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HIV and osteoporosis in aging women

By Cade Fields-Gardner, MS, RD, LD

Background: Older women and HIV transmission

Worldwide, women represent nearly 20 million of the estimated 42 million persons infected with HIV. Women accounted for 2 million or approximately half of the new infections in 2002 and 1.2 million or approximately half of the deaths in 2002 (1). In the United States and Canada there are increasing numbers of women reported with HIV and AIDS. Health Canada reports an increase in the number of women 50 years old and older infected from 10% of all adult cases through 1995 to 18% through June of 2002 (2). The Centers for Disease Control and Prevention (CDC) reported that by 1994 approximately 10% of all reports of AIDS were among women aged 50 years and older.

There may be a lack of adequate attention being paid to prevention and appropriate treatment education for women who are 50 or older (3). Women who experience fatigue, weight loss, night sweats and anorexia may have their symptoms attributed to aging alone (4). A survey of these women also showed less awareness of HIV transmission prevention methods (4). Although it is still important to address prevention among younger women, postmenopausal women remain sexually active and require such education. There is little research in perimenopausal and postmenopausal HIV-positive women and research conducted with younger female clients may not adequately address the issues faced by older women (5). In women, approximately 80% of the transmission of HIV worldwide and 40% in the United States (6) occurs through sexual intercourse with an infected male partner. Even the symptomatic manifestations of menopause, such as alterations in vaginal tissues like thinning and dryness, may increase risk for injury to the vaginal barrier and transmission of HIV infection during heterosexual intercourse (7).

Aging and menopause in HIV-positive women: relationships with bone loss

Aging, menopause, and HIV infection all have an effect on nutritional status. Nutrition-related issues of bone density, lean tissue wasting, anemias, fatigue and fat stores' maintenance are of special concern in older women who are perimenopausal and postmenopausal. Earlier menopause has the potential to increase the risk of osteoporosis and hip fractures. Lower and missing estrogen results in a lower absorption and an increased excretion of dietary calcium. Reductions in levels of estrogen were more associated with reduced bone mineral density than advancing age during the first 20 years beyond menopause (8). Bone mineral losses can occur in bones throughout the body, including

(See Osteoporosis, page 2)

In this issue ...

(Osteoporosis, from page 1)

the upper and lower jaw causing tooth loss and increasing the risk for nutritional decline.

Other bone loss determinants in women include bone mass at maturity (between ages 30–35 years old), race, build, physical activity, cigarettes, alcohol and interactions with medications among others. Women who have consumed an adequate diet with high levels of calcium and vitamin D from early in childhood may have more bone tissue. Women living in regions with fluoridated-water tended to have greater bone density. Blacks tend to have greater bone density that whites or Hispanics, though sex is a stronger determinant than race (9). Women who are short or more slender tend to have less bone density. It has long been understood that there is a positive relationship between bone density and muscle mass (10), especially site-specific muscle area (9). Women who smoke tend to experience an earlier menopause, which may account for much of the additional risk for osteoporosis. Long-term use of magnesium-containing antacids can block calcium absorption. Long-term use of corticosteroids can lead to bone losses, and the chronic inflammatory response seen in HIV infection has the potential to precipitate bone loss through similar mechanisms.

HIV infection, immune function decline and antiretroviral therapies are thought to play a role in the development of bone loss (11). Some HIV and treatment-related risk factors are thought to include the use of protease inhibitors, longer duration of HIV infection and higher levels of viral load. Lower body weight prior to the initiation of antiretroviral therapy and changes in laboratory values, such as increased lactate and alkaline phosphates or lower levels of bicarbonate, are associated with bone losses in HIV. Inflammatory mediators such as tumor necrosis factor and interleukin-6 may activate osteoclast activity and bone resorption. Changes in parathyroid hormone axis and bone remodeling have been documented in HIV infection. In addition, hormonal changes, such as insulin resistance and diminished sex hormone levels, have been noted.

Changes in the levels of sex hormones can affect body composition and body function. HIV-infected women who report normal menstrual cycles may maintain normal levels of progesterone and estradiol (12). However, there have been reports of amenorrhea and early menopause in women with HIV infection. A study of 33 women participating in clinical trials showed signs of such hormonal changes: 16 of 33 did not ovulate and two of 33 experienced early menopause. While there were no statistically significant differences between women with these changes, there was a trend toward a change in menstruation for women with lower CD4 counts (13). In another study, the impact of hormonal changes was investigated in 382 women with a known time from seroconversion from HIV-negative to HIV-positive. A subgroup of 25 women in this study passed through menopause after seroconversion. Compared with the premenopausal women, postmenopausal women tended to have lower CD4 counts, though not statistically different in this retrospective study (14).

In HIV-positive women who lose weight, the changes seen in body composition and hormonal stability may be different from those seen in men (15). Fat loss occurs early in the wasting process in women and lean tissues are severely compromised during later wasting (loss of more than 10% of pre-

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illness weight). Lean tissue losses and lower levels of estradiol were more commonly seen in women with amenorrhea, though body composition did not significantly correlate directly with estradiol levels. In addition, the level of free testosterone was reduced in wasting women while total testosterone levels were relatively preserved.

While a young woman may produce approximately 300 mcg. of testosterone daily from her ovaries and adrenal glands, a woman who is menopausal produces less, which may exacerbate these adverse effects of disease, treatment and aging. Women who have experienced wasting syndrome may be especially at risk for sexual dysfunction and testosterone reduction. Treatments, such as balanced transdermal patch and oral hormone replacement therapy, may be considered in women who are HIV-infected and menopausal (16, 17). In addition, it has been suggested that other treatments that may result in an increased muscle mass and strength may have a beneficial effect on overall sarcopenia (loss of muscle associated with bone density loss, glucose intolerance and risk for disability and falls) in older adults (18).

