PANHANDLE HEALTH

A QUARTERLY PUBLICATION OF THE POTTER-RANDALL COUNTY MEDICAL SOCIETY

SPRING 2016 | VOL 26 | NO. 2

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Nutrition:
Approaches to Disease Management


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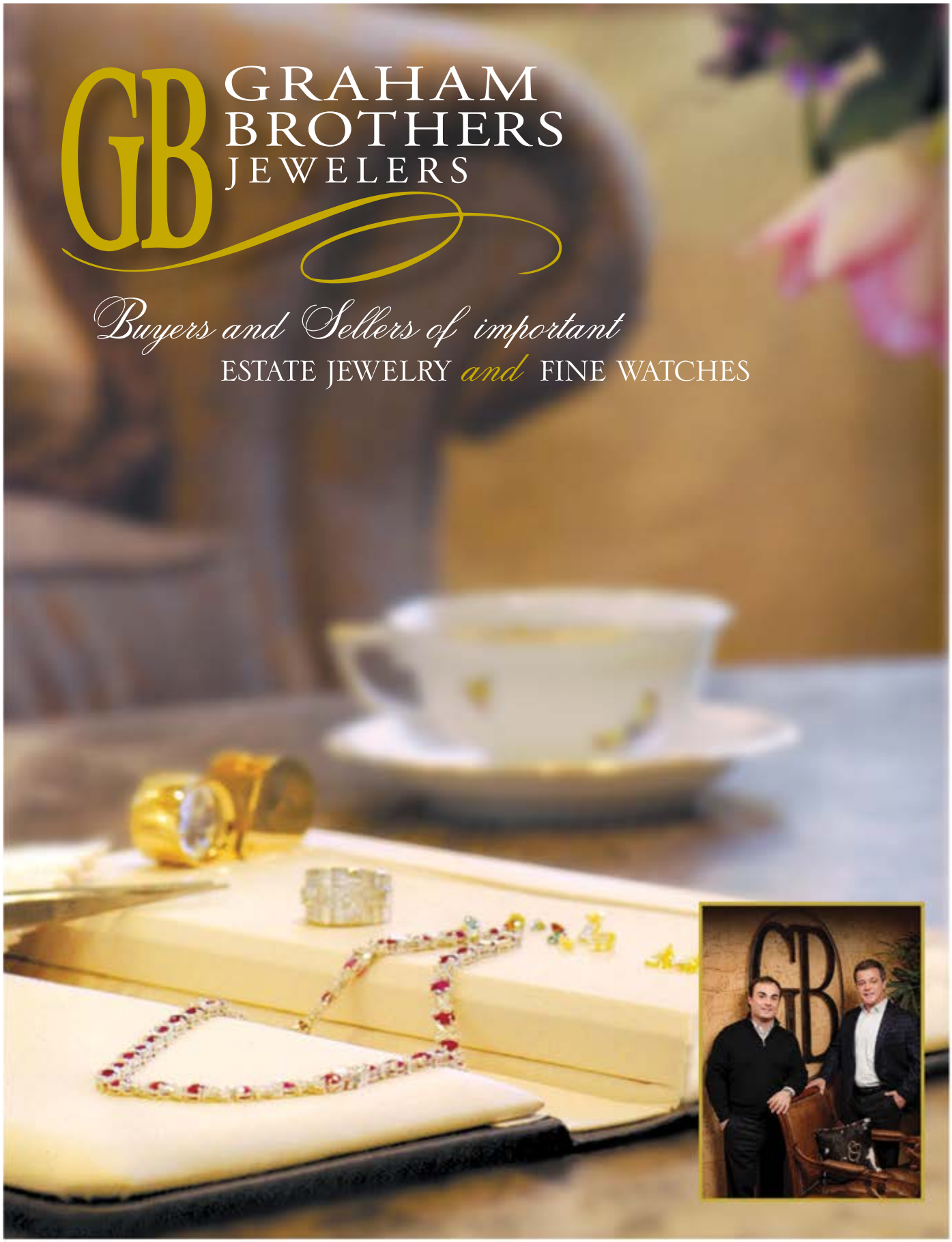

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President's Message:

How to Make American Healthcare Great Again

by L. Edwin Dodson, M.D.

