18	46	0.1	11	0.4	1.1	0.7	11

Nutrient data for marshmallows is from ESHA Food Processor version 8.2. Fat content is negligible. Data is rounded off.

Here is a helpful hint from Jennifer Glickman, RD. She can't remember where she read it, so she didn't claim originality. "Try eating cereal or soup with a fork. Pick out the solid pieces and leave the majority of the fluid in the bowl. This will lower fluid intake as well as phosphorus and/or potassium". Please send other hints to me for mention in future columns.

CRN Chair Message

By Susan M. Reams, RD, CSR, LD
Susan is Chair of the Council on Renal Nutrition of NKF and a renal dietitian at Mercy Medical Center in Des Moines, IA. She can be reached at sreamswdm@prodigy.net.

Searching for Authors!

May I have your attention, please! The CRN Executive Committee is proud to announce the development of a "CRN Author's Bureau." We are looking for interested CRN or RPG members who would be willing to join a list of many individuals who have either authored manuscripts in the past and would be willing to write future articles for the Journal of Renal Nutrition (JREN), or members who want to learn how to author articles in Renalink and / or the Renal Nutrition Forum.

How many of you have had that burning desire to write up a case study, a quality improvement project, or even submit a patient education handout for publication, but you were uncertain as to the "How To's" and "How do I get started?" In reality, I have just described myself back in 1991 when I had this very intriguing Crohn's disease hemodialysis patient, which I followed for two years while he was receiving IDPN therapy during hemodialysis. I had collected all of my data, but it just sat in a folder on top of my desk until I was able to connect with one of my mentors, Dr. Judy Beto, the founding editor of the Journal of Renal Nutrition.

I credit her for guiding me on my successful pathway to publishing my very first case study in the JREN. The article, which I am referring to can be located in the JREN 5:3, 138-143, 1995. My desire, at the time, was to share my positive, but challenging patient experience with the JREN readers. Dr. Beto literally "showed me the way" and advised me on how to formulate my case study, thus putting it into a manuscript form for submission to the JREN. Since that time, I have successfully published numerous articles and education pieces. I feel my efforts have paid off with my writing endeavors inclusive of my JREN, Renalink and RPG Forum CRN-Chair messages, which I do on a quarterly basis. Seeing your name in print gives you a personal "high" and is the best rise in your endorphin levels that you will ever experience as a professional.

The idea for establishing a CRN Author's Writing Bureau blossomed at the Fall 2003 NKF-Volunteer Summit Meeting, during our CRN Executive Committee Meeting in Baltimore, MD. Since that time, our efforts were to "seed" and "nurture" this idea into a workable committee, which will benefit our CRN and RPG members plus the readers of our various publications. We decided to formulate a committee that would oversee three avenues for publishing articles, manuscripts and / or patient education handouts for the JREN, Renalink and RPG-Forum. These are:

1) To gather a volunteer list of established authors who would be willing to submit manuscripts, etc. for a future publication in the Renalink, JREN or possibly the RPG Forum Newsletter.

2) To establish a list of previously published authors who would be willing to mentor a CRN or RPG member that is seeking out guidance and direction for developing plans and writing a manuscript or education piece for a journal or newsletter submission.

3) To assemble a list of individuals who are seeking advice and guidance on manuscript authorship and having the desire to share their clinical and research experience with others and would be willing to be connected with a mentor.

If you've had that inkling to "get started" and you're not sure as to how to do it, or if you're an individual that enjoys the teaching side of renal nutrition and have been published, then I would encourage you to get involved with this committee as a potential author, volunteer contributing author, or mentor. I would have never been successfully published if it hadn't been for Dr. Beto or others whom I have been associated with during my 18 years as a renal dietitian.

I encourage you to share your wealth of knowledge with our CRN and RPG members and to move closer to the front of the bus, instead of riding in the rear seat. I promise you will not regret it.

For further information about this committee or if you're interested in adding your name to one of the lists of established or pending authors, please contact the CRN- Region II Representative (Professional Education Chair), Rita Solomon-Dimmitt, RD, LDN, CSR.
Her contact information is:

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With my ongoing best!

Correction:

In the Spring Issue, the title of Philippa Norton Feiertag's **Advances in Practice** article should have been titled: *Functional Foods and the Patient with Chronic Kidney Disease*

Rehab Corner

Exercise for the Chronic Kidney Disease Patient?