A study of 28 HIV-infected women with wasting syndrome determined risk factors for bone mineral density reduction (19). Compared with controls there was a reduced level of muscle mass and bone tissues in the anteroposterior lumbar spin, lateral lumbar spine and hip in HIV-positive women. Muscle mass and estrogen levels were associated with lumbar spine bone density, suggesting that a reduction in either was detrimental and that strategies to improve both should be explored.

Evaluation and treatment recommendations

Education for women approaching their fifth decade and beyond should include prevention of HIV transmission. Changes related to menopause may increase risk for transmission through heterosexual intercourse. Beyond education, treatment for menopausal symptoms, such as topical estrogen therapy has been suggested as a way to reduce the risk for HIV transmission to older women through the thickening and keratinizing of the vaginal epithelium (20).

Evaluation of the variety of risk factors associated with bone loss should be conducted. Body composition, bone density evaluation and symptoms that suggest changes in menstrual cycles should be a part of the overall health-monitoring program in HIV-positive women. Preventative strategies should address known risk factors for bone mineral loss.

Nutritional counseling and, in some cases, supplementation may be indicated. Medical nutrition therapy may include counseling on dietary factors such as improving calcium and vitamin D intake. It will also be important to balance or reduce levels of phosphoric acid–containing products such as sodas and high meat consumption. Excessive protein intake should also be avoided. Supplementation has included calcium, vitamin D and (experimentally) low-dose fluoride (21, 22).

Adjunctive therapies may include carefully tailored physical activity regimens, hormone replacement therapies and smoking and alcohol cessation. Careful monitoring for medication interactions will be important parts of the prevention and treatment of osteoporosis. Medication therapies aimed at reducing osteoporosis may include both those that decrease bone turnover and increase bone mineral density (23). Single or combination medication therapies may include sex hormones, bisphosphonates (alendronate sodium [Fosamax], risedronate sodium [Actonel]), estrogen receptor modulators, calcitonin, parathyroid hormone (recombinant human form is teriparatide [FORTEO]), and active forms of vitamin D. Interactions of diet and other nutrition-related factors, hormonal treatments, HIV infection and anti-HIV medications will need to be considered in older women and explored with further research.

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(See Osteoporosis, page 4)

(Osteoporosis, from page 3)

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Editor's message

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Positive Communication
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I was cleaning out my nutrition education files recently and came across what now seem like ancient artifacts in the realm of HIV nutrition. I can almost track the advances in HIV medical care by the timeline certain nutrition education materials have been added to my files.

Among the relics, I found several, likely published in the late 1980s, that advocated what I refer to as "calories at any cost." Liberal use of butter and heavy cream was a common recommendation. The underlying message was that lipid problems were not going to be an issue in a population at an increased risk of mortality due to wasting and opportunistic infections.

In the later 1990s, with the emergence of protease inhibitors and more effective antiretroviral regimens, my nutrition files changed. While weight loss and wasting are certainly still problems, my recommendations are now more focused on high-calorie/high-protein foods that are not so high in saturated and trans fats. Additionally, my files have expanded to include sections on nutrition for exercise/fitness, cardiovascular disease, bone disease, hepatitis, and renal disease. My nutrition education files would fit equally well in an internal medicine clinic as in an infectious diseases clinic.

I recall one of my nutrition professors commenting that conditions like hyperlipidemia and osteoporosis are issues of affluent nations. She noted that these issues don't impact life expectancy in most areas of the world, where more acute issues like food insecurity, poor sanitation and the resulting risk of infectious diseases take focus. In some ways, the history of HIV in the United States also mimics this. I don't want to say that we are "fortunate" to be worrying about chronic disease among our clients, but the fact that these issues are now commanding attention points to the fact that medical research has made huge strides in managing HIV disease in this country. I hope that in the near future HIV-positive populations in less affluent nations will also have the "benefit" of worrying about high cholesterol levels and bone disease.

Four years ago when I resigned from a job as a hospital RD to take my current job at an infectious disease clinic, my boss at the time told me that he thought I was making a poor career move. He said that working in an HIV clinic would limit my opportunities to grow and learn about other aspects of clinical nutrition. How wrong he was. Not only is learning about HIV and assisting HIV-positive clients in an urban area challenging and rewarding, but I am certainly seeing a lot more variety in the types nutrition counseling I do in this job than during my years as an inpatient RD.

Nutrition professionals working in HIV are expected not only to know about the course of HIV infection, its treatments and side effects, but also to stay abreast of clinical guidelines for most conditions seen in internal medicine. It is my hope that the articles in *Pos Com* will help in this effort.

Nutrition in HIV-associated nephropathy

By Shelley Scott, RD, LD

Nutrition concerns in HIV/AIDS extend beyond acute eating problems and weight loss due to opportunistic infections and medication side effects. Although HIV is a disease of the immune system, this virus may impair the function of specific organ systems as well. Research has shown that HIV may directly damage organ systems, including the kidneys.

Although several medical treatments have shown promise in delaying kidney disease progression in HIV, medical treatment guidelines have not be established. Also lacking are dietary guidelines specific to renal disease in HIV. In the absence of such guidelines, advising HIV-positive clients with renal disease demands an understanding of the underlying causes of nephropathies in this population, current medical treatment options, and the established nutrition recommendations for other populations with renal disease. This knowledge, combined with an individual assessment of a client's other nutrition concerns, can guide nutrition professionals to provide optimal advice.

Numerous factors may be implicated in the cause of renal disease in HIV. Kidney damage may be due to direct damage from HIV itself or from inflammation or infection caused by HIV disease. Genetic factors and other non-HIV causes, such as diabetes and intravenous drug abuse, may also play a role. This article will focus on HIV-associated nephropathy (HIVAN), which is the most common pathology for renal disease in HIV, and review dietary recommendations for renal disease with a special focus on the nutritional risks faced by the patient with HIV.