I am sure most of you would agree that the past few years, in fact the last few decades, have not been kind to American Medicine. Physician satisfaction is down and physician burnout is up. Medical school applications are down and the number of medical administrators is soaring. Federal regulation continues to be more prevalent and intrusive by the month. We are in the midst of a Presidential election where the choices make one cringe, as none of the candidates, since the withdrawal of Dr. Carson, seem to have a clue about what is needed to improve American Healthcare.

I recall attending a session on The Future of Medicine at a medical meeting in 1995, and it was very discouraging. The speaker had little encouragement to offer except to comment that we should cheer up because it wasn't like we were out there defending O.J. or anything like that. This was actually of some consolation to me. We all need to remember that we have achieved something special by becoming physicians and have done extraordinary things. We should be proud of our accomplishments. American Medicine is still pretty great, and it is great because of us.

We should also be active in trying to improve the lot of our profession for the sake of the patients who depend upon us. Many of the problems with medicine today come from removal of physicians from the decision making processes about costs, regulatory procedures, and the very fabric of day to day practice. This lack of engagement of physicians is our own fault, and I urge all my colleagues to look for ways to have an impact on the future direction of medicine.

I have found that the past several years in which I have been active with the Potter Randall County Medical Society have been encouraging and worthwhile. I urge all physicians to become involved in supporting the good work of the Texas Medical Association which had greatly improved the ability of physicians to deliver good medical care to the people of our state. This is work that needs to continue and needs the support of all of us.

I'm greatly honored to serve as the Potter Randall County Medical Society President for 2016, and thankful to have been able to practice in the Amarillo medical community for the past 34 years. Please feel free to contact me or the society staff if there is anything we can do to help.

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Alliance News

by Irene Jones, Co-President

Doctors' Day is March 30th and this year we donated $500 to Elijah Nevares. PRCMA is proud to sponsor you, and we look forward to hearing about your experience in Boston.

My name is Elijah Nevares and I've recently been offered the opportunity to travel to Boston for an experience of a lifetime. Robert Darling nominated me to represent my school, River Road High School, and the State of Texas at the Congress of Future Medical Leaders. On this trip I will spend a couple of days in Boston; while there I will meet Nobel Prize winners, leaders in medicine and medical futurists. I will also view a live surgery. In the future I hope to be a neurosurgeon; I feel like this would be something I'd like to do and I could learn a lot from this trip on the topic of neurosurgery. I find a fascination in the human nervous system and hope to find a career in this interest. Being present at the congress will enhance my academic profile, which will make me stand out more by distinguishing me as a promising future leader of medicine. So I've written this letter to thank you for sponsoring me.

We also received thank you notes from Megan Lofgren & Jolynn Connell who both received scholarships from PRCMA and are both pursuing nursing degrees. Congratulations to these ladies.

Have you paid your Alliance dues?
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The Alliance raises funds for scholarships, research and grants, participates in health projects that improve people's lives, and protects the future of medicine through legislative advocacy. Local dues are $40 and State dues are $50

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Local dues are not required for spouses of a retiree or surviving spouses, but donations are welcomed. State dues are $10 for widows/widowers and $1 for residents and spouses.

Social Events:

April 21st: Ladies Spring Social
(home of Dr. & Mrs. Scott Miller)

September: Fall Couples Social
September TBA

December 31st: NYE GALA TBA

Looking Forward to 2016,
Irene Jones (Co-President)

Volunteer Opportunities:

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Contact: Jamie jbwilliams364@gmail.com

Northwest Pediatric Unit:
Contact: Kristen kristenatkins@hotmail.com

Snack Pak 4 Kids:
March 8th Contact: Elisia
elisiamiller123@gmail.com

Hygiene Closet:
Contact: Shelby shelbyneichoy@gmail.com

Holiday Party 2015- We raised over $1,500 in gift cards for The Children's Home here in Amarillo. Thank you to Dr.& Mrs. Sloan Teeple for opening up your beautiful home.

