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The Effects of Aging on the Oral Cavity and Considerations for Nutrition Care

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This issue of the Forum has been approved for 3.0 CPEU units. The online CPEU quiz can be accessed in the Members only section of the RPG website by clicking on the "E-Learning" tab, then click on "CPEUs" at the top of the page for the quiz link. This CPE offering is available to current RPG members only and the expiration date is October 15, 2019.

Key Words: Aging, Oral Cavity, Oral Health

Renal dietitians counsel an ever increasing population of new clients. The National Institute of Health reports chronic kidney disease (CKD) is growing most rapidly in people age 65 and older and statistics show 10,000 people join that age group daily (1,2). This is a growing sector of the dialysis population and it is critical to understand its nutrition needs. The registered dietitian must appreciate the potential physiologic changes of aging and the possible effect on nutrition management.

A standard of practice for renal dietitians is evaluation of oral function and the basic diseases that affect oral health. A recent survey by the Academy of Nutrition and Dietetics Renal Practice Group showed varying levels of knowledge on this topic and the application of the knowledge to direct patient care (3). Identifying issues with oral health can help improve patient care and the counseling given.

The mouth is the gateway for food and nutrition. Its health and function are impacted by many factors. The structures in the mouth of concern for nutrition are the teeth and gums, the salivary glands, jaw bones, the transmandibular joint, and the tongue.

Changes to any of these parts can have effects on digestion, the utilization of nutrients and the enjoyment of food.

Teeth are unable to regenerate or repair, plus there is a flattening of the chewing surface with aging. Without proper chewing, digestion of food is impaired because the surface area of food that is exposed to digestive juices is reduced; this can result in reduced nutrient utilization. After 70 years of tooth life, the tooth’s blood vessels become less active, the pulp loses vitality and the tooth dies. Teeth become more brittle and less sensitive to pain and heat. This may be a reason people do not report problems with chewing when interviewed even though loose teeth are noticeable. Blackened teeth may be visible, but dental caries may not be detected until they are at an advanced stage for the same reason. The American Dental Association reports an increase in caries in this age group (4).

New cavities occur most frequently around old fillings and newly exposed parts of the teeth or roots due to receding gums (5). Aging causes increased risk for receding gums with more of the tooth being exposed, thereby causing susceptibility to decay. The degree gums recede is related to heredity, age, inflammation from disease, and oral care. There is an increase in gingivitis, or inflammation of the gums. Proper oral care is essential in the prevention of gingivitis and periodontal disease. Left untreated, gingivitis can result in tooth loss,

– Continued on page 3.
Dear RPG members,
Welcome to the fall issue of the Forum! The last days of summer are always bittersweet, but there is something quite enlivening about the start of a new season. For those of you who were able to attend FNCE, I hope you had a gratifying experience. If you attended a session that you feel would benefit your fellow RPG members, we would love to hear about it! Please consider sharing your FNCE experience— we are always open to new content.

I am excited to offer readers a dynamic fall issue worth 3.0 CPEUs. From oral health to the microbiome to ethics to technology and apps, this issue is truly packed with a wide range of topics. In our featured article, “The Effects of Aging on the Oral Cavity and Considerations for Nutrition Care”, Mary Ellen Brabec, MHS, RD, LDN brings to light changes to the gut microbiome to ethics to technology and apps, this issue is truly packed with a wide range of topics. In our featured article, “The Effects of Aging on the Oral Cavity and Considerations for Nutrition Care”, Mary Ellen Brabec, MHS, RD, LDN brings to light how the intestinal flora have been identified in the CKD population: oral health. Changes in a person’s oral status can ultimately affect his/her nutrition status; the taste of food and utilization of nutrients are two ways nutrition status may be influenced.

In our first of two Advances in Practice articles, “Managing Your Patient with Parkinson’s and Chronic Kidney Disease”, Joan Hogan, RD, CSR, CD, CLT discusses the role of Parkinson’s disease amongst CKD patients and how to properly address it as health care providers. Our second Advances article, by Hannah Sobol, RDN, CSR, discusses one of my personal favorite hot topics: “Chronic Kidney Disease and the Gut Microbiota”. Because specific changes to the intestinal flora have been identified in the CKD population, dietitians should be prepared to address gut changes with proven therapies to optimize the nutritional health of renal patients.

Dietitians can face tough ethical decisions daily when working with patients. In “Ethical Issues in Renal Nutrition Practice” Joy Lutz-Mizar, MS, RD, CNIS looks at the specific role of renal dietitians in ethical matters in the renal setting. Next we bring you our Social Media feature “Apps and Behavior Change: An Exploration of the Role of Mobile Apps” where the role of technology and apps in health care is discussed specifically.

Role of Mobile Apps” where the role of technology and apps in health care is discussed, specifically in supporting behavior change. As a special treat, don’t miss our RPG Anniversary special on page 24—learn about the history of the Renal Practice Group and check out a historical recipe published in 1948!

I am grateful to the RNF team for all its support and hard work on this issue. Thank you so much to our managing editor Stacey Phillips, MS, RD, for your support and leadership. To my fellow editors, Julie Colvin, MBA, RD, CDN, Desiree de Waal, MS, RD, CD, FAND and Hannah Sobol, RDN, CSR— a huge thanks for your time and hard work! As always thank you to our test question writer, Amy Hess-Fish, MS, RD, LDN, BS-ADM, CDE and our wonderful peer reviewers— we appreciate you!

It’s a privilege to be part of the Renal Nutrition Forum team. Please don’t hesitate to reach out with questions, concerns, or suggestions on how we can continue to improve. If there is a topic you are passionate about, please share it with us. Have a great fall!
periodontal disease and further inflammation. Periodontal disease has been shown to make diabetes control more difficult (6). A significant difference in albumin level and malnutrition (by SGA) was found in patients with severe periodontal disease. Smoking and length of time on dialysis were the strongest factors for development of periodontal disease (7). Adequate patient education plays a major role in reducing these problems.

Reduced Saliva (Xerostomia)
Reduced salivary flow is also a factor that contributes to dental caries and gingivitis. The salivary glands are not often discussed but they are important for proper digestion, oral health and enjoyment of food. Reduced saliva contributes to xerostomia or dry mouth. Xerostomia is common in the elderly due to dehydration (not a factor for most dialysis patients), mouth breathing, and systemic disease such as depression or diabetes (neuropathy related). It is a side effect of more than 500 medications including several for blood pressure, allergies, asthma, anxiety, pain, Parkinson’s and Alzheimer’s diseases (4). Treatment depends on the cause, but if a medication can be changed it should be discussed by the patient and physician. Table 1 includes other suggestions for managing xerostomia (4).

<table>
<thead>
<tr>
<th>Table 1: Suggestions for Xerostomia</th>
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<tbody>
<tr>
<td>Moisten foods with small amounts of unsalted gravy</td>
</tr>
<tr>
<td>Moisten mouth with sprays or artificial saliva with fluoride</td>
</tr>
<tr>
<td>Avoid mouthwash with alcohol</td>
</tr>
<tr>
<td>Minimize alcohol, tobacco and caffeine use</td>
</tr>
<tr>
<td>Avoid salty, dry or acidic foods</td>
</tr>
<tr>
<td>Chew sugar free gum or hard candy</td>
</tr>
<tr>
<td>Schedule regular dental exams</td>
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Xerostomia contributes to dental caries and tooth damage because saliva is important in the prevention of plaque formation. Plaque is a biofilm that forms on teeth. It is 80-90% water and the remaining portion (dry weight) is 70% bacteria and 30% polysaccharides (8). Plaque formation is the first step in the process of dental caries and gingivitis which has been shown to accumulate more rapidly in the elderly (5). The bacteria in the plaque uses carbohydrate for food producing acids. The acid breaks down the tooth surface and decay can result. Proper salivary flow reduces the concentration of acid, and saliva contributes proteins with antibiotic properties. The form, quantity, frequency, and timing of fermentable carbohydrate foods affect the acid forming activity of the food. Food intake and patterns of eating need to be modified to achieve cavity control. Proper snack and meal planning are important for good oral health with consideration of the food characteristics.

Bone Changes
Changes to the bones and joints are a concern in aging (5). Arthritis may affect the transmandibular joint (TMJ) and people who are edentulous and eat without their dentures may alter the alignment of this joint (5). Either of these problems may result in pain while chewing. Clients need to seek help with the symptoms if due to arthritis. Denture use should be encouraged if this is the source of trouble.

The alveolar bone, the bone of the jaws (mandible and maxilla), is one of the first bones to be affected by loss of bone mass (5). Changes to the bone can be seen on X-ray and there is a high correlation between alveolar loss and skeletal osteopenia. The changes to bone mass increase the jaw’s susceptibility to trauma, inflammation and disease. Bone resorption contributes to tooth loss and ill fitting dentures. The tooth sockets are affected and the teeth become loose. The bone ridge becomes sharp and the pressure of the dentures on the gums may be painful or result in ill fitting dentures. Either case may alter eating and result in compromised nutrition (5). These changes may not be reversible but it is essential the health team is aware of problems since they may be linked to poor nutrition and inflammation. The need for dentures due to any of these structural changes presents a serious nutrition challenge.

Dentures
Many clients over the age of 65 wear some type of denture. The need for dentures can result from a combination of gum disease, cavities/tooth loss and bone changes. Dentures return only 15-25% of the chewing ability of natural teeth (5).

Dentures improve appearance and speech but clients need to modify eating with them. They need to be encouraged to cut food, especially protein foods, into smaller pieces and chew longer.

Denture wearers tend to avoid raw fruits and vegetables, and guidance is needed on these choices to maintain balanced intake. Clients need guidance on proper oral hygiene with dentures to avoid infections or inflammation from bacteria. Xerostomia is also a factor in denture care since controlling saliva has a role in controlling bacterial growth under dentures. Dentures that fit too tightly prevent saliva from rinsing the palate and bacteria will grow under the plate. Candida growth can be asymptomatic but still create inflammation. Loose fitting dentures allow food to be caught under them and bacteria to grow. This can cause a “bad taste/smell” in the mouth that can alter taste perception and appetite. Clients with partial dentures should be counseled to pay special attention to the point of abutment, where dentures attach to natural teeth. Food can collect at this location and cause decay at the point of attachment. People who take dentures out overnight and clean them nightly are less prone to problems overall.
Dentures can alter retronasal olfaction (5). This is the “smell” of food that is perceived once the food is in the mouth and throat and air passes over it as we exhale. This pathway can be altered with full upper dentures and the appreciation of food’s flavor may be diminished. Patients with dentures may report food does not taste as good as it did before wearing dentures. This may not be an alterable condition, but the health professional needs to identify the problem and help the client understand what is happening. Many people are unaware of the changes with dentures. The registered dietitian can help them understand and address these issues.

**Oral Muscle Tone and Performance**

With aging there is a reduction in oral muscle tone and performance (5). These changes in the muscle fibers contribute to atrophy of the muscles of mastication, resulting in decreased biting force and slower chewing. The changes in the periodontal ligament result in loss of soft tissue attachment, causing exposure of the root and loosening of the teeth in the sockets; this contributes to tooth loss and the need for dentures. Clients need to allow more time to eat since they chew more slowly and thoroughly for proper digestion. They may report getting tired of eating and stop before eating enough to meet needs. Family members need to understand these changes to encourage their loved one to be patient, and make the necessary adjustments for eating with dentures. Dry mouth can also make chewing and swallowing more difficult. Drinking allowed fluids at the meals may help with this challenge.

The tongue’s role in taste is often discussed, but it is also the main muscle for food bolus formation and propels food to the back of the throat, which is the first step in swallowing. Tongue strength is reduced with aging and thus the oral phase of swallowing may be slower but not dysfunctional (11). With regard to taste, there are varying and sometimes conflicting reports on changes with aging; it is most likely that the number of taste buds does not change but sensitivity may be altered (12). The tongue’s role in taste and the overall changes in the chemosenses are important to appreciate so optimal patient care and education can be provided.