Epidemiology

HIVAN is not new, having first been described in 1984 among HIV-positive patients with rapidly progressive renal failure and proteinuria (1-3). Currently, African-American patients make up nearly 90% of cases of HIVAN, and HIVAN is now the third main cause of end-stage renal disease (ESRD) among the U.S. African-American population between the ages of 24 and 60 years (4). HIVAN is uncommon in Europe (5). A study of a primarily Hispanic population in the Bronx, N.Y., found that HIVAN occurred significantly more often in the African-Americans who were in the study (6). Studies in the late 1980s found HIVAN to be seven to 10 times more common in men than in women, and that 30% to 60% of patients with HIVAN have a history of intravenous drug abuse (7).

After the emergence of highly active antiretroviral therapy (HAART) in 1996, incidence of ESRD from HIVAN began to decrease, though incidence of ESRD decreased much less quickly than the incidence of mortality from AIDS (8). New cases of ESRD due to HIVAN increased quickly up until 1995, decreased slightly beginning in 1996, and actually increased slightly in 1999 (8). This data does not include those with HIVAN who have not progressed to ESRD. In one autopsy study, renal histology appeared to show HIVAN in 12% (9). Worldwide HIVAN prevalence is unknown.

As antiretroviral therapies help people with access to these medications live longer, morbidity causes and HIV mortality seem to be shifting, with fewer caused by acute opportunistic infections and more caused by comorbidities such as cardiac, hepatic, and renal diseases. Nutrition professionals working in HIV will likely continue to get more referrals for clients with chronic diseases, including renal disease. Overall survival of HIV-positive patients with renal disease seems highly related to stage of HIV disease, with those with asymptomatic HIV disease with longest survival (10).

HIVAN histopathology

HIVAN pathology includes collapsing focal segmental glomerulosclerosis, renal tubule dilations, and interstitial fibrosis (4,5). A primary topic of investigation has been whether the HIV virus itself directly infects kidney cells, leading to HIVAN, or whether damage occurs due to a cytokine-mediated immune response. Research suggests that the HIVAN is caused by direct HIV infection of renal tissues, injuring tubular and glomerular epithelial cells (7). HIV infection in renal cells does not always lead to HIVAN, however, indicating that other host factors are involved in the pathogenesis (4,11). Renal cells may also serve as a reservoir for HIV and a site of HIV replication (4,12).

HIVAN clinical presentation

The distinguishing characteristics of HIVAN are severe proteinuria (usually more than 3.5 g. in 24 hours) (5), hypoalbuminemia (4), and a fairly quick deterioration of renal function, though the median time from diagnosis to ESRD has increased (from two months in earlier to studies to eight to 16 months in more recent studies) (5). On ultrasound, the kidneys often appear enlarged and echogenic. Interestingly, hypertension and edema are often absent in HIVAN.

Although HIVAN was initially thought to occur in later stages of HIV disease (13), a recent case has been published of HIVAN developing near the time of HIV seroconversion (14). Historically, HIVAN was usually diagnosed among patients who had been HIV-positive for several years with CD4 counts less than 200 (8), but in recent years HIVAN has been shown to occur at all stages of HIV disease (12).

HIVAN medical interventions

Although HIVAN medical treatment guidelines have yet to be established, research is ongoing and several options to delay disease progression are under investigation. Case reports have shown that antiretroviral treat-

(See Nephropathy, page 6)

(Nephropathy, from page 5)

ments seem to improve renal function, but prospective studies are lacking (7). Angiotensin-converting enzyme inhibitors and corticosteroids are also sometimes prescribed to delay disease progression (11). The potential benefit from antiretroviral medications may indicate prescribing these medications even when immune function markers (CD4 and viral loads) are above the markers at which the current U.S. Department of Health and Human Services HIV treatment guidelines recommends initiating HAART (15).

HIVAN nutrition interventions

Nutritional risk assessment

Chronic renal failure increases risk of malnutrition, and other HIV-related medical concerns may further augment nutritional risk. Visceral protein status, weight-for-height status and body mass index (BMI) have been independently correlated with mortality in renal disease (16,17). Renal patients who become uremic often lose their appetites, compounding nutritional risk.

Currently, there are no guidelines for nutrition recommendations specifically for HIVAN. As with all nutritional interventions, any nutritional guidance for the HIV-positive patient with renal disease must be individualized to that patient's situation.

Until research is done to establish HIVAN nutrition guidelines, nutrition professionals can consult the recommendations of Kidney Disease Outcomes Quality Initiative (K/DOQI) of the National Kidney Foundation (16,17). According to K/DOQI, "Patients with GFR <60 mL./min./1.73 m^2 should undergo assessment of dietary protein and energy intake and nutritional status" (17). For discussion of the appropriate formulas to use to calculate, glomerular filtration rate (GFR), refer to K/DOQI Clinical Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification, and Stratification; Part 5: Evaluation of Laboratory Measurements for Clinical Assessment of Kidney Disease; Guideline 4. GFR estimation is available at www.kidney.org/professionals/doqi/kdoqi/p5_lab_g4.htm.

A full nutrition assessment, including diet history, medical history, visceral proteins, muscle mass/body composition and functional status should drive recommendations in regards to energy, protein and other nutrients in patients with HIV and renal disease (17).

Early renal disease

The K/DOQI does not make specific dietary intake recommendations for renal patients with a GRF of more than 25, but because of the increased risk of malnutrition due to decreased appetite with decreasing kidney function, nutrition professionals need to closely monitor energy and protein intake to help prevent malnutrition.

Protein: To restrict or not to restrict?

Dietary protein restriction in early renal disease remains controversial. To date, there are no published studies of the impact of dietary protein intake specifically on progression of HIVAN. A large prospective study published in 1994 (Modification of Diet in Renal Disease Study Group) did not find a significant impact of protein restriction in delaying disease progression (18), although further analysis of the data from this study did find some benefit (19). A meta-analysis published in 1996 included approximately 1,400 patients with nondiabetic renal disease and found that a dietary protein restriction of between 0.4 to 0.6 g./kg. body weight significantly delayed renal disease progression (20). Other studies have found small improvements in GFR with a dietary protein restriction, but the changes have been minor (21). In clinical trial settings, low-protein diets have been found to be safe and have not caused decreases in albumin (21), suggesting that low-protein diets do not cause malnutrition. Whether studies of dietary protein intake in non–HIV-positive populations with renal failure should be applied to HIVAN has not been studied.