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We are looking to partner with local organizations to create more volunteer opportunities. If you know of any particular ones that could use the extra hands or help, please contact us: *potterrandallalliance@yahoo.com*

Executive Director's Message

by Cindy Barnard, Executive Director

Spring is in the air and March is National Nutrition month in the United States.

"It is the position of the Academy of Nutrition and Dietetics that primary prevention is the most effective and affordable method of preventing chronic disease", and that dietary intervention positively impacts health outcomes across one's life span. This issue of *Panhandle Health* includes articles on Nutritional Approaches to Disease Management. As we know, many chronic diseases are preventable as they are linked to poor diet. Registered dietician nutritionists and dietetic technicians have become critical to health care teams and are delivering nutrition- focused preventive services in clinical and community settings, "advocating for policy and programmatic initiatives and leading research in disease prevention and health promotion." These applications and interventions are most definitely making an impact on public health outcomes.

The 113th Annual Meeting of Potter Randall County Medical Society was held January 7th at Amarillo National Bank's Skyroom. The gold-headed cane was passed from Dr. Tarek Naguib, 2015 President to Dr. Ed Dodson, 2016 President. Officers for 2016 were installed by Dr. Tomas Garcia, President of Texas Medical Association. New officers are: President, Dr. Ed Dodson, President-Elect, Dr. Rouzbeh Kordestani, and Secretary-Treasurer, Dr. Ryan Rush. I want to thank Amarillo National Bank for their continuing and unfailing support and generosity. The dinner was delicious and well-attended.

Presidential appointments to Boards and Committees of PRCMS are now ongoing. If you have an interest in serving on a committee, please call the Society office at 355-6854. The core of the Society is its volunteers. The physicians who volunteer for committees and board positions are working on behalf of their colleagues. We truly need you!

If you would like to update your picture in the 2016-2017 Physician Roster, or if you do not have a picture in last year's Roster, please call 373-1523 to make an appointment for your portrait at Gray's Studio. Gray's is located at 3317 6th Street.

ON THE COVER:

The title of the cover photo is "Pink Tulip" by Bill Byrd, M.D.

Dr. Byrds first experience with photography as art came when he turned a corner in a museum and saw a large print of Ansel Adams' "Moonrise over Hernandez New Mexico". That was that. After his next paycheck (as an intern no less) he bought a "real" camera and has been trying to be Ansel Adams ever since. He is never going to achieve that goal, but he has lots of fun trying. Dr. Byrd enjoys nature photography, that is to say landscapes and wildlife, and he partners with Dr. Hamous at a gallery in Sunset Center. Go and visit them on First Friday Art Walk.

Our Next Issue Of

Panhandle Health

Features:

Allied Health

Guest Editor's Message

by Ellen Hampsten, M.D.

From late night ads to novelty cookbooks, we are inundated with information regarding nutrition. Some say a new diet is the best; others advise that supplements will save us. In the end, more questions are left than answers.

In this edition of *Panhandle Health*, we examine nutrition, from the latest "Hot Topics" in nutrition news, to nutrition for specific populations and for those affected by certain diseases. The goal is to stimulate our curiosity in how what we eat not only fuels us, but can contribute to the health of the population. This March is National Nutrition Month with the focus on making informed food choices. I hope that this issue of *Panhandle Health* helps you to think beyond fad diets for weight loss, but to also consider how nutrition and food can improve health and well-being. Also, I hope to shed light on resources that are available to us who care for patients and for the patients themselves.

Thank you for your support of *Panhandle Health*. I hope 2016 brings you good health and prosperity.

Keeping an eye on what you eat…

by Tracy Crnic, M.D.