**Chemoses**

The experience of “flavor” is really a combination of the action of the chemoses (11). The chemoses are smell (olfaction), taste and oral somatosensation (mouth feel). When food is chewed, chemicals are released and carried by various pathways to receptors and “flavor” is experienced. All the senses work together and any alteration in any of the pathways can result in altered, bad or no flavor from foods or beverages. Total flavor release occurs when the tongue, jaws, cheeks and throat all work together to move food around to increase the temperature and trigger the release of chemicals for flavor. It is important to understand the three components of flavor.

Nasal olfaction triggers an interest in food. It is the smell of dinner that brings people to the table. A person with a laryngectomy does not have nasal olfaction and people who suffer from chronic rhinositis or have sinus problems may also have altered nasal olfaction. These are problems that can be uncovered on an initial nutrition assessment when clients report a loss of appetite. The second type of olfaction is retronasal, the “smell” that results as exhaled air passes over the food in the mouth and throat. Infections, decaying food or full dentures can affect this olfaction. Olfaction declines with age and there are significant changes with Alzheimer’s and Parkinson’s Disease (12). Olfaction is carried by one cranial nerve that passes through the ear and up to the brain. Any head injury can result in damage to this nerve and thus to olfaction. A patient who experiences head trauma may not expect an altered sense of smell/flavor to occur; reduced appetite and poor nutrition may result. These changes may not be reversible but helping a client understand what is happening can be a major help to their coping.

Taste is the second component of “flavor” (12). Although taste sensitivity may decline with age, the reserve is so large there is not a measurable decline overall. Taste is carried by three cranial nerves and is less susceptible to total loss but it can be affected by disorders such as stroke and systemic diseases, e.g. renal and liver failure. Medications, diabetes due to neurological changes and menopause, due to hormone changes may also have a role in altered taste. A complete list of medications affecting taste cannot be listed but common drugs are antibiotics, asthma inhalers, and chemotherapy. Pharmacists are a valuable resource when evaluating a patient’s medications for possible drug effects on taste and appetite. In-depth interviews of clients, with questions as to the type of flavors they prefer, e.g. savory, sweet, spicy, will help the dietitian give seasoning suggestions to help overcome problems, e.g. cinnamon to cook meats for the person who likes cinnamon cereal. Providing suggestions for connecting with umami flavor as a way of moving away from salt may also help with other taste changes clients experience (13).

The last component and perhaps the least considered is somatosensation or mouth feel (12). This refers to the changes in the pressure on the tongue by food and the stimulation of the tongue by different textures of food. Fat can change the stimulation of the receptors. Creamy foods may provide a more acceptable mouth feel, e.g. low sodium gravy or cream sauces on foods may improve acceptance. “cream” soup over broth based soup. Texture changes may increase the appeal of foods such as chunky applesauce instead of regular or creamed corn to replace whole kernel corn. The pressure changes on the tongue are also involved in triggering the swallow reflex. Diminished sensation of pressure occurs with aging and is part of the slower but normal swallow of aging (11). Thorough assessment of clients and liberalized diet restrictions, when possible, are essential to addressing these changes in flavor perception.
Meal Planning

In meal planning, sensory-specific satiety should be considered. Sensory-specific satiety happens when a food is eaten to satiety losing its appeal to the eater (14). This is seen with clients who eat one food to the exclusion of all others and suddenly lose all interest in that food. People who have less variety in meals become satiated sooner, stop eating and are more prone to weight loss and protein depletion. To avoid this it is important to encourage variety to improve intake.

Practitioners should consider these points when planning meals and snacks:
1. Meat, chicken, fish, eggs, cheese (limited in amount) do not contain carbohydrate and can be used for snacks as well as meals.
2. Protein bars may stick to the surface of teeth, protein drinks do not; fluid must be controlled and both factors must be balanced and patient preferences considered.
3. The form and amount of carbohydrate in a product is an important factor; sugar alcohols, e.g. sorbitol, xylitol, do not result in acid production that starches and sugars yield (9).
4. The elderly may favor softer foods which stick more to teeth surfaces and hence they should not be used as snacks. Fluid allowances should be used at meals to help rinse the teeth.

Education is an important component of oral care and the registered dietitian can give guidance to patients. Table 2 contains food tips to share with patients for reducing cavities (9). Patients need guidance on the importance of daily brushing and flossing as well as regular dental checkups. Many of our patients do not have access to dental care and utilizing the social worker for possible resources is essential.

Table 2: Tips for Reducing Cavities

<table>
<thead>
<tr>
<th>Drink water, within your fluid allowance, with meals.</th>
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<tbody>
<tr>
<td>Consume citrus fruits (esp. limes, lemons, grapefruit) with meals, not alone.</td>
</tr>
<tr>
<td>Use allowed fruits and vegetables to end a meal, fiber cleans the teeth.</td>
</tr>
<tr>
<td>Chew sugar free gum or hard candy, especially after meals and snacks, to reduce acid on teeth and help keep mouth moist.</td>
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</table>

The effects aging has on the oral cavity vary with each structure. Changes in the mouth can alter a person’s ability to enjoy food, utilize nutrients, and maintain optimal health. The changes are best managed when the client is thoroughly assessed and a plan that addresses the altered function is developed. All health professionals involved in the client’s care should participate for maximum impact. The elderly dialysis population is increasing and the registered dietitian has a key role in its care.
Managing Your Patient with Parkinson’s and Chronic Kidney Disease

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Key Words: CKD and Parkinson’s Disease, Nutrition Assessment, Neurological Disorders and CKD

Abstract
Comorbid conditions are not uncommon in chronic kidney disease (CKD) patients. We are all too familiar with diabetes, heart disease, and cancer in our kidney disease patients, but Parkinson’s disease may not be a condition we face as often (1). When challenged with a patient coping with CKD, further complicated with this neurological disorder, awareness of the disease itself and the impact diet has in the management of the condition can be extremely important.

What is Parkinson’s Disease?
Parkinson’s disease was first explained by Doctor James Parkinson in 1817 (2). It was described as a central nervous system disorder, involving a part of the brain called the basal ganglia and more specifically a loss of nerve cells in a part of the brainstem called the substantia nigra. The substantia nigra, in particular, makes a neurochemical called dopamine, which not only controls movement but many other aspects of daily living (3). Typical symptoms that occur with a reduction in these dopamine producing cells are slowness of movement, tremor during relative rest and difficulties with balance. Other disruptive symptoms such as constipation, fatigue, apathy, a reduced sense of smell, low blood pressure, sleep disturbances and depression can also occur (4).

It is estimated that over one million people in the United States have Parkinson’s disease. Most of these people are in the 6th and 7th decade of life (5). By the time a person is diagnosed with Parkinson’s disease, it has been estimated that 30% of dopamine containing neurons cells have been lost and 60% of the cells have lost dopamine content (6).

Nutritional requirements for CKD need to be balanced with medication for Parkinson’s disease management. Presence of the Parkinson’s symptoms of constipation, drooling and swallowing difficulty also require nutrition intervention.

Medication and Diet
Several medications are used to manage Parkinson’s disease. The particular medications your patient is prescribed will depend on the degree of impairment they are experiencing. Knowing these medications and their diet implications, with Parkinson’s disease and CKD, can help your patients improve the management of these symptoms. Early dietary intervention can also help identify and prevent malnutrition in these patients. As outlined in Table 1, the Academy of Nutrition and Dietetics Nutrition Care Manual identifies several areas that should be considered during the nutritional assessment of these patients.

Table 1: Nutrition Recommendations with Parkinson's Disease

<table>
<thead>
<tr>
<th>Recommendation</th>
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<tr>
<td>Adjust nutrition goals to maintain a healthy weight</td>
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<tr>
<td>Encourage oral intake with maximizing seasoning of meals</td>
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<tr>
<td>Modify consistency for safe swallowing</td>
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<tr>
<td>Offer supplement or thickener recommendations as needed</td>
</tr>
<tr>
<td>Educate patient and caregiver on nutrition goals</td>
</tr>
<tr>
<td>Identify need of alternative nutrition</td>
</tr>
<tr>
<td>Involve intradisciplinary team with care of patient</td>
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Adapted from the Nutrition Care Manual (7)

Parkinson’s Disease Common Medications

Carbidopa-levodopa (Sinemet, Rytari)
Levodopa was discovered in the late 1960’s as the first treatment for Parkinson’s disease. Levodopa is an amino acid precursor to dopamine, the neurochemical that can no longer be produced adequately in Parkinson’s disease (8). It is the loss of this neurochemical that contributes to the many undesirable symptoms of Parkinson’s disease. Since levodopa requires crossing into the brain, it is given with a medication called carbidopa, which helps with this transport process. Thus the medication is called carbidopa-levodopa, better known as Sinemet or Rytari (9).

Carbidopa-levodopa is taken three to four times per day and works most effectively if taken 60 minutes before meals. However, this medication can cause digestive upset when taken on an empty stomach. If this occurs, the patient can take the medication with a small snack which is low protein, low fat, and dairy free to optimize absorption and lessen nausea. Foods like toast, crackers or applesauce are good choices for CKD and Parkinson’s disease patients. Protein should be eaten at least 60 minutes separate from carbidopa-levodopa, as amino acids in protein will compete with the levodopa for absorption, causing less levodopa arrival in the brain. A lower absorption may contribute to a more rapid wearing off effect, causing the patient to feel tired, increased stiffness, or an inability to move around during peak hours of the day (10-12). If your patient is on dialysis and requires a high protein diet, you can advise your patient to divide their protein needs evenly during the day. This will minimize the impact of protein load at any given meal, while allowing them to meet their protein needs (13). If your patient is at a long-term care facility, good communication with the dietitian and kitchen staff about this specific meal planning is encouraged.
Rasagiline (Azilect)

This medication is often a first line treatment for Parkinson’s disease as there is evidence that it may potentially forestall disease progression. Rasagiline helps decrease the breakdown of dopamine in the brain by selectively blocking a component of the enzyme monoamine oxidase known as MAO-B. This results in more dopamine availability, to stimulate dopamine receptors (14).

Rasagiline can help with some Parkinson’s disease symptoms if used early enough after disease onset. It can also be used throughout the course of the disease, as it decreases the symptoms of wearing off from other medications such as carbidopa-levodopa or dopamine agonists. There had been previous concern that Rasagiline use could dangerously increase the levels of tyramine, which can occur with other non-selected MAO inhibitor medications. It has now been recognized that there is minimal danger of that occurring with normal oral intake (15).

Dopamine Agonists

Ropinerole (Requip), Pramapexole (Mirapex) and Rotigotine (Neupro patch)

These medications directly stimulate the dopamine receptors in the brain, rather than increasing dopamine in the brain. Dopamine agonists can be used early in the course of Parkinson’s disease to provide relief of symptoms and delay the use of carbidopa-levodopa. They can also be prescribed later to enhance the control of the symptoms not managed by carbidopa-levodopa. An advantage of these medications is that there are no dietary restrictions or interference from protein intake in the diet, which is beneficial for CKD patients (16).

Carbidopa/levodopa/entacapone (Stalevo)

Entacapone is a medication that further helps to prevent levodopa from being metabolized in the blood stream before it reaches the brain. This allows a greater amount of levodopa to get to the brain and extend its duration of benefit. It is used when the benefits of levodopa-carbidopa are desired to last longer. A small percentage of individuals taking entacapone may develop severe diarrhea up to a month after starting this medication. If the diarrhea is mild, the patient can try to eliminate high fiber foods. Discussing this symptom with a dietitian can help with meal suggestions and to prevent unhealthy weight loss from malabsorption. However, if the diarrhea becomes more severe, the patient should contact his or her provider, since the medication will almost always have to be stopped (17).

Symptom Management

Constipation

Constipation may be one of the earliest symptoms of Parkinson’s disease. It is never too early to initiate a high fiber diet to help ward off this problem. The Dietary Reference Intake (DRI) for adults over the age of 50 is 21 to 30 grams (18). Parkinson’s disease experts recommend as much as 40 grams of fiber per day to alleviate this problem (19). Consuming this much fiber can be challenging with a renal diet, and may require non-nutritional support such as Miralax, stool softeners or suppositories.