Guest columnist for this month is Sheila Gaffney, PTMS. *Sheila is a physical therapist at Vanderbilt University Medical Center and can be reached at Sheila.gaffney@vanderbilt.edu or 615-343-1161.*

Is physical activity okay for CKD patients?
In the past it was thought that CKD patients were too sick to participate in exercise but lately it has been shown that CKD patients who participate in regular exercise programs have more strength, energy and decreased number of days in the hospital.

How does exercise benefit CKD patients?
Exercise can help improve blood pressure, increase muscle strength, lower cholesterol and triglycerides, provide better weight management and improve one's sense of well-being.

What type of exercise can CKD patients do?
Most CKD patients can participate in any exercise they prefer. Some caution should be given to people with catheters with water exercises, and all patients should check with their MDs prior to starting an exercise program. Exercise can be performed during or off dialysis. Team sports or individual sports are encouraged to help prevent burnout and improve socialization.

Are there contraindications to exercise with the CKD patient?
Contraindications to exercise are shortness of breath, angina, fever, leg cramps, dizziness and missed dialysis treatments.

When is the best time to exercise during dialysis?
The first two hours on dialysis are the best times for exercise as the patients tolerate the seated position best during this time, which allows for riding the bicycle and doing seated leg exercises. If the patient cannot tolerate the seated position at all, they can still exercise their arms and legs in the recumbent position and gain benefits.

How can we start an exercise program on our dialysis unit?
It is best to have a person designated as the coordinator of the exercise program who will coordinate with the physicians, nurses, PCTs and the patients. Consultations with physical therapists or exercise physiologists can assist with setting up actual exercise programs. The Life Options Rehabilitation Program has links to exercise programs and videos for exercise www.lifeoptions.org. (Accessed May 17, 2004.)

What are the basic components of an exercise program?
A thorough exercise program should consist of three components: stretching, strength/weight training and cardiovascular/ aerobic training. Stretching will improve flexibility and balance, strength training will improve muscle tone, and aerobic training will improve cardiovascular health. Strength training can be accomplished through the use of therabands and arm and leg weights, and aerobic conditioning can be done with walking or cycling. Bicycles used during dialysis can be purchased for around $500.

How do I get my patients interested?
Try to identify motivated patients who will be, in your opinion, leaders and then have them help spread the word to their peers. When people see their neighbors getting recognition for their activities, it becomes a contagious process! Educating your staff on the benefits of exercise for themselves and the patients will help to motivate participation. Setting up staff incentives and patient rewards for improvements will also promote participation.

Need further information?
Please call or email:
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615-343-1161
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CERTIFICATE OF COMPLETION

Advances in the Treatment of Hyperphosphatemia: The Role of Lanthanum Carbonate
Title of Program

Date of Completion

Renal Nutrition Forum
Commission on Dietetic Registration CPE Accredited Provider

AM 003
CPE Provider Accreditation Number

CPE Accredited Provider

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Sarah Carter, RD CDE, Editor, *Renal Nutrition Forum* **6/1/04 to 5/31/05**
Signature of CDR CPE Accredited Provider Date Valid

Answers:

1. B
2. A
3. D
4. B
5. B
6. C
7. A
8. A
9. D
10. D

continued from page 5

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RPG Chair Message

continued from page 15

Mark your calendars, Sunday 10/3/2004 from 1:30 to 3:00 p.m., to attend "Intensive Care to Outpatient Care: Survival Skills for Renal Practice" in Anaheim, CA. This priority session will be presented by Laura Byham-Gray PhD, RD and Karen Wiesen MS, RD, co-editors of the newly released Clinical Guide to Nutrition Care in Chronic Kidney Disease, 3rd Edition. The website www.eatright.org/Public/ConferencesAndEvents/index_18095.cfm (accessed June 22 '04) has information about 2004 ADA Food and Nutrition Conference Expo.

The future is what you make it. Your help is needed to create our preferred future.

2004 –2005 RPG Executive Committee

RPG Mission: The RPG is the advocate of the nutrition profession serving the public through the promotion of optimal renal nutrition, health and well-being.
RPG Vision: RPG members will be leaders in providing scientifically sound renal nutrition care and education for patients, the profession and the public.

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Lost in the Mail? If you are aware of any RPG members who have not received their copy of the Renal Nutrition Forum, please tell them to contact the Membership Chair. Please provide their name, mailing address, ADA membership number, and issue(s) missing.

We want all members to receive this publication.

Where are You? If you have moved recently, or had a name change, please send changes to ADA using the change of address card in the Journal to avoid delayed issues of your Renal Nutrition Forum.

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