There is a great deal of current debate in medicine on the usefulness of specific diets and/or vitamin supplementations as benefits to better health. In regard to ocular health, by far the most well studied and established results have been produced by the AREDS (Age Related Eye Disease Study) trials. Two arms most published, AREDS1 and AREDS2, address vitamin supplementation and its effect on the progression and prevention of Age Related Macular Degeneration. Both studies are supported by the NEI or National Eye Institute.

Age Related Macular Degeneration

Age Related Macular Degeneration (ARMD) causes breakdown of the cells in the retina of the eye responsible for sharp central vision (those used for reading, driving, and recognizing faces). Included in this process is loss of function of pigment cells that act as regulators for the cells that transmit visual information or RPE, and the development of abnormal vascular structures also termed neovascularization. Severity of ARMD is determined by the presence and severity of the drusen and how extensively they involve the macula. Patients with this disease may experience blurred or distorted vision, difficulty adjusting to changes in light intensity, changes in color vision and loss of central visual field. While great advances have been made in the early diagnosis and treatment of this disease, it remains the leading cause of irreversible blindness in the United States. As the name implies, increasing age is among the most common risk factors, while female gender, tobacco use, family history of the disease, and other genetic factors are included in this list. Currently the disease is divided into two types (dry or atrophic and wet or exudative), both of which have significant risk of progression and permanent visual loss.

The Age Related Eye Disease Study

The AREDS was designed to learn more about the natural history and risk factors of age-related macular degeneration and cataract and to evaluate the effect of high doses of vitamin C, vitamin E, beta-carotene and zinc on the progression of ARMD and cataract.

AREDS1 evaluated a formulation of vitamins including Vitamin C, E, beta-carotene and zinc with copper. The initial formulation contained higher doses of these vitamins, especially zinc,

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Be a part of the circle. In 2006, Potter Randall County Medical Society introduced the Circle of Friends, a program designed with the business of medicine in mind. Members of the Circle of Friends are companies that pay an annual fee to participate in Medical Society events. Their financial commitment allows PRCMS to provide quality programs throughout the year, such as the Annual Meeting, Doctors Day, Resident Reception, Family Fall Festival, Retired Physicians Lunch and Women in Medicine. In return, these companies are invited to attend these events and discuss with the physicians the benefits that their companies offer a physicians practice.

We are grateful for the support of these organizations and anticipate another great year of serving the needs of our members. The purpose for Circle of Friends is to provide a valuable base of resources to assist the physician in the business of medicine so their practice of medicine can improve.

This program has proven to be a valuable resource of services such as liability insurance, accounting, banking and much more. This year, we hope to expand the Circle to include services the physician may use in his or her personal life. Through this program, we can invite businesses serving physicians to support the Society and increase their visibility among its members. Corporate support contributes to the Society's ability to advocate and care for physicians and patients in Potter and Randall Counties.

The Medical Society thanks all of its supporters as it offers new opportunities to its membership.If your business is interested in being a part of our Circle of Friends, please contact Cindy Barnard at 355-6854 or e-mail prcms@suddenlinkmail.com.

in comparison to the later formulation. Phase one of this study concluded enrolment in 2001 and included 4,757 patients aged 55-80; it has continued with more than five years of follow up. Overall those who took the AREDS formula during the initial five year trial were 25 to 30 percent less likely to progress to advanced (neovascular or increased pigment atrophy) ARMD. This decreased risk was found to persist for at least five years after conclusion of the trial, and ongoing follow up is being maintained. Side effects noted in the study included a small increase in lung cancer risk in current or former smokers who used the higher dose of beta-carotene. The beta-carotene also induced skin discoloration that some patients found undesirable. The higher dose of zinc in this preparation was also associated with a statistically significant increased risk of urinary tract infection (3% in treatment group vs. 1% in placebo). Therefore the copper dose was adjusted to compensate for this finding.