Drooling and Swallowing Problems

Drooling or thick saliva, also known as sialorrhea, is a significant problem for patients with Parkinson’s disease. This can lead to a great deal of embarrassment and result in avoidance of eating, creating more of a concern about a patient’s overall compromised nutritional status (20,21). These problems can be reduced by suggesting some of the following (22,23):

- Keep food moist and soft to help with swallowing
- Limit dry crumbly food, which may add to swallowing difficulty
- For drooling the patient can try a meat tenderizer made from papaya root. (As a rinse, patients can use a ½ tsp unseasoned tenderizer mixed with a half cup water. It is important that they do not swallow this.)

If dysphagia or aspiration become a concern for the CKD patient with Parkinson’s disease, a speech therapy evaluation should be recommended.

Orthostatic Hypotension

Low blood pressure, also known as orthostatic hypotension, can be a troublesome complication of Parkinson’s disease. This may present as symptoms of dizziness, fainting and low mental processing (24). Although most diet treatments may be restricted in patients with CKD due to the typical suggestions of increasing daily sodium intake to three to five grams and following a high potassium diet, monitoring your patient’s hydration status can be important as well as ensuring adequate oral intake (25). If the patient is on dialysis, encourage your patient to avoid eating on dialysis, which may add to a hypotensive episode. Also, monitor your patient’s interdialytic weight gains (26).

Supplementation

It is estimated that two-thirds of Parkinson’s patients will seek alternative supplements of some kind (27). These are not only a concern for management of the Parkinson’s disease, but also a concern for patients with CKD. Being open and supportive to allow your patients to discuss these supplements will be important. The most studied nutrient for Parkinson’s treatment is coenzyme Q10. Several studies have shown the potential of this nutrient in delaying progression of the disease. However, in the most recent phase of a 600 patient study coenzyme Q10 showed no benefit over a placebo supplement (28). Other supplements that have shown promise are vitamin D, vitamin B-12, and omega-3 fatty acids, particularly DHA and N-acetyl Cysteine (29,30). Suggested doses are 4000 IU for vitamin D, N-Acetyl Cysteine dosage is 600-1200 mg, which has been found to increase glutathione in the brain (31). Recommended...
dosing for vitamin B-12 is not well established, and levels should be checked annually to rule out a deficiency. Low levels of B-12 can mimic symptoms of Parkinson’s disease (32). Studies suggest a role of omega 3, in particular DHA, in Parkinson’s disease but recommendations for supplementation have not been well established (33).

Conclusion

Parkinson’s disease progression can last for decades and symptoms can vary depending on the individual. It is important as health care providers to understand this disease in addition to the patient’s CKD management. As a clinician, offer support where needed to these patients with symptom management, dietary needs and potential nutritional side effects from drug management.

References

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**App Review**

**CRN Pocket Guide to Nutrition Assessment in the Patient with Kidney Disease: A Mobile App**

Melissa Prest, MS, RD, CSR, LDN

Available for: iPad/iPhone
Cost: Free

The CRN Pocket Guide app was designed as a supplement to the current printed 5th edition of the *Pocket Guide to Nutrition Assessment of the Patient with Kidney Disease*. There is a wealth of helpful information and data entry screens to assist the busy clinician. There are six main categories the user may select: Basic Patient Information (anthropometric data entry for a single patient), Nutrition Assessment (reference ranges, definitions, and how to guides), Subjective Global Assessment (use to perform/calculate overall score), Nutrient Prescription (meal plans, macro/micro nutrient information), Comorbidities (classification, definitions, and management), and More (provides information about the app and commonly used abbreviations). I was really excited about the ability to estimate actual macronutrient and micronutrient intake by selecting how many servings of foods are eaten from each of the food groups. You can also get a basic or customized meal plan for the patient. I also found the various anthropometric calculators helpful, in addition to the common physical signs of malnutrition. The app includes commonly used medication and micronutrient supplement information which takes the place of using a separate pharmaceutical app. Reference ranges are included for all laboratory values. Overall, the app is a great companion to the pocket guide and should be helpful with patient assessment, monitoring and evaluation.
Chronic Kidney Disease and the Gut Microbiota

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Key Words: Dysbiotic Gut and CKD, Gut Microbiota, Bacteria

Introduction
Microbiome, probiotics and the depth of consequences of an unbalanced, or dysbiotic gut, are all hot topics in recent health literature and research. Now, relating the gut microbiota to chronic kidney disease (CKD) is emerging. The term gut microbiota refers to a complex group of greater than one trillion microbial cells that inhabit the human gut (1). This is ten times more than the number of human cells. To further understand its depth, the genome of the gut microbiota is 150 times larger than the human genome. The gut microbiome is a metabolic powerhouse and is thought to be equal to the liver in this regard (2).

Understanding the extensiveness of the gut microbiota’s role in CKD will become vital for renal Registered Dietitian Nutritionist’s (RDN) going forward, and will hopefully prove helpful in educating those suffering from CKD.

The gut microbiota has many functions (Table 1), some of which include immune modulation and metabolism. It helps to establish the correct T-helper cell balance, while the intestinal epithelium provides a barrier to prevent translocation of pathogenic bacteria, and manages nutrient absorption. Other tasks of the microbiome include breaking down plant polysaccharides and oxalates, as well as vitamin production and involvement in the formation of bile acids. The microbiome includes many bacteria working together to maintain intestinal homeostasis (1). The two most prevalent bacteria families that colonize the gut are Bacteroidetes and Firmicutes, although there are more than 50 phylas that inhabit the gut. Bacteroidetes are gram negative, proteolytic bacteria, and Firmicutes are mostly gram positive bacteria. When these bacteria are not in the correct amounts in the gut, dysbiosis occurs. M. R. Wing, in his article Gut Microbiome in Chronic Kidney disease, defines dysbiosis as “A state in which intestinal flora have qualitative and quantitative changes in their metabolic activity and local distribution, when compared with a ‘normal’ functioning gut.” The result of a dysbiotic gut is thought to be quite widespread and affect a number of health issues in the general population including; obesity, atherosclerosis, immune dysregulation, and insulin resistance (2).

Table 1: The Role of Bacteria in the Gut

<table>
<thead>
<tr>
<th>Bacteria Name</th>
<th>Function in the Gut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bifidobacteria</td>
<td>Block harmful bacteria, assist in digestion and nutrition absorption, immune function and vitamin synthesis</td>
</tr>
<tr>
<td>Eubacteria</td>
<td></td>
</tr>
<tr>
<td>Lactobacilli</td>
<td></td>
</tr>
<tr>
<td>Bacteroides</td>
<td>Necessary, but in small amounts. For example, E. Coli can synthesize Vitamin K, however pathogenic strains of E. Coli can cause infections with diarrhea as a very common symptom. Convert carbohydrates to lactic acid</td>
</tr>
<tr>
<td>E. Coli</td>
<td></td>
</tr>
<tr>
<td>Enterococci</td>
<td></td>
</tr>
<tr>
<td>Streptococci</td>
<td></td>
</tr>
<tr>
<td>Clostridia</td>
<td>Produce toxins, cause constipation, diarrhea and infections</td>
</tr>
<tr>
<td>Proteus</td>
<td></td>
</tr>
<tr>
<td>Staphylococci</td>
<td></td>
</tr>
<tr>
<td>Pseudomonas</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Figure 1: Dysbiosis in CKD (5)

CKD
In the CKD population, specific changes to the intestinal flora have been identified. One contributing factor is constipation, which is a common problem among CKD patients. Constipation slows down intestinal transit time which allows overgrowth of some bacteria. This leads to insufficient protein digestion which results in undigested protein reaching the colon and an increase in the number of the colon’s proteolytic bacteria. With CKD, this means that uremic toxins will form as a product of protein fermentation. Since gut translocation is also impaired in CKD, these uremic toxins are entering the blood circulation. Another factor is increased gut amounts of urea and ammonia. The elevated presence of these in the gut is one way the body tries to eliminate toxins in CKD. However, the presence of increased ammonia and urea in the gut also changes the pH, which results in changes to the bacterial content. In addition to the gut trying to eliminate toxins, the dysbiotic gut can also produce toxins.

Gut Microbiome
Some of the toxins most studied, in regards to CKD and gut microbiota, include, p-cresol, indoxyl sulfate and trimethylamine N-oxide. Higher concentrations of these toxins in the blood are thought to be a factor in cardiovascular disease, as well as progression of CKD. In one study, the bacteria metabolites of end stage renal disease (ESRD) patients with an intact colon were compared to those of ESRD patients with colectomies. There were many differences in the metabolites. Of note, p-cresol sulfate and indoxyl sulfate were determined to have been produced by the colon itself, supporting the idea that not only does the dysbiotic gut leave higher amounts of toxins in the gut, it actually generates toxins as well (2).

So if these toxins are higher in the guts of patients with CKD, what affect do they have? The renal tubules are responsible for removing the toxin, indoxyl sulfate. However, as renal function declines this level rises. The presence and quantity of this compound has been shown to be a predictor of CKD progression. Side effects of high levels of indoxyl sulfate include calcification of the aorta and...
increased cardiovascular mortality. As mentioned earlier, incomplete protein digestion occurs in the gut of patients with CKD. This leads to the creation of phenol compounds, including p-cresol. As estimated glomerular filtration rate (eGFR) decreases, the amount of p-cresol increases. Higher levels have been shown to increase the risk of death in hemodialysis patients, and are in fact an independent risk factor for a cardiovascular event (2). Lastly, trimethylamine N-oxide (TMAO) is also elevated in CKD patients, and leads to greater risk for atherosclerosis, cardiovascular events and presents a 70% greater risk for all-cause mortality in patients with CKD (2).

Research

One can see why so much research has been focused on attempts to decrease the concentrations of these harmful compounds in the CKD population. This research has been focused on the use of probiotics to accomplish this goal. The outcomes are somewhat mixed, but show that reduction of these toxins is possible. However, overall changes in risk of cardiovascular disease or mortality remain to be seen. In studies, probiotics were overall successful in reduction of p-cresol and indoxyl sulfate. In one study of 42 stage CKD 3-4 patients, a reduction in blood urea levels was observed, as well as a decreased trend in uric acid and creatinine. However, a caution was given that both creatinine and urea could be broken down directly by probiotics in the gut, therefore not reflecting an improvement in kidney function (3). In a small study of 12 patients with CKD 3-4, eGFR decline was slowed with administration of a symbiotic product, including both pre and probiotics. Probiotics were also found to be helpful in relieving constipation and patients reported an improved quality of life (3).

In the Synergy study, 37 patients with CKD 4-5 (non-dialysis) were given symbiotic treatment with pre and probiotics or a placebo for six weeks. Each person met with an RDN to establish protein and fiber daily goals which were encouraged to be consistent throughout the study. The probiotics included bacterial strains from Lactobacillus, Bifidobacteria and Streptococcus. A prebiotic, or food ingredient that promotes the growth of healthy bacteria, was also administered which included three different types of fiber. The probiotics given had 90 billion colony forming units (CFU). The goals of this study were to decrease indoxyl sulfate, p-cresol levels, and TMAO and to improve quality of life (4). The results of this study showed a decrease in p-cresol levels, and not statistically significant decrease in indoxyl sulfate, but did however show positive changes to the stool microbiome. Bifidobacterium levels increased, while levels of Ruminococcus, a genus of bacteria in the Clostridia class, decreased (5).

RenadylTM, which is a probiotic, was studied in a six month randomized controlled trial including 22 patients on hemodialysis. Renadyl™ was found to be safe and well tolerated. Of note, it was dosed at two capsules three times a day with meals, and included 30 billion CFU of mixed strains of bacteria including: S. thermophilus, L. acidophilus and B. longum. Decreasing trends of toxins such as indoxyl glucuronide, and C-Reactive Protein (CRP) were noted, although were not statistically significant. Indoxyl glucuronide, a byproduct of fermentation of undigested protein in the gut, cannot be eliminated by dialysis. The reduction of this toxin is therefore due to Renadyl™. However the study concluded that pre and probiotics likely play a therapeutic role in maintaining a healthy gut and that probiotic supplementation can stabilize uremic toxins. Whether probiotics can delay progression of CKD, delay start of dialysis or decrease dialysis treatment times remains to be seen and is an area for future research (6).