Electrolytes

For patients with diagnosed HIVAN, nutrition professionals should monitor electrolytes and counsel patients accordingly. Even though hypertension is not common among patients with HIVAN, minimizing sodium seems prudent.

Nutrition for ESRD in HIV

Again, in the absence of specific nutrition guidelines for renal disease in HIV, nutrition interventions for HIV-positive clients with ESRD must be individualized. The best practice at this point is to follow K/DOQI.

Internet resources for nutrition professionals counseling patients with HIVAN

- *Kidney Beginnings: A Patient's Guide To Living With Reduced Kidney Function*, published by the American Association of Kidney Patients.
  www.aakp.org/patient.htm
- K/DOQI Clinical Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification, and Stratification
  www.kidney.org/professionals/doqi/kdoqi/toc.htm
- *Eat Right to Feel Right on Hemodialysis,* available in both English and Spanish, published by National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health
  http://kidney.niddk.nih.gov/kudiseases/pubs/kidneyfailure/index.htm

Energy

For patients with ESRD, K/DOQI estimates energy needs at 35 kcal./kg. edema-free ("dry") weight for individuals younger than 60, and 30-35 kcal./kg. for those older than 60 (16). Of course, this must be individualized and adjusted based on other clinical conditions that may affect energy and protein needs.

Protein

K/DOQI recommends the following for nondialyzed patients: For individuals with chronic renal failure (GFR <25 mL./min.) who are not undergoing maintenance dialysis, the institution of a planned low-protein diet providing 0.60 g. protein/kg./d. should be considered. For individuals who will not accept such a diet or who are unable to maintain adequate dietary energy intake with such a diet, an intake of up to 0.75 g. protein/kg./d. may be prescribed" (17). This recommendation helps prevent uremia, but whether this will delay further disease progression has not been proven (21).

During dialysis, estimate 1.2 g./kg. for hemodialysis and 1.3 g./kg. for peritoneal dialysis (22). At least 50% of dietary protein should be from sources of high biological value. These recommendations should be adjusted based on the clinical status of the patient as well as lab results.

For clients who struggle with maintaining weight and preventing wasting, several renal-specific fluid-concentrated, lower-electrolyte nutritional supplements are available to help meet the increased protein and energy needs for dialysis.

Fluid and electrolytes

Clinical status, weights and lab results should be monitored and dietary advice prescribed according to each individual patient's needs. Potential dietary interventions may include counseling about fluid restrictions and limiting electrolytes (sodium, potassium, phosphorus). In chronic renal disease, preventing hyperphosphatemia through medications and diet is important to minimize the risk of bone loss (22).

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Substance abuse impact on HIV

By Diana Vermilion, MS, RD

It is well known that injection drug use (IDU) through shared apparatus is a frequent mode of HIV transmission. A recent review on HIV infection in injection drug users (IDUs) indicates that heterosexual transmission of HIV is now the fastest growing means of transmission in the United States, and is closely linked to the rate of transmission through shared injection apparatus (1).

In fact, epidemiological data obtained through December 2000 from the Centers for Disease Control and Prevention (CDC) showed that 25% of adults and adolescents with AIDS in the United States used injection drugs (1). Of particular note, in the 20 years of the HIV epidemic, injection drug use has accounted for a substantial number of AIDS cases among women and minority communities:

- 41% of adult and adolescent females
- 22% of adult and adolescent males
- 42% among Hispanics
- 36% among black adults and adolescents
- 16% among American Indians and Alaska natives
- 12% among whites
- 6% among Asians and Pacific Islanders

Active substance abusers infected with HIV may experience suboptimal treatment outcomes compared with non–drug users. Data repeatedly demonstrate underutilization of antiretroviral therapy in IDUs infected with HIV (2). Furthermore, nonadherence with antiretroviral therapy and lower rates of viral suppression has been linked to illicit drug use.

Some of the unique challenges and barriers associated with the care of IDUs include addiction, social instability, coexisting psychiatric conditions and medical complications such as poor nutrition and chronic viral hepatitis. Hepatitis C virus (HCV) occurs in more than 95% of IDUs with HIV. Evidence shows that HIV-HCV coinfection accelerates the progression of liver disease and is becoming a major cause of morbidity and mortality. To intervene effectively and achieve positive outcomes, it is imperative for nutrition professionals to understand how drug abuse impacts the nutritional status of individuals infected with HIV.

Injection drug use may have a significant impact on disease progression and survival in individuals infected with HIV due to adverse lifestyle circumstances leading to poor nutritional habits, increased levels of oxidative stress and micronutrient and antioxidant depletion.

The potential role of nutritional status as a cofactor in HIV-related disease progression and survival is well-delineated. Micronutrient deficiencies closely linked to immunologic function have been observed among individuals infected with HIV (3). Common nutrient deficiencies include trace elements selenium and zinc, and vitamins A, B-6 and B-12. HIV infection has also been associated with depletion of glutathione levels, altered levels and activity of antioxidant enzymes, and low serum levels of antioxidant vitamins (4).

Nutritional deficiencies and depressed immune function has also been linked to drug addiction, even in drug users not infected with HIV (5) Immune function may be particularly compromised among IDUs infected with HIV because of drug-nutrient interactions and the lifestyle often associated with substance abuse, such as homelessness and poor nutrition (3). Injection drug use may exacerbate oxidative stress, further depleting antioxidant levels.