AREDS2 is a multicenter double-masked randomized trial that began in 2006, involving 4208 participants aged 50-85 years at risk for developing late ARMD. The primary purpose of the Age-Related Eye Disease Study 2 (AREDS2) is to evaluate the efficacy and safety of lutein plus zeaxanthin (L+Z) and/or ω-3 long-chain polyunsaturated fatty acid (LCPUFA) supplementation in reducing the risk of developing advanced AMD. The study also assesses the reduction in zinc concentration and the omission of β-carotene from original AREDS formulation. The substitution of lutein and zeaxanthin for increased doses of beta-carotene was evaluated to determine if these carotenoids maintained the protective effect of the formula while eliminating the increase in lung cancer in tobacco users, and reducing the incidence of urinary tract infection found in the supplement with higher zinc concentrations. While the addition of these fatty acids and/ or alternate carotenoids did not additionally decrease progression of vision loss, their substitution did maintain the protective effect measured in the original AREDS formulation and did eliminate the risks of lung cancer from beta-carotene in former smokers. Thus this formulation is preferred for all patients regardless of smoking status. The decreased concentration of zinc and addition of copper as a protective effect was also found to lessen the occurrence of urinary tract problems. Other age related eye diseases including cataract formation and giant cell arteritis (a type of inflammatory disease causing vision loss) were also investigated in various branches of the study; however, no beneficial effect on these processes was observed.

Who should be referred for evaluation?

Current recommendations state that any patient with a family history of ARMD, any of the mentioned symptoms, tobacco use, or age over 60 should have a complete dilated eye exam done to evaluate for signs of ARMD. While some small changes may be noted, not all patients with few or small drusen (the pigment epithelium degeneration previously described) need treatment. This was noted in the results of early arms of AREDS trials showing no benefit in mild ARMD patients. Your ophthalmologist can guide your decision-making process.

How do you know if your patients should be taking the vitamin?

As mentioned, if your patients have any or all of the risk factors present or have been diagnosed with the disease, referral or reexamination by an ophthalmologist can be helpful. Also make note if your patient has a history of or current tobacco use; if treated, they should be using the AREDS2 formula without beta-carotene. In advanced disease treatment, other medications or injections may be used in addition to vitamin supplements.

In Summary

Generally speaking, a healthy lifestyle with wise dietary habits, exercise, and avoidance of tobacco and UV exposure is the best method of preventing most disease, including eye disease. Multivitamins in general also contribute to overall health, though the amounts of antioxidants and zinc are lower in most over-the-counter preparations. The AREDS studies lend strong support for the AREDS formula vitamin supplements in slowing of progression of vision loss in ARMD patients. These supplements are currently recommended for patients with intermediate drusen in one or both eyes or advanced ARMD in one eye but not the other. No recommendation has been made for taking the AREDS formulation to prevent early ARMD since the original studies showed no additional benefit in this subgroup. While these vitamins are available without prescription, they are not inexpensive. The current recommendation is that patients over 60 years old should get a dilated eye exam at least once a year and should discuss with their eye care professional whether taking AREDS supplements is appropriate treatment for their eye health. Since a family history and other genetic risk factors may contribute to development of this disease, a complete dilated exam can be done to evaluate for any evidence of early disease.

Bibliography:

Additional details on these studies and the many branches are available for review at www.nei.nih.gov/health/maculardegen, and or www.nei.nih.gov/areds2 AREDS2 Research Group. Lutein/Zeaxanthin and Omega-3 Fatty Acids for Age-Related Macular Degeneration. The Age-Related Eye Disease Study 2 (AREDS2) Controlled Randomized Clinical Trial. *JAMA*, published online May 5, 2013.

AREDS2 Research Group. Lutein/Zeaxanthin for the Treatment of Age-Related Cataract. *JAMA* Ophthalmology, published online May 5, 2013.

Chew et al. Long-Term Effects of Vitamins C, E, Beta-Carotene and Zinc on Age-Related Macular Degeneration. *Ophthalmology*, published online April 11, 2013.

Nutrition In Cancer

by Praveen Tumula, M.D.
with Texas Oncology, P.A.