A probiotic supplement referred to as Kibow® Biotics (KB) was trialed in patients with CKD 3 and 4. Kibow® Biotech manufactures Renadyl™, so it is assumed that the compound referred to as KB in the study is similar to, or the same as, Renadyl™. This study mentions the concept of ‘bowel for kidney’ which refers to using the gut to remove nitrogenous waste, when the kidney cannot. The probiotics were again dosed at two capsules, three times a day with meals and were taken for six months. The bacteria dose was 90 billion CFU per day. Endpoints analyzed were Blood urea nitrogen (BUN), creatinine, uric acid, and CRP. Fecal analysis was also completed, in addition to looking at changes in quality of life. It was found that BUN showed a statistically significant decrease, while the other serum markers did not, although there was a moderate decrease in uric acid. Quality of life was reported as improved. The study mentions sample size as a limitation, and that a larger clinical trial is underway to specifically investigate the role of probiotics in delaying the onset of CKD or improving symptoms of CKD (7).

If specific microbiota can be linked to post transplant diarrhea, then it may be possible to develop target therapies for this condition which affects 20% of kidney transplant patients (9).

In yet another study, p-cresol levels were decreased in pre-dialysis patients when given a symbiotic supplement called Probinul-Neutro®. After four weeks of administration, levels of the uremic toxin, p-cresol, were decreased in the Probinul-Neutro® group when compared to the placebo group (8). This study also looked at markers of gastrointestinal function and whether or not things such as ease and frequency of defecation were affected by the supplement. It was found that p-cresol levels decreased significantly. Positive changes in gastrointestinal (GI) symptoms were not observed. This is thought to have been because, as a symbiotic supplement, Probinul-Neutro® also contains prebiotics, which have been known to increase flatulence and GI discomfort, unlike probiotics alone which have the opposite affect and improve GI discomfort. The study concluded that further research should be done on decreasing levels of p-cresol and progression to ESRD, as high levels of p-cresol in early CKD can be predictive of progression of the disease (8).

Changes in the gut flora are not only observed in CKD, but have also been seen post kidney transplant. John Lee, et. al, using fecal analysis, found that patients who developed Enterococcus urinary tract infections (UTIs) post-transplant had higher levels of Enterococcus bacteria in their fecal samples compared to transplant patients who did not develop this type of UTI. Findings such as this led the authors to believe that alterations in the gut microbiota of transplant recipients may increase their risk of infectious
Table 2: Summary of Research

<table>
<thead>
<tr>
<th>Author</th>
<th>Year Published</th>
<th>Topic</th>
<th>Number and Type of CKD patient</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ranganathan, N.</td>
<td>2010</td>
<td>Probiotics and CKD</td>
<td>42 CKD III/IV</td>
<td>Decrease in BUN, serum uric acid and creatinine</td>
</tr>
<tr>
<td>Pavan, M.</td>
<td>2014</td>
<td>Pre and probiotics in CKD</td>
<td>12 CKD III-IV</td>
<td>Delayed decline of eGFR</td>
</tr>
<tr>
<td>Rossi, M.</td>
<td>2014</td>
<td>SYNERGY study-pre and probiotics</td>
<td>37 CKD IV/V (non-dialysis)</td>
<td>Decreased p-cresyl sulfate, favorable changes to stool microbiome</td>
</tr>
<tr>
<td>Ranganathan, N.</td>
<td>2014</td>
<td>Renadyl Trial</td>
<td>22 HD</td>
<td>Decrease (not statistically significant) in uremic toxins and CRP noted.</td>
</tr>
<tr>
<td>Ranganathan, N.</td>
<td>2009</td>
<td>Probiotic “KB” administered in CKD</td>
<td>13 CKD III/IV</td>
<td>Statistically significant reduction in BUN, moderate decrease in uric acid, improvement in reported quality of life</td>
</tr>
<tr>
<td>Guida, B.</td>
<td>2014</td>
<td>Synbiotic supplement Probinul-neutro</td>
<td>30 CKD III/IV</td>
<td>Decrease in the toxin P-cresol, no positive changes in GI symptoms noted.</td>
</tr>
<tr>
<td>Lee, J.</td>
<td>2014</td>
<td>Gut microbiota post kidney transplant</td>
<td>26 kidney transplant patients</td>
<td>Patients with Enterococcus UTIs had higher levels of Enterococcus in their fecal samples compared to patients who did not develop this type of UTI. Patients with post-transplant diarrhea had lower levels of Bacteroidetes and Bacteroidales in their samples.</td>
</tr>
</tbody>
</table>

complications. Interestingly, it was also noted in the study that kidney transplant recipients who developed post-transplant diarrhea had much lower levels of the bacteria groups, Bacteroidetes and Bacteroidales, when compared to the kidney transplant recipients who did not develop post-transplant diarrhea.

Conclusion

Although many questions remain, there is adequate research available for renal RDNs to begin considering the gut microbiota of renal patients, whether pre-dialysis, dialysis or post kidney transplant. We must remember that CKD alters the gut flora and we must stay up to date on proven available therapies. With all the discussion about the microbiome, it is a pleasant reminder to take a step back and look at the big picture when it comes to it when it comes to the nutritional health of our patients.

References

Ethical Issues in Renal Nutrition Practice

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Key Words: Ethics in Patient Care, CKD Ethics, Quality of Life

The term “ethics” refers to moral principles that govern peoples’ behavior, or rules of behavior based on ideas about what is morally good and bad (1). Ethical issues routinely arise in fields such as business, law, and health care; ethical matters likewise surface as important features in every facet of life. This review examines selected ethical matters and inferences in health care, the renal setting, and in the scope of Registered Dietitian Nutritionists (RDNs).

In the domain of health care, ethical concerns often tackle sensitive end-of-life situations. More specifically, questions may arise regarding the wisdom of providing life-saving treatments for patients whose quality of life will not benefit from such treatments.

Other health care-related ethical issues include (2):
- Balancing quality and efficiency of care
- Improving access to care
- Developing and sustaining the healthcare workforce
- Allocating limited medications and donor organs

In the realm of end stage renal disease (ESRD) and life-saving dialysis treatments, ethical matters often address (3):
- Dilemmas of informed consent
- Dealing with the difficult patient
- Patient advocacy, which may present a conflict between recognizing a patient’s autonomy and acting in the patient’s best medical interest
- Pressures of resource allocation in a dialysis facility

Over 25 years ago, the clinical practice guideline, “Shared Decision-Making in the Appropriate Initiation of and Withdrawal from Dialysis” was published to assist nephrologists, patients, and families in making decisions to initiate and withdraw dialysis (4). More recently, researchers have extensively studied dialysis decision-making and there is a substantial body of new evidence with regard to:
- The poor prognosis of certain elderly stage 4 and 5 chronic kidney disease (CKD) patients
- The frequency of cognitive impairment in dialysis patients coupled with the need to assess them occasionally for decision-making capacity
- The lack of recognition and lack of treatment of pain and other symptoms in dialysis patients

New Requirement for RDNs & DTRs
One CPEU of Continuing Professional Education in Ethics

Responding to a recommendation from the Academy Board of Directors, on May 9, 2011, the Commission on Dietetic Registration voted to require that RDNs and DTRs complete a minimum of 1 CPEU of Continuing Professional Education in Ethics (Learning Need Code 1050) during each 5-year recertification cycle in order to recertify. This requirement will be effective starting with the 5-year recertification cycle which ends on May 31, 2017, and will be phased in over a 5 year period for each recertification cycle.

Accordingly:
- Each Step 3: Learning Plan submitted for recertification cycles ending May 31, 2017 and afterwards, will be required to include a Learning Need Code 1050 – Ethics.
- Each Step 4: Activity Log submitted for recertification cycles ending May 31, 2017 and afterwards, must include at least 1 Continuing Professional Education Unit (CPEU) with a Learning Need Code 1050 – Ethics
- The underutilization of hospice in dialysis patients
- The distinctly different treatment goals of ESRD patients based on their overall condition and personal preferences

A second edition of the guideline was published to provide clinicians, patients, and families with:
- Current evidence about the benefits and burdens of dialysis for patients with varied conditions;
- Recommendations for quality in decision-making about treatment of patients with acute kidney injury, CKD, and ESRD;
- Practical strategies to help clinicians implement guideline recommendations (4)

Despite these guidelines, there continues to be instances when ESRD patients become targets of ethical discourse concerning the appropriateness of initiating or continuing dialysis (5). Such a patient is typically one with permanent and profound neurologic impairment.

As they become physicians, most medical doctors are obliged to take the Hippocratic Oath or some version of the same. One tenet of the translation of the original Hippocratic Oath reads: “With regard to healing the sick, I will devise and order for them the best diet, according to my judgment and means; and I will take care that they suffer no hurt or damage (6).”

While RDNs have no requirement to take such an oath, the lesson from medicine is clear. In addition, the Academy of Nutrition and...
An outpatient registered dietitian nutritionist (RDN) counsels clients with diet-related chronic diseases. The goal is for clients to change their dietary behaviors, manage their chronic diseases, and improve their health status. The RDN’s approach is to explain the rationale for the prescribed medical nutrition therapy and provide clients a written list of foods to include and exclude and tips for menu planning, grocery shopping, and food preparation. After several counseling sessions, one client expresses her dissatisfaction with her progress in making dietary changes. The client asks for help to develop a different plan. However, the RDN does not adjust her approach and continues to provide the same types of information. After several more appointments with the RDN, the client expresses her dissatisfaction with the counseling sessions to the director of nutrition services. What should the RDN and director do in this situation?

Questions for Discussion

Is the situation described an ethical issue? Or, is it a business dispute? This is an ethical issue. This could be a business dispute since the RDN failed to deliver a quality service that met the client’s expectations. It could also be an employee policy dispute related to failure to meet minimum standards of performance when providing counseling services.

• What principle(s) of the Code of Ethics does it relate to and how/why?

• Indicate the Category for the Code of Ethics: Responsibilities to the Profession

• Indicate the Principle(s) of the Code of Ethics:

Principle #12 - The dietetics practitioner practices dietetics based on evidence-based principles and current information.

Principle #14 - The dietetics practitioner assumes a lifelong responsibility and accountability for personal competence in practice, consistent with accepted professional standards, continually striving to increase professional knowledge and skills and to apply them in practice.

Explain how/why this relates to the Category and Principle:

These principles relate to the Academy values of integrity and social responsibility and the dietitian’s obligation to maintain personal competence in practice and to provide care based on the best available current evidence. The case reflects lack of self-evaluation and lack of knowledge and application of counseling theories and strategies that are current and evidence-based.

Key Points to Consider:

• The RDN needs to differentiate between nutrition education and nutrition counseling and recognize that providing information and advice alone do not lead to behavior change. Also, the RDN needs to recognize that each client has unique needs and ways of achieving success.
• The RDN should engage in self-reflection and evaluation and recognize when he/she is ineffective as a nutrition practitioner.
• The RDN should seek out opportunities to improve his/her counseling skills through continuing education, academic coursework and/or certification programs.
• If the RDN is not making progress with the client after a period of time, he/she should refer the client to another RDN counselor.
• The director of nutrition services should have departmental policies and procedures that address standards and expectations for counseling services.
• The director of nutrition services should adequately supervise and evaluate the RDN staff to be sure they are using current practices based on evidence-based information and, if not, make suggestions for improvement.

In clinical practice RDNs have an obligation to administer the highest level of nutritional knowledge and skills to render the best possible medical nutrition therapy for each patient they serve (Figure 1). This responsibility is supported by a code of ethics that demands honesty and integrity on the part of every RDN, every day.

Ethical decisions that seek to resolve life and death issues are generally out of the scope within which RDNs practice. Nonetheless, RDNs and the interdisciplinary team are challenged at times with ethical issues regarding appropriate feeding routes for ESRD patients who deteriorate to the point of inability to sustain a reasonable state of health via oral intake. The issue then becomes one of deciding whether an alternate feeding route is reasonable and appropriate, as well as ethical. When the patient is unable to express a choice, decisions regarding such issues fall on family members and the health care power of attorney. The decision to provide, or not provide, nutritional support may at times come from a court of law if the health care team and the family are unable or unwilling to agree.