Antioxidant nutrients work closely in the body to combat oxidative stress, which may be caused by a depletion of antioxidant defenses or overproduction of reactive oxygen species (4). Increased levels of oxidative stress have been associated with more rapid HIV disease progression, but their exact relationship has yet to be determined. Despite widespread use of antioxidant supplementation among individuals infected with HIV, it is unknown whether this treatment will prove beneficial.

A recent article reviewed the nutritional status of a Miami, Fla. cohort of IDUs infected with HIV (3). Plasma levels of vitamins and trace elements were measured every six months over 3.5 years. Micronutrient abnormalities, especially low antioxidant levels, were observed in 41% of the cohort. Women were shown to have significantly poor overall nutritional status. Deficiencies of vitamin A, vitamin B-12, zinc and selenium were significantly associated with mortality over time. Selenium deficiency in particular was shown to be an independent predictor of survival. Zinc deficiency has been linked with decreased mortality in HIV-positive IDUs, likely due in part to poor dietary intake, but recommendations for zinc supplementation have not been established; intake of high levels of supplemental zinc (300 mg./day) may actually impair immune function (6).

Selenium is an essential trace element necessary for the activation of glutathione peroxidase, an enzyme that protects against oxidative stress (5). Adequate selenium levels are vital for proper immune function. The correlation between plasma selenium levels and CD4+ counts has been extensively documented, specifically in HIV patients. The most significant relationship between selenium status and HIV disease outcome was observed in a cohort of IDUs infected with HIV. A 20-fold increased risk of AIDS-related mortality was associated with low plasma selenium (5).

In addition, IDUs may be at increased risk for endocrine dysfunction (7). While the prevalence of hypogonadism has decreased with the advent of highly active antiretroviral therapy (HAART), research shows that approximately 20% of IDUs have low testosterone levels, which can lead to reduced bone mineral density and altered body

composition, sexual dysfunction among men and irregular menses among women (7). Stopping heroin can help improve gonadal function, although methadone seems to prevent improvement (7). Observational studies have found that heroin use may cause insulin resistance and/or beta cell dysfunction (6). Increased triglycerides and decreased high-density lipoprotein cholesterol have also been found among heroin users (7).

IDU impact on body composition is under investigation. One small study of 235 Hispanic patients with HIV found that alcohol and drug use were not predictors of fat distribution, but smoking was independently associated with less total and truncal fat (8).

Although we know that impaired nutritional status is common in HIV and particularly among IDUs infected with HIV, performing accurate, evidence-based nutritional assessment in IDU with HIV may be particularly challenging due to psychosocial and lifestyle barriers among IDUs (9). Dietary intake assessment via food records and 24-hour recalls may be difficult due to the irregular eating habits of many IDUs. Biochemical assessment of nutritional status may be influenced by nonnutritional factors including lifestyle, drug use, medications and disease process. Body composition assessment through the use of skinfold measurement and bioelectrical impedance analysis may be inaccurate due to limited control of fluid intake and physical activity in IDUs. It is important to customize nutrition assessment tools to achieve an accurate nutrition profile of each individual, and to continue to research and improve existing assessment methods.

As is often the case with nutrition intervention for a complex disease, research is severely limited. Pertinent questions remain. Research that addresses the appropriateness of nutrition assessment tools and educational materials is lacking, especially for IDUs infected with HIV. Antioxidant supplementation including selenium may be particularly beneficial for IDUs infected with HIV because many IDUs do not have access to antiretroviral therapies or have low levels of adherence to antiretroviral therapy due to active substance abuse (5). More research to determine the benefits of nutrient supplementation and define the optimal dosages is warranted.

The high prevalence of substance abuse in the HIV population, particularly among women and minorities, indicates the necessity of improving our knowledge and treatment of the effects of drug abuse on nutritional status. Leading researchers have emphasized the need for research to determine optimal nutritional therapies (10).

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Motivational interviewing—increasing adherence through client-centered counseling

By Victoria Warren-Mears, PhD, RD, LD

Nutrition therapy is basic to the care of HIV patients. In addition to the American Dietetic Association (ADA) recommendations (1), recent suggestions from other organizations state, "It is important to the health of persons with HIV/AIDS to have access to the services of an RD whose knowledge in the area of nutrition for HIV/AIDS is current. … The RD (registered dietitian) should provide nutrition assessment, provide appropriate nutrition intervention counseling with appropriate educational materials, and participate in case conferences as part of the medical team (2)." Dietary recommendation adherence is vital for long-term health and well-being, medication efficacy and diminished side effects. A key question for dietetics professionals is what counseling technique(s) optimize response to medical nutrition therapy (MNT) for people living with HIV/AIDS (PLWHA). In a time of limited resources and many time constraints, it is important to be both efficient and effective (3). This article addresses the definition of appropriate nutrition counseling by discussing counseling techniques and how dietetics professionals working with PLWHA might use them.

How do dietetics professionals choose a counseling style and, further, how do they determine its effectiveness? A dietetics professional's training, philosophical life-view, and/or therapeutic experiences and evolution of counseling techniques determine counseling style. Effective nutrition counselors seldom employ one technique to the exclusion of all others. Counseling interventions can be classified into four broad categories: affective interventions, cognitive restructuring, behavioral modification interventions and systematic approaches.