According to the Malnutrition Advisory Action Group of the British Association for Parenteral and Enteral Nutrition, malnutrition is defined as a nutritional status in which a deficiency in energy, protein, or other nutrients causes measurable adverse effects on tissues or body form, function, or clinical outcomes. Malnutrition occurs in 651 of cancer patients and is a major cause of morbidity and mortality in those with advanced disease. It is more frequent in patients with gastrointestinal tumors. Malnutrition has significant impact in cancer patients through various factors including poorer overall survival in various malignancies, reduced benefit from cancer therapy, increased chemotherapy-related toxicity, and poorer quality of life. Various factors contribute to weight loss including mucositis, inability to ingest or absorb adequate calories because of a problem with the alimentary tract, loss of appetite, and metabolic aberrations. Furthermore, for patients who are already in a catabolic state, the increased metabolic demands associated with anticancer treatment (particularly surgery) further worsen the problem. By the same token, excess weight gain has been associated with recurrence of various malignancies including breast and colon cancer. Hence, leading organizations that issue health recommendations for cancer prevention advocate maintaining a healthy weight and exercising regularly. A healthy weight is considered to be a body mass index between 18.5 and 25 kg/m^2 of body surface area, and regular exercise is defined as at least 150–210 minutes of moderate exercise weekly.

Multiple scoring systems are available to assess nutritional status in cancer patients. One simple tool that has been validated is Nutritional Risk Index (NRI), which has been validated in various clinical settings, including gastrointestinal cancers. It is calculated based on the current weight and albumin. There are no widely accepted guidelines for when to initiate nutritional support in cancer patients. Guidelines from the National Comprehensive Cancer Network (NCCN), which is a consortium of major comprehensive cancer centers in US, suggest consideration of nutritional support, as appropriate, in patients who have an estimated life expectancy of months to years, but not in those with a life expectancy measured in weeks to months. The most recent review included 13 randomized trials of oral nutritional intervention (dietary advice, oral nutritional supplements, or both) totaling 1414 participants with a variety of cancer types. Trials were included if they were undertaken in adults who were clearly malnourished (although the definitions of malnourishment differed according to trial) or judged to be at risk for malnutrition on the basis of their clinical condition, were receiving active anticancer treatment or palliative care, and if they compared oral nutritional intervention versus usual care. All the trials were low to moderate quality with certain risk for bias. In general, nutritional intervention improved quality of life but did not affect mortality.

Now I would like to discuss specific scenarios that have been well studied with regards to nutrition and cancer. These scenarios include the perioperative setting, hematopoietic stem cell transplantation, aero-digestive cancer, digestive cancer and the terminally ill setting. Other than these specific scenarios, I recommend my cancer patients to have a regular well balanced diet with certain recommendations specific to their treatment regimen.

In the perioperative setting, the role for total parenteral nutrition (TPN) or "intravenous nutrition" is limited by lack of data that it provides survival benefit, with the possible exception of those

who have intestinal failure (short bowel syndrome, severe intestinal dysmotility, or selected patients with inoperable bowel obstruction). Furthermore, there are risks (e.g., bloodstream infections, refeeding syndrome) associated with its use. In this setting, enteral nutrition (oral) seems to be the better option based on one randomized clinical trial. The mantra of immunonutrition has been gaining momentum over the past few years. It involves inclusion of "conditionally essential elements" (arginine, RNA nucleotides, and omega -3 fatty acids) in enteral formulas. The benefits of immunonutrition have been addressed in multiple meta-analyses, all of which have concluded that enteral immunonutrition reduces perioperative complications and shortens hospital stay compared with standard enteral nutrition, but does not impact mortality.

Patients who undergo hematopoietic stem cell transplant are susceptible to malnutrition due to significant mucositis from high dose chemotherapy and from acute graft versus host disease. Parenteral nutritional support is commonly administered prophylactically to such patients until they are able to maintain adequate oral nutritional intake, which usually does not occur until the bone marrow recovers. The role for total parenteral nutrition in graft versus host disease is less well defined and is most often recommended for patients who have severe mucositis or gastrointestinal manifestations, when a long period of insufficient oral intake is anticipated. Glutamine, an important precursor for nucleotide synthesis and an important fuel source for rapidly dividing cells (such as the lining epithelia of the GI tract), has been studied both parenteral and orally in patients undergoing hematopoietic cell transplantation. But the impact of glutamine in parenteral and oral nutrition is still controversial due to equivocal results.