Courts weigh the presence of advance directives, the benefit of treatment, the quality of life, and resource implications while making decisions regarding nutritional support (8). The nursing profession has developed a set of standardized principles for the ethical treatment of patients (9,10). These principles likewise serve RDNs well as models for the care of CKD and ESRD patients (Table 1).

Knowledge and acceptance of ethical principles from medicine, nursing, and the profession of dietetics provides RDNs with adequate preparation to handle most ethical scenarios. Ethical challenges can occur daily. Certain circumstances include the following creeds, which if not followed can jeopardize one’s integrity and ethical judgment:

- **Understand right from wrong, or, do the right thing:**  Inherently, the concept of knowing right from wrong develops at a very young age. Therefore, knowing and recognizing the difference between what is right versus what is wrong is often very apparent.

- **There are times when not to follow the leader:**  Even if a leader is generally trustworthy, there may be times when the leader may knowingly or unknowingly violate an ethical principle. Thus, following that leader results in a group of people who become guilty of ethics violations. If the group, or individuals in the group, recognize a wrong doing, they have a duty to report it.

- **Don’t do something just because everyone else does:**  Similarly, group violations of ethical practice do not make that practice justified or right.

- **Don’t cave in to pressure:**  When members of a group follow an unethical pathway, new members may feel pressured to follow the same path, knowing well that the path is wrong. It remains incumbent on each and every member of that group, new or otherwise, to steer away from an unethical path, and onto an ethical course.

- **When in doubt, check it out:**  There are times when the ethical path is not entirely clear. In such a case, consultation with someone, often a superior or a colleague, is indicated to point that person in the ethically right direction.

And lastly, some common truisms invite ethical violations:

- **Do what the doctor tells you to do:**  As with other leaders, a physician may, at times, violate a policy or principle without knowing it. In such a case, it is incumbent upon a staff member to remind the physician of the right and ethical course of action. Alternatively, the staff member can report the violation to a leader who can address the matter.

- **“This is the way we’ve always done it.”**  As with the credos above, doing something the wrong way does not eventually lead to the wrong way becoming the right way. Ethical wrongs will always remain wrong.

- **“If you don’t tell them, they will never know you did it.”**  The ability to hide a wrongdoing does not make it the right or acceptable thing to do.

In summary, RDNs face ethical situations at the workplace on a daily basis. Some of these situations are of a serious nature, for example, the decision as to whether or not it is ethical to provide nutritional support to a dying patient. Other situations require the judgement of the RDN to follow the appropriate and most ethical path. Fortunately, the dietetics profession includes a code of ethics for professional reference; cross-referencing with medical and nursing professions also prepares RDNs to understand ethical principles and to practice them in both unusual and everyday situations.
### Table 1: Principles of Selected Ethical Treatment of Patients

<table>
<thead>
<tr>
<th>Principle</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Right to Self-Determination</strong></td>
<td>This principle of autonomy includes the right of individuals to govern their actions according to their own reasons and purposes. Health professionals may or may not agree with such decisions, but are obliged to accept them.</td>
</tr>
<tr>
<td><strong>Veracity</strong></td>
<td>Interactions with patients must be conducted with truth and clarity. The natural extension of this principle obligates staff with truth in all work-related situations. This standard includes true and accurate documentation of patient encounters.</td>
</tr>
<tr>
<td><strong>Confidentiality</strong></td>
<td>Privacy of patient information is respected and enforced. Sharing information outside the context of speaking to other health care providers about a patient and related health information is prohibited by the principle of confidentiality.</td>
</tr>
<tr>
<td><strong>Beneficence and Non-Maleficence</strong></td>
<td>Any professional actions one takes should be done in an effort to promote good. The concept of non-maleficence, which is associated with beneficence, declares that if one cannot do good, then he/she should at least do not harm. Reporting of misconduct, without fear of retaliation, is essential to these concepts.</td>
</tr>
<tr>
<td><strong>Justice</strong></td>
<td>Each patient must be treated justly and equally with fairness, and without favoritism.</td>
</tr>
<tr>
<td><strong>Fidelity</strong></td>
<td>Healthcare professionals should faithfully fulfill their duties and obligations at all times. Knowingly deviating from company policy and using company time to conduct other business constitutes violations of fidelity.</td>
</tr>
<tr>
<td><strong>Respect for Others</strong></td>
<td>This principle includes respect for human dignity and treating patients as people with rights, regardless of an individual’s socioeconomic and relational circumstances.</td>
</tr>
<tr>
<td><strong>Utility</strong></td>
<td>“What is best for the common good outweighs what is best for the individual (9).” Another term for this principle is utilitarianism. Utility permits people to adopt a common position on a specific issue or issues.</td>
</tr>
</tbody>
</table>

### References


### Additional Ethics Resources

- **International Code of Ethics and Code of Good Practice**

- **Academy of Nutrition and Dietetics: Ethics Education Toolkit**
  Available at: http://www.eatrightpro.org/resource/career/code-of-ethics/ethics-education-resources/ethics-education-toolkit

- **Academy of Nutrition and Dietetics: Ethics Reading List**
  Available at: http://www.eatrightpro.org/resource/career/code-of-ethics/ethics-education-resources/ethics-reading-list

Apps and Behavior Change: An Exploration of the Role of Mobile Apps Using Social Cognitive Theory

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Registered dietitians utilize Medical Nutrition Therapy (MNT) to alter the progression of many chronic diseases, including renal disease (1). As MNT involves modifying eating behaviors, strategies to support behavior change are integral to the MNT process. Mobile apps have emerged as a strategy to support behavior change. Numerous apps are available related to diseases. A March 10, 2016 search of the Apple App store using the search term “kidney” returned 229 apps. When considering other medical conditions faced by patients with renal disease and dietary needs that could be supported by apps, including diabetes management and diet tracking, the number of available apps is even higher. In addition, mobile devices are increasingly available to patients. Between 2011 and 2015, smartphone ownership doubled, reaching 68% of Americans (2). While apps related to renal disease and related conditions are available, and smartphone ownership is becoming pervasive, effectively utilizing apps to support MNT requires an understanding of the role of apps in behavior change.

Using the Social Cognitive Theory as a framework, the role of apps in supporting behavior change will be explored in order to help registered dietitians understand features of apps that could be useful to support behavior change.

Social Cognitive Theory (SCT) describes determinants of behavior in three categories: personal factors, behavioral factors and environmental factors (3,4). Each of these determinants of change will be examined as they are utilized within health apps.

Personal factors that play a role in behavior change include outcome expectations, attitudes, and self-efficacy. Self-efficacy is the belief in one’s ability to succeed at making a behavior change (3). While an app may not change a person’s attitude about the benefit of a behavior change, it can support self-efficacy and goal setting toward making that change. Perceived self-efficacy influences goal setting behaviors; if a person is more confident of success, more difficult goals will be set (4). Apps can be used to help set and track dietary goals. Apps provide an advantage to traditional goal setting as a smartphone can be with the person at all times in a discrete manner. A recent study examining features of 234 health apps from credible health organizations showed that 72.6% of the apps included a tracker (5).

Registered dietitians can use these trackers to help patients see where they have been successful, thus supporting self-efficacy, while at the same time identifying areas to target future goals for change.

While trackers are not limited to diet trackers, previous research has shown that using an app to track dietary intake increases adherence to treatment compared to traditional paper and pencil food logs (6).

Environmental factors supporting behavior change include social norms and access (or lack of access) to resources. Mobile devices have rapidly become the social norm, extending into the healthcare arena as 62% of Americans with smartphones report using their device to find information on a health condition (7). Smartphones have also been shown to bridge resource gaps. A 2015 survey showed that 70% of blacks, and 50% of those earning less than $30,000 per year, use smartphones (2). A higher percentage of lower income households also report that their smartphones are their only source of internet access; 13% of Americans earning less than $30,000 per year vs 1% of Americans earning $75,000 per year utilize smartphones as their only source of internet (7). One recent study compared two diabetes medical practices, one predominately underserved African Americans, the other predominately affluent and white (8). This study found that while patients at the underserved clinic were significantly less likely to own a computer (p=0.008) or have internet access (p=0.037), cell phone ownership and app use were comparable to the more affluent patients. Additionally, the underserved population expressed a higher interest in using health apps related to blood pressure (p=0.007), exercise (p=0.019) and medication (p=0.037) compared to the affluent clinic. When attempting to bridge environmental barriers to behavior change, smartphone based apps appear to be both preferred by those with fewer resources and more available than traditional technology based interventions.

Behavioral factors include knowledge and skills, and self-regulation (4). It is theorized that apps can be used to increase knowledge, although more research is needed to support this statement (5). Educational components are built into apps, although at a low rate, with only 35% of mobile health apps from credible sources including general education and 14.5% including education tailored to the user (5). Apps have been designed to both support skills as well as to provide practice in working towards mastery of a skill. Mastering a skill is one way to improve self-efficacy. Albert Bandura, the author of Social Cognitive Theory, has reported that interactive media could support children with diabetes in learning the skills needed to manage meals, blood glucose and even dosage of insulin by making a game of learning (3). Apps can also relieve some of the burden of learning a new skill. When comparing apps, it has been shown that app features that most positively contribute to an app’s user rating possess the common theme of providing a strategy for care that is more

References:
efficient than traditional methods (8). These behaviors include helping users learn and interpret steps required to reach a health goal, sharing progress with a provider by sharing app data, and an intuitive usability of the app (8). When selecting apps for supporting patient care, it is important to selecting apps that support learning disease management skills while alleviating the burden of traditional methods.

Healthcare apps are an increasingly available and utilized tool used by those seeking health information (7). By understanding the role of apps in targeting determinants of behavior change, namely personal factors, environmental factors and behavioral factors, registered dietitians can help their patients select and incorporate apps into MNT (3,4). Apps appear to be an especially important tool for disadvantaged populations (5). Registered dietitians can start by selecting apps that are designed to support the process of goal setting while decreasing the burden of learning associated with learning the skills needed to manage chronic conditions (5).

References

The Renal Dietitian Dietetic Practice Group (RPG) is seeking candidates for 2017-18 officers.

Get involved now!

Let’s build a strong network and make a difference!

The following positions are open for nominees:

Chair-elect (3 year term)
Treasurer (2 year term)
HOD Delegate (3 year term)
Nominating Committee Chair-elect (2 year term)

Please notify one of the RPG Nominating Committee members of your interest.

Board Certification as a Specialist in Renal Nutrition Exam

Examination Window:
November 1 – 21, 2016
(Note: No exams on Nov 11, 2016, Veteran’s Day)

Outcomes from the Spring 2016 HOD Meeting

Pamela Kent, MS, RD, CSR, LD
HOD Delegate

The 95th meeting of the House of Delegates (HOD) took place virtually on April 30 and May 1, 2016. The topics for discussion were Envisioning Our Second Century (day 1) and Technological Innovations that Impact Food and Nutrition (day 2). On Day 1, delegates discussed how we can transform our practice to revolutionize nutrition and dietetics for our Second Century. Delegates dialogued about the critical historical events that have impacted the profession; envisioned the profession in the next 100 years; and considered actions that can be taken to engage members in the Second Century. Day 2 focused on technological innovations that impact food and nutrition. Delegates discussed how we can transform all areas of dietetics practice and move the profession forward in a world where rapid advances in technology continually change the way we learn, work and live. Delegates used the Council on Future Practice’s technology change driver as the basis for this dialogue. At their virtual tables, delegates considered two of the four trends within the change driver and proposed strategies to help members shift to higher skills and services that cannot be automated or programmed into technological systems. Delegates generated ideas of technological innovations that Registered Dietitian Nutritionists (RDNs) and Nutrition and Dietetics Technician, Registered (NDTRs) can spearhead, and discussed ways to empower members to transform practice through technology.