Table 1. Nutritional counseling in the spirit of motivational interviewing (MI)

Key points (12)	Use in nutrition interventions
1. Motivation to change is elicited from the client and not imposed.	The dietetics professional avoids giving solutions or advice. Instead, he/she artfully facilitates client in self-identifying intrinsic beliefs and values about food related issues and goals to promote behavior change.
2. It is the client's task, not the counselor's to articulate and resolve his or her ambivalence	The dietetics professional assists clients in systematic exploration of ambivalence around dietary changes, expressing those thoughts and guiding the client toward an acceptable resolution.
3. Direct persuasion is not an effective method for resolving ambivalence	The dietetics professional avoids arguing for change; instead he/she elicits anticipated health benefits of change from the client.
4. The counseling style is generally a quiet and eliciting one.	For a dietetics professional accustomed to using a more confrontational style, the MI approach may feel uncomfortable and nonproductive. In actuality, the client-centered approach gets to core issues and there is a true directive nature in the MI approach.
5. The counselor is directive in helping the client to examine and resolve ambivalence	The dietetics professional skillfully elicits change talk and leads the "dance" toward a commitment to the identified change plan.
6. Readiness to change is not a client trait, but a fluctuating product of interpersonal interaction.	The dietetics professional should listen closely and respond to the client's motivational factors. It is important to note that resistance and denial are not seen as client traits, but feedback to the dietetics professional's behavior. Feedback can assist professionals to identify alternative motivational strategies.
7. The therapeutic relationship is more like a companionship partnership than expert/recipient roles.	The dietetic professional recognizes and respects the client's autonomy in making personal decisions relevant to dietary change. This method also respects the client's freedom of choice regarding his/her behavior and the subsequent choice of consequences.

What patients prefer

Numerous studies from various disciplines have reported characteristics that patients and providers value in therapeutic relationships. These include: building trust and rapport; maintaining professional boundaries; ensuring a comfortable, safe environment; ensuring confidentiality; imparting nonjudgmental attitude; and self-determination (4). This client-centered approach necessitates that clients do most of the talking and the providers most of the listening to develop mutually beneficial goals. Taking the preferred approach may pose some ten-

sion to dietetics professionals seeking to provide adequate MNT as suggested in the ADA HIV/AIDS MNT protocol (5).

For example, the HIV/AIDS adult protocols suggest a set number and length of interventions, outcome assessment factors and expected outcomes (5). Depending on the patient's initial assessment and readiness to change, it may take beyond the one to six sessions per year, identified by level of care, to reach suggested behavioral outcomes. Our time and goals will continue to evolve as we face the challenge to customize nutrition therapy to the individual, including factors collected from basic sciences, medical sciences and behavioral sciences.

How can dietetics professionals take a client-centered approach and still provide appropriate behavioral information? Assessing readiness to change dietary behaviors is essential to our counseling strategy development. The concept of readiness to change is fluid and may be based in response to interpersonal characteristics as well as internal motivation. Many studies have looked at using the Transtheoretical Model of behavior change in risk reduction behaviors in HIV/AIDS (6–11). However, a validated tool to identify stages of change for HIV/AIDS patients' diets has not been published in the literature. Validated tools for dietetics professionals can be found in literature relating to increased fruits and vegetables, obesity and diabetes research. These tools can be modified and validated for use among PLWHA. Information can then be tailored to clients' needs and readiness to change.

Another promising technique to increase adherence may be motivational interviewing (MI) (12). MI is a directive, client-centered counseling style for eliciting behavior change by helping clients explore and resolve ambivalence (13). Compared with nondirective counseling, MI more focused and goal-directed. Ambivalence examination and resolution is its central purpose, and MI is particularly well-suited for less ready, resistant individuals and has been incorporated as a successful approach to address behavior change in a wide variety of health topics for adults, and with substance abuse and safety issues with teens.

Research with PLWHA and MI has shown promise in medication adherence (14) and preventing HIV transmission in high-risk groups (15). To date, no trial of MI trial versus conventional counseling methods to enhance MNT adherence in PLWHA has been published. Our research group will be embarking on these studies in the near future.

Effective nutrition therapy is basic to the care of all HIV-infected patients. We hypothesize that motivational interviewing techniques may suggest a new model for optimizing dietary recommendation adherence. The differences between MI and more traditional approaches to MNT provision may be difficult to embrace for some dietetics professionals because the technique may not resonate with personal philosophical or ethical beliefs. Table 1 presents the essential MI spirit. Visit the MI Web site for further training resources at http://motivationalinterview.org/index.shtml.

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10th Annual Association of Nutrition Services Agencies (ANSA) Annual Conference

Association of Nutrition Services Agencies (ANSA) Annual Conference

September 2003

Vancouver, B.C., Canada

The following are highlights from the nutrition track at the ANSA conference. For additional coverage, please refer to the winter 2003 issue of *Positive Communication*.

By Alan Lee, RD, CDN, CFT

Vitamin therapy: Has its time come?

"Let food be thy medicine, and let thy medicine be food." This quote from Hippocrates was used by Aimee Bert-Moreno, RD, LD, to begin her dynamic talk.

Bert-Moreno works with the HUG-Me program treating HIV-positive adults at three rural locations. Nutritional status at HIV infection diagnosis was a major determinant of survival.

A recent study from a prospective cohort (Nutrition For Healthy Living) has shown that many people living with HIV/AIDS (PLWHA) do not meet the recommended dietary allowances and dietary reference intakes (DRIs) for most vitamins, minerals and fiber. They also consumed excess fat and cholesterol. The study evaluated 516 people, of which 25% were women and 30% were minorities, and found that macronutrient intake was statistically and inversely associated with decreasing CD4+ cell counts. In the study sample, 25% to 35% of the women had dietary intakes of less than 75% of the DRIs for vitamins A, C, E and B-6 and zinc and iron (1). Nutrition interventions can improve quality of life and help the body's ability to fight infection.

The presentation included a detailed review of vitamins A, B-6, B-12, C and E, and selenium, zinc, gluthathione, glutamine, n-acetyl cysteine, alpha lipoic acid, l-carnitine, coenyme-Q10 and essential fatty acids. Bert-Moreno emphasized that serum levels of vitamins and minerals may not reflect the levels inside the cells, so a PLWHA with normal serum vitamin levels may still be deficient in the vitamin. Vitamin therapy should be individualized for PLWHA. Evaluate the history of the client's nutrient supplementation use first. Then the most cost-effective vitamins should be considered, especially for someone on a limited income.