Head and neck cancer patients commonly experience malnutrition even prior to the diagnosis due to the anatomical involvement and heavy alcohol use, and their nutritional status is further compromised by therapy (surgery and chemotherapy given concurrently with radiation) leading to dysphagia, odynophagia, and dehydration. Unfortunately, it is unclear if enteral nutritional support translates into better outcomes for these patients. Concurrent chemotherapy with radiation is standard approach for most advanced head and neck cancer for preservation of organ function. Combined therapy is associated with enhanced mucosal toxicity; loss of 8 to 10 percent of body weight is common, even with early nutritional support. Nutrition via gastrostomy (e.g., percutaneous endoscopic gastrostomy [PEG]) is commonly advocated in these patients but is based on limited data. I would think that early evaluation and intervention by a dietitian can identify patients who have nutritional risk, and dietary measures alone (oral nutritional supplements, frequent small meals during treatment with avoidance of abrasive, spicy, or acidic foods) may allow some patients to maintain nutrition through the course of therapy.

Patients with digestive cancers, including esophageal and gastric cancers, commonly present with malnutrition (80%). Though most of the data available for nutritional support is in the postoperative setting, limited data suggest that nutritional support perioperatively decreases postoperative complications. For patients who need adjunctive nutritional support, enteral nutrition is generally seen as superior to parenteral nutrition in a patient with a functioning gut. In the postoperative setting, enteral feeding is associated with fewer complications and with more efficacious reversal of malnutrition. PEGs (percutaneous endoscopic gastrostomy) are commonly avoided in digestive cancers due to various reasons, and jejunostomy (J-tube) is the standard of care for enteral feeding support.

In terminally ill patients, while nutrient supplementation might appear ideal to control or reverse malnutrition, several clinical trials have failed to demonstrate a positive effect in reversing weight loss, improving quality of life, or prolonging survival. Hence several groups including NCCN and American Society of Parenteral Nutrition recommend against parenteral nutrition in advanced cancer. However, in exceptional circumstances, a patient with a prognosis of a few months to a year might benefit from parenteral nutrition.

References

1) Nitenberg G, Raynard B. Nutritional support of the cancer patient: issues and dilemmas. Crit Rev Oncol Hematol. 2000 Jun;34(3):137-68.
2) The Veterans Affairs Total Parenteral Nutrition Cooperative Study Group. Perioperative total parenteral nutrition in surgical patients. *N Engl J Med.* 1991;325(8):525.
3) Hoda D, Jatoi A, Burnes J, Loprinzi C, Kelly D. Should patients with advanced, incurable cancers ever be sent home with total parenteral nutrition? A single institution's 20-year experience. Cancer. 2005;103(4):863.
4) Bozzetti F. Immunonutrition in gastrointestinal surgery. Br J Surg. 2011;98(1):37.
5) Magné N, Marcy PY, Foa C, Falewee MN, Schneider M, Demard F, Bensadoun RJ. Comparison between nasogastric tube feeding and percutaneous fluoroscopic gastrostomy in advanced head and neck cancer patients. Eur Arch Otorhinolaryngol. 2001;258(2):89.

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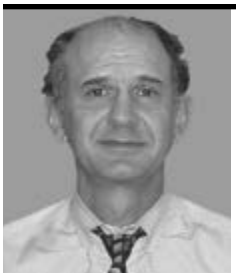

The Mediterranean Diet

by Steve Urban, M.D.