In addition, Academy members who are using technology innovations to advance their practice were highlighted ahead of the meeting. The members’ recorded videos can be found at: www.eatrightpro.org/resources/leadership/house-of-delegates/about-hod-meetings. The members’ recorded videos can be found at: www.eatrightpro.org/resources/leadership/house-of-delegates/about-hod-meetings. As a result of the dialogue, one motion was discussed and passed by the HOD. The following activities have been requested:

HOD Motion #1:
A. The Nutrition Informatics Committee review the input from the Spring 2016 HOD Meeting dialogue, create an action plan and recommendations to address the dialogue objectives, and communicate the plan to the HOD by the Fall 2016 HOD Meeting.
B. All Academy organizational units identify and promote best practices related to technology and integrate technological innovations that impact food and nutrition into their program of work.
C. The Academy create a hub on the Academy website where technology resources related to food and nutrition are shared.
D. The Academy consider highlighting technology in an annual awareness campaign.
E. The Academy’s Second Century Team review the input from the House of Delegates 2016 dialogue and support incorporation of technological advancements into the opportunity areas for the September 2016 Summit and forthcoming innovation projects.

Academy Updates
All materials related to the House of Delegates Meeting, including slides from various Academy related updates and outcome materials, are located online for members: www.eatrightpro.org/resources/leadership/house-of-delegates/about-hod-meetings. Please share this information with your constituents/colleagues. If you or they have questions, please send them to acend@eatright.org or call 312-899-4872, so we can respond to them. Future editions of the monthly update will include these questions and an ACEND response.

Greetings from ACEND
The Accreditation Council for Education in Nutrition and Dietetics (ACEND®) is pleased to announce the release of the DRAFTFuture Education Model (FEM) Accreditation Standards for Associate, Bachelor and Master Degree Programs for public comment. These standards are being developed to advance the profession and to ensure that nutrition and dietetics practitioners have the knowledge and competencies needed to protect the public. The development of these standards began in 2013 with a visioning process. Subsequent phases have included an environmental scan, development of a Rationale Document and multiple rounds of stakeholder input and data collection.

The draft standards, which include the expected competencies and performance indicators for each degree level (Associate, Baccalaureate and Master), and a webinar describing their development, are available on the ACEND website (www.eatright.org/acend). We value all stakeholder input and encourage you to provide comments on the draft standards until November 28, 2016 at: https://www.surveymonkey.com/r/FEMComments.

The September Standards Update provides additional information about the Future Education Model Accreditation Standards development process and addresses questions received during the past month. The September issue and all previous issues are posted on the ACEND website (www.eatright.org/acend).

ACEND hosts monthly virtual town hall meetings that are open to all stakeholders. Beginning October 4, the town hall meeting day and time will change to the first Tuesday of each month at 2:00 p.m. (Central Time). Information for connecting to the virtual town hall is posted on the ACEND standards committee webpage.

Please share this information with your constituents/colleagues. If you or they have questions, please send them to acend@eatright.org or call 312-899-4872, so we can respond to them. Future editions of the monthly update will include these questions and an ACEND response.
After a lifetime of hard work, many seniors find themselves struggling with health issues on fixed incomes. In 2013, nine percent (more than 5 million) of all American seniors age 60 and older were food insecure. Seniors face a number of unique medical and mobility challenges that put them at a greater risk of hunger. Many of these individuals are forced to choose between paying for groceries and buying medicine.

We Need Your Expertise to address this debilitating and complex issue. Many members are involved in this important work and we want to THANK YOU for your effort! Many more members want to be involved but may not know what they can do. Please help us achieve the Academy’s goal of making a difference in food and nutrition security nationally by making a difference within your work place and your community. Below is a set of activities with information links that will make a difference – choose those that fit your circumstances. We ask you to:

• Learn the facts about food insecurity in your community.
• Participate annually in education opportunities from Affiliates, DPGs and MIGs to remain current about food and nutrition security.
• Use the Academy of Nutrition and Dietetic’s Foundation Kids Eat Right Program Resources. Also, go to the Healthy Food Bank Hub, a nonprofit website developed by Feeding America and the Academy. Keep informed by subscribing to the Healthy Food Bank Hub Digest.
• Conduct food insecurity screening within your practice setting and work with local partners to make referrals for food access.
• Volunteer or otherwise support activities to address food and nutrition security.
• Respond to the Academy’s Action alerts on food and nutrition security.
• Speak with legislators, community leaders and other healthcare professionals about the causes and solutions to food and nutrition insecurity.
• Share your expertise by submitting your preferred tools and best practices to the Healthy Food Bank Hub.

If you are in a position to educate and engage in research, we also ask you to:

• Teach students and interns about food insecurity and the role of Academy members in these efforts. An excellent resource is the Food Insecurity/Food Banking Supervised Practice Concentration. In 2017, the Nutrition and Dietetic Educators and Preceptors (NDEP) will make available a classroom resource for educators. The Nutrition and Dietetic Educators and Preceptors (NDEP) will make available a classroom resource for educators.
• Engage in research activities to determine how members can best relieve hunger and food insecurity. Learn more about Dietetics Practice-Based Research Network (DPBRN)
• Lead community-based efforts to map and intervene in food and nutrition insecurity.

Helene Kent MPH, RDN is the past chair of the Committee for Public Health and Community Nutrition and has facilitated the work of the Food and Nutrition Security Implementation Team. Thank you to Feeding America for sharing their resources to develop this article.
All About Protein
For people on dialysis

Why is Protein Important?
Protein keeps your muscles strong and helps you prevent and fight infections. For best health, and to help replace what is lost during dialysis treatments, eat a high-protein diet every day.

What are Good Sources of Protein?
- Fresh and lean beef, chicken, eggs (or egg whites), fish, pork, seafood, and turkey
- Beans, Lentils, and Tofu*
- Nut butters*

Check ingredient lists and food labels. Avoid added phosphates and salt. When possible, choose “all natural” varieties of protein foods.

How Do I Increase Protein?
- Include a palm-sized portion of protein with meals.
- Snack on hard-boiled eggs, tuna salad on low-salt crackers, or half of a peanut butter sandwich.
- Enjoy eating protein first, when you are the most hungry.
- Chop or grind meats, or moisten with low sodium gravy, sauce, or broth to make chewing and swallowing easier.
- Ask your RDN if a protein supplement is right for you.

How Do I Know if I’m Getting Enough Protein?
Your registered dietitian nutritionist (RDN) can help you make a high-protein meal plan with daily goals for protein.

*These foods are higher in potassium. Ask your RDN for portions best for you.
Todo sobre las proteínas
Para personas dializadas

¿Por qué son importantes las proteínas?
Las proteínas mantienen fuertes los músculos y ayudan a prevenir y combatir infecciones. Para una salud ideal, y para ayudar a reponer lo que se pierde durante los tratamientos de diálisis, lleve una dieta con alto contenido de proteínas todos los días.

¿Cuáles son buenas fuentes de proteínas?
- Carne de res fresca y magra, pollo, huevos (o claras de huevo), pescado, cerdo, mariscos y pavo
- Frijoles, lentejas y tofu*
- Mantequillas de frutos secos*

Revise las listas de ingredientes y las etiquetas de los alimentos. Evite los fosfatos agregados y la sal. Cuando sea posible, elija variedades “totalmente naturales” de alimentos proteicos.

¿Cómo aumento el consumo de proteínas?
- Incluya una porción de proteínas del tamaño de la palma de la mano en las comidas.
- Coma bocadillos, huevos duros, ensalada de atún con galletas con bajo contenido de sal o medio sándwich de mantequilla de maní.
- Disfrute comiendo primero las proteínas, cuando tenga más hambre.
- Pique o muela las carnes o humedézcalas con salsa o caldo con bajo contenido de sodio para que masticar y tragar le resulten más fácil.
- Pregunte a su dietista nutricionista registrado si un complemento de proteínas sería indicado para usted.

¿Cómo saber si estoy consumiendo suficientes proteínas?
Su dietista nutricionista registrado (RDN por su sigla en inglés) puede ayudarlo a elaborar un plan de comidas con alto contenido proteico, con objetivos de proteínas diarios.

*Estos alimentos tienen un mayor contenido de potasio. Pregunte a su RDN cuáles son las mejores porciones para usted.
Help your new-to-dialysis patients succeed with Velphoro

Start with high potency. Stay with long-term control.*1

INDICATION
Velphoro® (sucroferric oxyhydroxide) is a phosphate binder indicated for the control of serum phosphorus levels in patients with chronic kidney disease on dialysis.

IMPORTANT SAFETY INFORMATION
• Velphoro must be administered with meals. Velphoro tablets must be chewed and not swallowed whole. To aid with chewing and swallowing, the tablets may be crushed.
• Patients with peritonitis during peritoneal dialysis, significant gastric or hepatic disorders, following major gastrointestinal (GI) surgery, or with a history of hemochromatosis or other diseases with iron accumulation have not been included in clinical studies with Velphoro. Monitor effect and iron homeostasis in such patients.
• In a parallel design, fixed-dose study of 6 weeks duration, the most common adverse drug reactions to Velphoro chewable tablets in hemodialysis patients included discolored feces [12%] and diarrhea [6%].
• Velphoro can be administered concomitantly with oral calcitriol, ciprofloxacin, digoxin, enalapril, furosemide, HMG CoA reductase inhibitors, hydrochlorothiazide, losartan, metoprolol, nifedipine, omeprazole, quinidine and warfarin. Take doxycycline at least 1 hour before Velphoro. Velphoro should not be prescribed with oral levothyroxine.

Please see Brief Summary on adjacent page or visit www.Velphoro.com for full Prescribing Information.

A 52-week, open-label, active-controlled, phase 3 study evaluated the safety and efficacy of Velphoro in lowering serum phosphorus levels in patients (N=1,054) with chronic kidney disease on hemodialysis or peritoneal dialysis.†1


*Clinical results of individual patients from long-term trial.

FRESENIUS MEDICAL CARE
RENALE PHARMACEUTICALS

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VELPHORO®
(sucroferric oxyhydroxide)
chewable tablets

INDICATIONS AND USAGE
Velphoro (sucroferric oxyhydroxide) is a phosphate binder indicated for the control of serum phosphorus levels in patients with chronic kidney disease on dialysis.

DOSAGE AND ADMINISTRATION
Velphoro tablets must be chewed and not swallowed whole. To aid with chewing and swallowing, tablets may be crushed.

The recommended starting dose of Velphoro is 3 tablets (1,500 mg) per day, administered as 1 tablet (500 mg) 3 times daily with meals.

Adjust by 1 tablet per day as needed until an acceptable serum phosphorus level is reached, with regular monitoring afterwards. Titrate as often as weekly.

DOSAGE FORMS AND STRENGTHS
Velphoro (sucroferric oxyhydroxide) chewable tablet 500 mg.

CONTRAINDICATIONS
None.

WARNINGS AND PRECAUTIONS
Patients with peritonitis during peritoneal dialysis, significant gastric or hepatic disorders, following major gastrointestinal surgery, or with a history of hemochromatosis or other diseases with iron accumulation have not been included in clinical studies with Velphoro. Monitor effect and iron homeostasis in such patients.

ADVERSE REACTIONS
In a parallel design, fixed-dose study of 6 weeks duration, the most common adverse drug reactions to Velphoro chewable tablets in hemodialysis patients included discolored feces (12%) and diarrhea (6%).

To report SUSPECTED ADVERSE REACTIONS, contact Fresenius Medical Care North America at 1-800-323-5188 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

DRUG INTERACTIONS
Velphoro can be administered concomitantly with oral calcitriol, ciprofloxacin, digoxin, enalapril, furosemide, HMG-CoA reductase inhibitors, hydrochlorothiazide, losartan, metoprolol, nifedipine, omeprazole, quinidine and warfarin.

Take doxycycline at least 1 hour before Velphoro.

Velphoro should not be prescribed with oral levothyroxine.

USE IN SPECIFIC POPULATIONS
Pregnancy
Pregnancy Category B: Reproduction studies have been performed in rats and rabbits at doses up to 16 and 4 times, respectively, the human maximum recommended clinical dose on a body weight basis, and have not revealed evidence of impaired fertility or harm to the fetus due to Velphoro. However, Velphoro at a dose up to 16 times the maximum clinical dose was associated with an increase in post-implantation loss in pregnant rats. Animal reproduction studies are not always predictive of human response. There are no adequate and well-controlled studies in pregnant women.

Labor and Delivery
No Velphoro treatment-related effects on labor and delivery were seen in animal studies with doses up to 16 times the maximum recommended clinical dose on a body weight basis. The effects of Velphoro on labor and delivery in humans are not known.