Nutrition across the spectrum: substance use, medication fraud, and recovery

This session was co-presented by Diana Johansen, RD, and Jennifer Eliasi, MS, RD, CDN. Johansen is the clinical dietitian at the Oak Tree Clinic, an outpatient HIV center for women, children and families. Johansen started her informative presentation on her experiences with PLWHA in Vancouver, B.C. She stated that Vancouver has the fastest rate of HIV infection in the developed world due to high rates of cocaine intravenous drug use (IVDU). The faces of PLWHA in Vancouver tend to be the youth, young women and Aboriginals (native Canadians). Johansen has a four-pronged approach to chemical dependency: prevention, harm reduction, enforcement and treatment. Chemical dependency is a biological, psychological and social disease. Harm reduction is the use of practical strategies to meet drug users "where they are at" to reduce the consequences of drug use. She focused on the physiological effects of cocaine. Cocaine acts on the central nervous system and inhibits re-uptake of dopamine, norepinephrine and serotonin. This can cause euphoria, self-confidence, increased energy, as well as psychosis, paranoia, seizures and stroke. Other negative implications of cocaine use include weight loss/wasting, loss of appetite due to the direct effect of cocaine on the appetite center in the hypothalamus, and malnutrition.

Active drug users can benefit from interventions that incorporate harm reduction principles, outreach, and food/meal programs that are culturally appropriate. It is the position of the American Dietetic Association that it is essential that nutrition intervention, planned and provided by a qualified nutrition professional be included in the treatment and recovery from chemical dependency. The nutritional plan during the detoxification from drug use include: addressing gastrointestinal symptoms, individual finances, housing, and psycho-social setting.

Jennifer Eliasi is the nutrition coordinator at the PATH Center at Brooklyn Hospital in New York N.Y. She started her eye-opening portion of the session with the disclaimer that her talk is not meant to generalize or stereotype all PLWHA. She was informative to the dietetics professionals in the audience by making them aware of some clients' corrupt behaviors and how to go about stopping them. Eliasi updated on her talk from last year's ANSA conference entitled Fighting The Underground Market For HIV Medications and Supplements. Preventing fraud will save health-care dollars and taxpayers' monies. Be sure to catch Eliasi give a fresh update entitled What's Your Rx Worth: Exploring The Black Market For Medications and Nutraceuticals, at the 3rd Annual HIV/AIDS DPG and Nutritionists In AIDS Care conference to be held in New York, N.Y. on March 13, 2004. You will not want to miss it. Los Angeles, Calif.-based physician Gary R. Cohan, MD, will be the keynote speaker. Go to www.hivaids-dpg.org under the events section for

complete conference details.

The 11th Annual ANSA conference will be held Sept. 9-12, 2004. For the first time it will be held in New York, N.Y. Go to www.aidsnutrition.org for details as they become available.

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Alan Lee, RD, CDN, CFT, is a nutrition consultant for various AIDS service organizations in New York, N.Y. He is the president of the Greater New York Dietetic Association (GNYDA), co-chair of Nutritionists In AIDS Care (NIAC), and the Alliance Chair for the HIV/AIDS DPG of the ADA. He is a national speaker on HIV nutrition and fitness. Contact him at alanleerd@yahoo.com and 212/229-2298.

Student stipend challenge

Help up-and-coming nutrition students benefit from the Food & Nutrition Conference & Expo (FNCE)!

The American Dietetic Association encourages each dietetic practice group (DPG) to budget $100 for students to attend FNCE. The HIV/AIDS DPG officers challenge members to help generate funds toward this cause and ask each DPG member to consider donating $10 (or more!).

To contribute, please send checks made payable to "HIV/AIDS DPG" and mail them to Treasurer Milton Stokes:

Milton Stokes
543 Manhattan Ave
Apt 2
New York, NY 10027-5215

For questions, please contact Milton at miltonstokes@msn.com or 718/206-6023.

Thanks in advance for your support.

Membership Update

Kevin Shores, MA, MEd, RD
HIV/AIDS DPG membership chair

Members by the state

The HIV/AIDS DPG had 482 members as of Feb. 04, 2004. The following is a breakdown by state, and also grouped by ADA regions.

The states with the most members are New York (99), California (72), Florida (33), Illinois (25), and New Jersey (25). Go to our Web site at www.hivaidsdpg.org for more information.

Reminder: Any DPG members interested in joining the Membership committee should please contact me at membership@hivaidsdpg.org.

HIV/AIDS DPG members by state

Region 1

Alaska (6), California (72), Hawaii (3), Idaho (1), Montana (3), Oregon (2), Washington (8), and Wyoming (0).

Region 2

Iowa (1), Michigan (7), Minnesota (5), Missouri (6), Nebraska (1), North Dakota (0), South Dakota (0), and Wisconsin (2).

Region 3

Alabama (6), Arkansas (0), Florida (33), Georgia (13), Louisiana (1), Mississippi (1), South Carolina (1), and Puerto Rico (0).

Region 4

Arizona (6), Colorado (3), Kansas (1), Nevada (3), New Mexico (1), Oklahoma (2), Texas (17), and Utah (2).

Region 5

Illinois (25), Indiana (3), Kentucky (5), Ohio (9), Tennessee (9), and West Virginia (1).

Region 6

Delaware (1), Washington, DC (8), Maryland (14), North Carolina (5), Pennsylvania (15), and Virginia (10).

Region 7

Connecticut (11), Maine (1), Massachusetts (21), New Hampshire (4), New Jersey (25), New York (99), Rhode Island (1), Vermont (3), and American Overseas (10).

Public policy report

By Deane Edelman, MBA, DTR
Public Policy Committee co-chair

HIV-conscious groups hope to expand nutrition services for Ryan White CARE ACTs, Medicare reform

Ryan White CARE Act I

During the fall of 2003 there was little good news on the Ryan White CARE Act (RWCA). A new report from the Institute of Medicine (IOM) of the National Academies of Science said the nationwide reporting of HIV cases is not complete and accurate enough to allow these numbers to determine how funds from RWCA should be allocated among states and metropolitan areas. The estimated number of AIDS cases should continue as the measure used in RWCA allocation formulas, at least until HIV case reporting or other estimation techniques provide better data.