Nursing Mothers
Since the absorption of iron from Velphoro is minimal, excretion of Velphoro in breast milk is unlikely.

Pediatric Use
The safety and efficacy of Velphoro have not been established in pediatric patients.

Geriatric Use
Of the total number of subjects in two active-controlled clinical studies of Velphoro (N=835), 29.7% (n=248) were 65 and over. No overall differences in safety or effectiveness were observed between these subjects and younger subjects.

OVERDOSAGE
There are no reports of overdosage with Velphoro in patients. Since the absorption of iron from Velphoro is low, the risk of systemic iron toxicity is low. Hypophosphatemia should be treated by standard clinical practice.

Velphoro has been studied in doses up to 3,000 mg per day.

HOW SUPPLIED/STORAGE AND HANDLING
Velphoro are chewable tablets supplied as brown, circular, bi-planar tablets, embossed with “PA 500” on 1 side. Each tablet of Velphoro contains 500 mg iron as sucroferric oxyhydroxide. Velphoro tablets are packaged as follows:

NDC 49230-645-51 Bottle of 90 chewable tablets

Storage
Store in the original package and keep the bottle tightly closed in order to protect from moisture.

Store at 25°C (77°F) with excursions permitted to 15 to 30°C (59 to 86°F).

PATIENT COUNSELING INFORMATION
Inform patients that Velphoro tablets must be chewed and not swallowed whole. To aid with chewing and swallowing, the tablets may be crushed [see Dosage and Administration].

Velphoro should be taken with meals.

Instruct patients on concomitant medications that should be dosed apart from Velphoro [see Drug Interactions].

Inform patients that Velphoro can cause discolored (black) stool.

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Formation of the Renal Practice Group (RPG)

Mary Kay Hensley, MS, RD, CSR
RPG Historian

The years of 1973-1979 saw a lot of changes in the American Dietetic Association (ADA). The organizational structure was revised, bylaws developed and approval was completed by members in June of 1977. The House of Delegates’ role expanded to include more decision making and fiscal responsibilities. In 1976, two councils were proposed, a Council on Educational Preparation and a Council on Practice. They were also given decision making powers and were asked to prepare their own budgets. The report provided to delegates in 1976 talked about dietetic practice groups (DPGs) and their formation.

Many other firsts were also happening at this time. The first National Nutrition Week occurred in March 1973, and Nutribird was introduced on the cover of the Journal in April 1977. In January 1973, ADA had a new Washington liaison and the first Legislative Workshop was held in June 1973. Dial-a-dietitian was operational in 31 states by 1977.

In 1975, Jean Sturdevant, registered dietitian (R.D.), was appointed chair of an ad hoc committee on special interest groups. Committee members represented various specialty groups already functioning. Specialties were divided into four groups: Food Administration, Diet Therapy (dietitians in private practice, research dietitians, and renal dietitians), Education, and Community Nutrition. The committee set the following as high priority goals:

• To obtain information relative to the specialty
• To communicate with members
• To complete plans for interest group sessions during the Annual Meeting
• To contribute to the program of work
• To define each specialty area

With the adoption of the new bylaws in 1977, the Council on Practice (chaired by Patricia Henderson) and DPGs became a reality. In 1978, there were nine DPGs. In 1978, 13 additional groups applied for recognition. By 1979, there were 19 DPGs. Today there are 26 DPGs with an additional 31 DPG sub-units. There are also currently 10 Member Interest Groups (MIGs).

Robert R. Henry, R.D., a pediatric dietitian from Boston, served as the first chair of the RPG. She served from 1977 to 1979.


Historical Recipes

Did You Know?

Very low protein, high calorie diets were used in the 1950s and 1960s as an alternative to dialysis, to preserve life until kidney function recovered. Many believed that dietary protein restriction would reduce the work load of the kidneys. In two separate papers published in 1948, Kempner and Borst designed diets to reduce stress on the kidneys. Kempner’s diet consisted of white rice, fruit and sugar and became known as the Kempner Rice Diet. It contained about 20 grams of protein, 150 mg of sodium and 2000 calories. In addition to using it for acute and chronic kidney disease, it was also used for patients with cardiac disease who did not respond to a sodium restriction.

Borst tried to develop a protein free diet with normal caloric intake that was also low in sodium to improve uremia and edema in patients with advanced kidney disease. Weight maintenance and satiety were also goals of his diet. The control of fluid and sodium was probably as important as the protein limits. Potassium was also more easily controlled by severely limiting the use of meat. Diets like this were not popular with patients who often suffered from gastrointestinal symptoms related to their uremia. They were not popular with dietitians either and kitchen workers looked askance at the foods they were being asked to prepare and serve.

Borst Soup

Ingredients:
Water – 1.5 liters
Custard powder – 100 g
Sugar – 150 g
Butter- 100 g

Nutrient Analysis:
1,760 calories, with negligible amounts of protein and potassium. Sodium is dependent on the salt content of the butter used.

Directions: Heat slowly until hot, but do not boil. Serve in a soup bowl.

This recipe emphasized the need for adequate calories for severely ill patients to prevent weight loss and to increase satiety. This was a daily choice at Lunch and Dinner on the renal menu at Creighton Memorial Saint Joseph Hospital in Omaha, Nebraska in 1967.

The use of Borst soup and butterballs (made by creaming butter and sugar and then freezing) continued into the late 1960s and early 1970s, especially in places where dialysis was not available or the number of dialysis machines was limited. Frequently, renal diets were supplemented with rolls of hard candy, mints, marshmallows and jelly beans to meet caloric demands. Patients were given candy during dialysis sessions as treats and to limit thirst.

References


Moving Forward While Giving Back: 
Mentoring in Dietetics

When you think back on your dietetics career, is there a person who helped you develop as a professional? He or she could be an educator, a supervisor, a peer, or maybe an employee. Mentors play an important role in the field of dietetics. Certain professional skills such as clinical decision-making, educational counseling, negotiation, and customer service strategies are better learned through practice and application than by rote. This is part of what makes the dietetics internship process and continued mentorship such an important part of nutrition career training. Mentors make a difference in the profession every day. We asked mentors to share their thoughts on the importance of mentorship within dietetics. May their experiences inspire you to pay forward the guidance you received on your own professional journey.

Your support and expertise is needed! To learn more about the site or sign up as a mentor, visit the Academy’s eMentoring website.

A mentor is a person who serves as a guide or adviser to someone with less experience. A mentor may serve in a formal capacity as part of a mentorship program or provide support or advice through more casual interactions.

Chances are that you are currently serving as a mentor in some capacity either formally or informally. Christopher Taylor PhD, RDN, LD, FAND, Associate Professor at The Ohio State University School of Health and Rehabilitation Sciences has mentored junior faculty in the areas of career development, grant and manuscript writing, navigating promotion and tenure expectations, and getting involved in state and national level activities. Outside of the university setting, Dr. Taylor mentors students and colleagues within various DPGs and MIG as well as professional contacts at national meetings such as FNCE. Taylor sees mentoring as a way of giving back to the profession. “Along my path, I’ve had guidance from seasoned veterans in all of these arenas that have shaped where I am today. I often feel the achievements of those we support are more rewarding than our own”.

“I often feel the achievements of those we support are more rewarding than our own”.

Although mentorship is just part of the job for many RDNs, it’s not uncommon for these professional partnerships to evolve outside of work.

Callie Coburn, MS, RD, LD, registered dietitian at Arkansas Children’s Hospital routinely volunteers to take on additional interns and teach classes to students. Likewise, Samantha Ramsay, PhD, RDN, LD Assistant Professor at the University of Idaho mentors through the Idaho Academy of Nutrition and Dietetics. Although time can be seen as a barrier to serving as a mentor, keep in mind that you can commit as little or as much time as you have available. Both Coburn and Ramsay see the benefit of volunteering their time to help others. “I love to educate new students and future RDNs” says Coburn. “It gets me excited about nutrition again and reminds me why I love my job so much and how important nutrition is for my patients. Sometimes the job becomes the same every day, and educating someone reminds me of how much I do know and love being a dietitian”. Ramsay concedes that although mentoring “takes time, you have personal and professional gratification to reinforce efforts in the field. When you help others, you are helping yourself”!

Mentoring should involve a two-way flow of information to create a relationship that is beneficial for both the mentor and the mentee.

“When you help others you are helping yourself”.

Mary Murimi, PhD, RD, Professor of Nutrition at Texas Tech University explains how mentoring students has helped her professionally. “My mentees have different skill sets from me and they volunteer when I need help; it is a way of giving back and investing in the next generation, their success becomes mine.”

Stacey Finch, MA, RD, CSP, LD, President of the Arkansas Dietetic Association agrees. “It is amazing to think of how much that I have grown as a result of serving as a mentor” considers Finch. “The questions that I am asked require a lot thought on my part…sometimes topics that I have not fully considered from my own perspective. I then am forced to reflect on and give advice”.

Inspired to give back? In addition to programs or connections available through your workplace, state affiliate or DPG/ MIG, The Academy of Nutrition and Dietetics offers an easy online platform called the eMentoring System.

The system is free to all Academy members and will help you match with mentees looking for professionals like you. The program will match you based on your preferred communication style, availability, and professional experience. Once you are matched with a mentee you create the relationship that works best for you and your schedule. Currently, there are more mentees registered with the program than mentors. In addition, many mentees are seeking the professional perspective of RDNs in practice settings where internship and early career experiences are less common such as private practice, business/ consulting, sports nutrition, clinical specialties, food access, and culinary fields. Your support and expertise is needed! To learn more about the site or sign up as a mentor, visit the Academy’s eMentoring website.
Recently Published

Insufficient time to check out recently published articles in nephrology nutrition? In an effort to help keep our RPG members current, we reviewed the following articles from a variety of publications. We hope you find this list helpful and, as always, would appreciate your feedback and suggestions!

This study examined long-term consequences of red meat consumption on kidney health. Findings suggest more red meat intake is associated with increased ESRD risk. In this case, shellfish and poultry are better alternatives to red meat as is plant-based protein.

This paper reviewed dietary intake of vitamin K1 in a group of dialysis patients. Vitamin K1 levels in these patients were low. It is unknown if higher amounts of dietary vitamin K1 or vitamin K supplementation will improve clinical outcomes such as bone fractures and vascular calcification in dialysis patients.

This research explored associations between total, animal, and vegetable protein and type 2 diabetes. Women from the Nurses’ Health Studies I and II and men from the Health Professionals Follow-up Study were reviewed. Review of these studies showed a higher intake of animal protein was associated with an increased risk of type 2 diabetes, while higher intake of vegetable protein was associated with a modestly reduced risk.

The dietary sodium-to-potassium ratio is associated with risk of cardiovascular disease and cardiovascular disease-related mortality. This study claims that the ratio may be more important than sodium or potassium intake alone, and the majority of US adults would benefit from more potassium in their diets.

This study explores the idea that BMI and glomerular hyperfiltration are positively associated, independent of other known kidney disease risk factors. There may be a significant association between glomerular hyperfiltration and sodium and protein intakes. Additionally, sodium intake may play an important role in the link between hyperfiltration and obesity.

This paper looked at the restriction of dietary phosphorus and the effect on protein status in hemodialysis patients. Researchers found that reductions in phosphorus intake can be made without compromising protein intake. This may be accomplished by avoiding phosphate additives in processed foods, selecting foods that are lower in bioavailable phosphorus, and using wet cooking methods such as boiling.

RPG Awards Available

Don’t miss your opportunity! Visit the website for information on how to apply for different RPG awards, grants, scholarships and stipends.

http://renalnutrition.org/content/awardsstipends.html
Valuable News You Can Use—
Highlights from 2016 Executive Committee Meeting

Judy Kirk, MS, RD, CDN, CSR
NKF/CRN, Chairperson

As we begin autumn, I always think of getting back to a normal routine after the summer vacations and the children go back to school. Hope you had a great summer season and are rested to start the fall.

The Executive Committee (EC) met in Boston, MA April 27-28, 2016 at the annual Spring Clinical Meeting (SCM). I would like to take this opportunity to share with you highlights from this meeting. The SCM program offerings included a broad range of topics and were informative with practical applications. The National Kidney Foundation (NKF) staff reviewed its updated Professional Education Resource Center (PERC) online continuing education program. It was quite impressive! The PERC will have approximately 44 sessions from the SCM 2016 online and will keep track of your transcript for easy review and access. So if you were unable to attend the annual conference or missed some sessions, you still have a chance to get many continuing education (CE) credits. Four sessions per month will be available free to CRN members, $25 each to nonmembers. Most sessions were 1.5 CE hours.

A review of the NKF/CRN five year Goals for 2017-2021 was discussed. Among the new goals will be updates to the Pocket Guide to Nutrition Assessment of the Patient with Kidney Disease as well as the Clinical Guide to Nutrition Care in Kidney Disease. Generally these references are reviewedUPDATED every 5 years. Both of these reviews will be joint projects with NKF/CRN and the Academy of Nutrition and Dietetics/Renal Practice Group. Currently the Pocket Guide has an app in the Apple platform with the Android version expected later in the year. Our goals for local councils is to develop program resources to use in each region for meetings, improve formats for the educational material on the NKF website to be more printer-friendly, and foster research/publication. The Journal of Renal Nutrition (JRN), is looking for articles for its Product Update and Patient Education sections; this is a great introduction to publication. JRN is also looking for more Registered Dietitian Nutritionist (RD/RDN) reviewers. If interested in becoming a reviewer, please contact a CRN regional or alternate representative in your area (NKF website https://www.kidney.org/professionals/CRN). I am also happy to answer questions.

This year, the Council on Renal Nutrition/Executive Committee (CRN/EC) will be holding elections for Region II and IV Representatives and Alternate Representatives and Chair-Elect. Time is running short: if you are interested in running for office in either of these two regions or Chair-Elect, nominations are being accepted.” CRN/EC will be conducting re-affiliation of the local councils; local council affiliation application is open through October 15, 2016. If you are a member in a local council and utilize the NKF/CRN logo or resources you will need to re-affiliate. If you would like to start a council in your area, please go to the NKF website (professional/dietitian/affiliated local CRN chapters). If you have questions or need assistance with anything please contact a region representative/alternate representative in your area or contact me.

It has been a pleasure to see RD/RDNs volunteer for projects that CRN and AND are working on together. Your willingness to be a part of these projects has been a great help. We welcome anyone interested. As always, please contact me with any questions or concerns and I will provide you a timely response. Have a wonderful fall season, especially all who can enjoy the awesome beauty of the fall foliage. I will continue to work on good communication to all.

Calling All Authors!
Renal Nutrition Forum Article Submissions Needed!

If you have ever considered submitting an article to the RNF now is the time! Please consider sharing your work with fellow RPG members or reaching out to colleagues to inquire about work they may be interested in submitting.

For more information please contact:
Stacey Phillips, MS, RD
RNF Managing Editor
rpfouroumeditor@renalnutrition.org
According to an article by the Robert Wood Johnson Foundation, inter-professional collaboration can improve coordination and communication leading to improved quality of patient care. In practice, our patients deal with more than just renal disease; for instance, they may have co-morbidities, reside in skilled-nursing facilities, or live at or below the poverty level. Due to the multitude of crossovers apparent in this population, the Renal Practice Group (RPG) has partnered with other Dietetic Practice Groups (DPGs) for this year’s Food and Nutrition Conference and Expo (FNCE®) hosted by the Academy in Boston.

RPG is pleased to have been selected to present a Spotlight Session on Sunday, October 16th from 10am-11:30am. The session – “Bridging the Gap Between Food Insecurity & Kidney Health” will be co-presented with the Hunger & Environmental Nutrition (HEN) DPG. RPG is proud that Pam Kent, MS, RD, CSR, LD, a member and RPG’s House of Delegates representative, is speaking. Pam will be presenting along with Jenna Umbriac, MS, RD, Director of Programs at the Manna Food Center. The session will address key factors that contribute to food insecurity, recognizing the relationship between finances and kidney disease management, and show how to adapt common foods found in the “food box” for renal meal planning. The session will be moderated by Sarah Trist, MS, RDN, LDN, Chair of the HEN DPG.

The Patient Education Projects team has created a great new handout entitled “Healthier Tips for Shopping at Food Banks” featured in the previous issue of the RNF to coincide with our Spotlight session.

RPG will be co-hosting a joint networking reception with the Dietetics in Health Care Communities (DHCC) DPG. It will be held on Sunday, October 16th at the Boston Tea Party Ships & Museum from 6-8pm. Pre-registration is required and tickets are $30 for members. We hope to see you there!

This year’s Outstanding Service Award (OSA) winner is the very deserving Dr. Haewook Han. Dr. Han will be celebrated at a dinner with the Executive Committee in her honor during FNCE®.

On behalf of RPG, I would like to thank everyone for his or her efforts in making FNCE® such a successful event each year. I encourage all members to get involved and to stop by our booth on Monday, October 17th during the DPG Showcase to say hello. There are always new opportunities arising and we are open to and welcome new ideas as we continue to create partnerships and use our collective experiences to help deliver better healthcare to our patients.

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**Calendar of Events**

**November 2016**

**Board Certification as Specialist in Renal Nutrition Examination**
November 1-21, 2016

**Certificate of Training in Adult Weight Management (Level 1 or 2)**
November 10-12, 2016
Westin Long Beach
Long Beach, CA
https://www.cdrnet.org/weight-management-adult-program

**World Diabetes Day 2016 (WDD)**
November 14, 2016

**ASN Kidney Week**
November 15-20, 2016
McCormick Place
Chicago, IL
http://www.asn-online.org/education/kidneyweek/

**April 2017**

**National Kidney Foundation-NKF 2017 Spring Clinical Meeting**
April 18-22, 2017
Walt Disney World Swan and Dolphin Resort
Orlando, FL
www.Kidney.org

**UNC Department of Nutrition Renal Nutrition Training Program 2016-2017:**
November 2-4, 2016 in Houston, TX
February 8-10, 2017 in Miami, FL
March 15-17, 2017 in Chapel Hill, NC
RPG WEBSITE & ELECTRONIC MEDIA HIGHLIGHTS
You are a Click Away from Exciting Updates!  renalnutrition.org

Don’t Wait to Check Out All the Great Resources Available to Our Members on the RPG Website.

Having login or website access issues? We are here to help you! Please send an email detailing your issue with your name, Academy member number and phone contact to renaldietitians@renalnutrition.org.

The 2 newest RPG Member Benefits are the Find A Renal RDN Database & the RPG Member Marketplace Product Listing. The first resources will allow clients and patients to search for registered dietitians who are RPG Members with renal expertise in their local area. The RPG Member Marketplace Product Listing will allow members to highlight their products and services to other members as well as anyone else accessing the RPG website. Don’t wait to sign up to be part of the Find a Renal RDN database as well as take advantage of the opportunity to list your product and/or service in the Member Marketplace.

ONLINE STORE
Check out the RPG E-Store!
➢ RPG offers 7 webinars approved for 1.0 CPEU each in addition to two other excellent webinars.
  1. Practice Tips for Providing MNT for CKD Stage 3&4 by Lynn Munson, MS, RD, LD
  2. MNT & Transplant by Carolyn Cochran, MS, RDN, LD, CDE
  3. PD & Home Therapies by Anna Evans, MD, RD, LD
  4. In-center Hemodialysis by Janelle Gonyea, RD, LD
  5. Nutrition Support in AKI by Jennifer A. Wooley, MS, RD, CNSC
  6. Nutrition and Renal Disease for Infants/Toddlers by Cynthia J. Terrill, RD, CSR, CD
  7. Nutrition and Renal Disease for Adolescents by Cynthia J. Terrill, RD, CSR, CD
➢ These popular recorded webinars are also available:
  ★ Directing Patient Conversations toward Behavior Change, Part 2 by Kristin S. Vickers Douglas, Ph.D.

ARE YOU MAXIMIZING YOUR MEMBER BENEFITS?
➢ Professional Resource Center (PRC)
  ★ New and relevant resources are always being added
  ★ Many suggested resources to study for the CSR exam are available
  ★ Resource requests and refundable deposits can all be completed online through the RPG E-Store!
➢ The RNF Issues & Archives can be accessed via a key word (author, subject, title) searchable database which includes full issues as well as individual articles.

Important Webinar Purchase Reminder:
When you view the video (webinar slides), you can pause and go back, just as you would when you view a YouTube video. But once you close it out, the download is over and this will count as one download used.

ONLINE WEBSITE POLL AND RESULTS
We Value YOUR Feedback!
➢ Please take a few minutes to complete the brief online member surveys posted every eight weeks. Check out the results from all member polls posted on the website https://renalnutrition.org/about-renal-dietitians/poll-summary-results.html.

Resources at your fingertips!
➢ New Patient Education Handouts-Offered in Every Issue of the RNF http://www.renalnutrition.org/members_only/kff.php
➢ RNF Searchable Issues & Archives http://renalnutrition.org/archives.html
➢ RPG Professional Resource Center http://renalnutrition.org/e-library/professional-resource-center-prc.html
➢ MNT Provider Newsletter- Complimentary to RPG Members http://renalnutrition.org/content/mnt-provider-newsletter-archives.html
➢ CKD Evidence Analysis Library Practice Recommendations http://andevicencelibrary.com/topic.cfm?cat=3929

CPEU Reminder information
➢ RPG offers an “on demand” CPEU system for members. A CPEU certificate is generated once the CPEU quiz has been completed and a score of 80% has been achieved. Members are responsible for recording their completed CPEUs in their respective portfolio.

“You are never too old to set another goal or to dream a new dream.” – C. S. LEWIS

Can’t find a resource?
Have suggestions or ideas for the website?
WE WANT TO HEAR FROM YOU!
Melissa Prest, MS, RD, CSR, LDN
RPG Electronic Media Manager
mediamgr@renalnutrition.org

WebinarViewing Difficulty: If you are having difficulty viewing a webinar recording, please contact renaldietitians@renalnutrition.org. Please include: A- the type of device (iPad, PC,..); B- the operating system (Windows 7 or XP, Mac OS); C- and the Internet Browser & the version (Internet Explorer 9, Firefox 27.0.1,..). This information will help us determine the specific issue and resolve it. If you are having difficulty viewing a program on a work computer, we advise you to view the program on your personal computer. Work computers may have higher security measures in place and prevent viewing of certain sites/programs.
2016-2017 RPG Executive Committee

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Mission: Empowering members to be the nation’s leaders in nephrology nutrition

Vision: RPG members are a valued source of expertise in nephrology nutrition.

RNF Guidelines for Authors

Article length:
Article length is determined by the Editor for each specific issue. The feature and advances in practice article (including abstract) is approximately 2500 words. Other supportive articles are 1000-1500 words; member highlights and reports are approximately 400-500 words.

Text format:
Times New Roman font, 12 point, double space.

Tables/Illustrations:
Tables should be self-explanatory. All diagrams, charts and figures should be camera-ready. Each should be accompanied by a title and brief caption that clearly explains the table, chart, diagram, figure, illustration, etc.

References:
References should be cited in the text in consecutive order parenthetically. At the end of the text, each reference should be listed in order of citation. The format should be the same as the Journal of the Academy of Nutrition and Dietetics.

Reference citation examples:

Article in periodical:

Book:

Chapter in a book:

Web site:

Author information:
List author with first name, middle initial (if any), last name, professional suffix and affiliation below the title of the article. Also include the primary author’s complete contact information including affiliation, phone, fax and email address.

All submissions for publication should be submitted to the editor as an email attachment (MS Word file). The feature articles from the Renal Nutrition Forum will be posted on the Members Only Section of the RPG website (password protected). Thus, please include a brief abstract and 2-3 key words along with feature article submissions.
Don’t wait to take advantage of RPG’s exclusive member-only benefits:

- Exclusive member-only webinars
- Discounts on webinars offered to general public
- RPG’s peer-reviewed publication: Renal Nutrition Forum
- Online CPEU articles/quizzes
- Online CPEU management
- Member access to patient education materials
- Professional Resource Center
- Travel stipends to attend conferences
- Scholarships and research grants
- Public policy and MNT resources
- RPG clinical publications and resources
- Access to Evidence Based Library

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a dietetic practice group of the Academy of Nutrition and Dietetics