According to an analysis by Communities Advocating Emergency AIDS Relief (CAEAR Coalition): "The estimated number of AIDS cases in each area has been the main factor for determining distribution of funds because such reporting is well-established across the nation and because people who have developed AIDS tend to need more care and visit health-care facilities more frequently, where their illness is identified and recorded. Although it is harder to reliably detect and count cases of diagnosed HIV infection—infected individuals may not get sick and need care—many believe that the number of HIV cases might be a better indicator of resource needs than AIDS cases alone."

During the last reauthorization of RWCA in 2000, Congress asked the IOM to assess the quality of data on reported HIV disease cases to determine if they were accurate enough to include in RWCA allocation formulas.

The IOM report is entitled Measuring What Matters: Allocation, Planning, and Quality Assessment for the Ryan White CARE Act and is available online at: http://books.nap.edu/catalog/10855.html.

Ryan White CARE ACT II

As Congress adjourned in December, RWCA 2004 funding was tied up in the Omnibus spending bill. The Labor-Health and Human Services Committee Conference Report indicated that Ryan White will be flat-funded in 2004, with the sole exception of a $38.9 million increase for Title II's AIDS Drug Assistance Program (ADAP). This amounts to a 1.9% increase over all titles.

National Organizations Responding to AIDS (NORA), an alliance partner of the dietetic practice group (DPG), had requested a total increase in all Titles for 2004 of 23%. Preparations are already underway at NORA for composition of the annual Appropriations Document for 2005, the year of Ryan White reauthorization. NORA members use this document each year when they visit Capitol Hill to discuss budget numbers for all federal HIV/AIDS programs. Although the DPG has no plans to submit any fiscal data for the document, we are working with the American Dietetic Association's (ADA's) Government Relations Office to expand the Ryan White text section to include wider discussion of medical nutrition therapy, food, home-delivered meals and nutrition supplements in the description of allowable RWCA services.

NORA meeting presentation

The October 2003 NORA meeting topic was Nutrition and HIV/AIDS. The DPG made arrangements for Celia Hayes, RD, from the HIV/AIDS Bureau at the Health Resources and Services Adminsitration (HRSA) to speak. Celia presented an overview of the critical role that proper nutrition and nutrition management plays in the overall health and well-being of people living with HIV and AIDS. She focused on five key areas:

- why nutrition matters for people living with HIV
- nutrition and the Ryan White CARE Act
- nutrition-related consequences of HIV
- what doctors should know and do with regard to the nutrition needs of patients with HIV
- challenges of addressing nutrition when dealing with the global HIV/AIDS pandemic

Celia encouraged NORA members to educate themselves and their constituencies about the importance of nutrition in the lives of people living with HIV. Health-care providers need to be educated about the need to include nutrition as part of primary health care; agencies need to be encouraged to include nutrition as one of the regular services they provide to clients; and globally oriented organizations need to recognize the link between treatment and nutrition in the developing world.

Medicare reform

As ADA reported in *On the Pulse*, passage of the Medicare Prescription Drug, Improvement and Modernization Act of 2003 is a major milestone. It not only provided prescription drugs to Medicare recipients but it made program additions and structural changes, which include medical nutrition therapy (MNT) servivces.

It is too early to know exactly how MNT will be included, but ADA will be closely monitoring the writing of the new regulations by the Centers for Medicare and Medicaid Services (CMS) to represent ADA members' interests. Portions of the law will go into effect in January, 2005, and the remaining portions become effective Jan. 1, 2006.

MNT services are cited in three sec-

tions of the Medicare bill, and in all sections, the bill maintains the current standard that RDs or licensed nutrition professionals are the health-care professionals allowed to provide the service. First, there is a new emphasis in the law on preventive services. Beginning in January 2005, each individual coming into the Medicare program will be given an initial baseline physical examination. MNT is one of the services to which new beneficiaries can be referred, in addition to vaccinations, cancer screening tests, glaucoma and bone mass assessments. ADA is working with CMS to determine which conditions other than diabetes and renal, if any, will be covered by Medicare when a beneficiary is referred for MNT at the initial screening. It is ADA's position that the new benefit apply to any conditions deemed appropriate by the physician if the referral is made during this baseline physical examination.

The second and third sections are part of a new voluntary disease management program, Chronic Care Improvement (CCI), which will be phased in over five years beginning in 2006. CCI organizations may be health insurers, disease management organizations, integrated delivery systems, physician group practices, consortiums of such entities or any other legal entity that CMS deems appropriate. Beneficiaries with certain chronic diseases will be eligible to participate. These diseases may include congestive heart failure, diabetes, chronic obstructive pulmonary disease, hypertension and certain types of cancer. MNT is cited as a service which could be included in CCI programs. ADA will re-examine its schedule for producing the Medical Nutrition Therapy Evidence-based Guides for Practice as new guides will be needed to reflect the disease states and conditions eligible for MNT coverage under these new programs.

To the extent that MNT is ultimately included in the regulations, ADA will advocate that such services should be delivered by an RD or nutrition professional as already defined in the Social Security Act. In addition, ADA will re-examine its schedule for producing the Medical Nutrition Therapy Evidence-Based Guides for Practice as new guides will be needed to reflect the disease states and conditions eligible for MNT coverage under the new benefits.

For more information on the new Medicare legislation, contact ADA's Government Relations Office at govaffairs@eatright.org, or 202/775-8277.

Congratulations to the newly elected 2004-2005 HIV/AIDS DPG officers!

Chair-elect: Karen Bellesky, RD, LD

Secretary: Lisa Zullig, MS, RD, LDN

Nominating Committee:
Barbara Craven, PhD, RD, LD
Laura May, RD
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