The land of dietary science is where evidence-based medicine goes to die. The medical literature on healthy diet is replete with observational studies, poorly-designed prospective studies, surrogate markers, anecdotal reports, and recommendations based on hypotheses and evolutionary speculations. The popular literature is worse. Hundreds—perhaps thousands—of diets have been proposed over the years, usually with the intent of selling books to a gullible and desperate public. Each diet has initial success; as long term reports and compliance data emerge, however, each one fades into oblivion, soon to be replaced by the next fad. Recently, though, reasonably well-designed studies have suggested that one diet—the Mediterranean Diet—is successful at preventing cardiovascular morbidity and mortality, despite the fact that it has only modest effect on weight. In this paper, I will review the evidence behind this diet and will explain why I have said goodbye to the Burger King Whopper.

Diet and obesity

I am close to being a nihilist about the effectiveness of diet for the long term treatment for obesity. We have a better track record at curing cancer of the pancreas than curing obesity with diet (bariatric surgery works, but you can die from it). In my 30+ years of practice, I convinced many smokers to give up the habit and quite a few alcoholics to take the cure. But I can count on one hand the obese patients who kept their BMI below 25 with diet alone. Why is that?

Here's my hypothesis. By constant wheedling and recounting horror stories of emphysema, erectile dysfunction, and facial wrinkling, you can convince most smokers to quit. And the best way is simple to understand: quit cold-turkey and never pick up a cigarette again! Medications can help, but the goal—abstinence-- is clear. But you can't tell an obese person to stop eating. Telling them to follow a prudent diet, to exercise portion control, to eat out infrequently, to exercise regularly, etc. is like telling an alcoholic to drink moderately. If an alcoholic could drink moderately, they wouldn't be an alcoholic. If an obese person could eat prudently, they wouldn't be an obese person. That 5% of patients who are able to lose their excess fat and to keep it off experience a "religious conversion" and change their expectations for eating—i.e. they get their pleasure from other activities of life—just like an alcoholic who commits to AA. And in the world of obesity management, such religious conversions--while cause of celebration for practitioner and patient alike—are rare.

The wacky world of popular diets (short version)

So, as I stated, most popular diets are marginally effective. They work in the short run and fail due to non-compliance in the long run. I can't count the number of patients who lose 15 pounds on the Atkins' diet (or whatever the latest diet-of-the-month may be) but who, 6 to 12 months later, have gained their weight back. They give in to their craving for a French fry, and it's all over.

Many diets just make no sense to me—including that most popular of recent visits to fantasyland, the "paleo" diet. Forget the fact that diet completely ignores an important calorie source for hunter-gatherers—insects and larvae. The whole idea that a prehistoric diet was selected by evolutionary forces to prevent diseases of aging (such as heart disease, cancer, or stroke) is nonsensical. Once you have reproduced, natural selection has no use for you. If the paleo diet has any evolutionary benefit, it would be to keep the person alive until the age of reproduction. To look to primate evolution as an answer for the medical ills of industrial society seems misdirected (I could be convinced otherwise by outcomes-based data).

So, if dietary manipulations have a such poor track record--and no outcomes data in terms of cardiovascular disease (CVD) prevention whatsoever--maybe it doesn't even matter what you eat. Perhaps our byword should be carpe pizzam (I'll bet you didn't know the word "pizza" had an accusative form). It turns out, however, that there is a dietary approach that, while not great in prompting weight loss, is supported by reasonable data in terms of disease reduction. This is the Mediterranean diet. As you can tell from the preceding paragraphs, I am a skeptic at heart, but at last I have been convinced by evidence that dietary modification can provide some benefit. The rest of this paper will be dedicated to showing you

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why the time has come for the general application of the Mediterranean diet.

Enter the Mediterranean diet

Dr. Ancel Keys (castigated nowadays for some of his other conclusions) was actually one of the first to note the Mediterranean paradox—that cardiovascular disease is less common in Greece, Italy, and other Mediterranean countries, even though their total fat consumption is similar to Northern nations. In particular, he noted a very low CVD incidence among the population of Crete, where the consumption of fish, olive oil, and red wine is prevalent. Subsequent studies showed beneficial effects on serum lipid profiles, inflammatory markers and markers of endothelial function. Other population-wide studies supported the observation that countries with a Mediterranean-like dietary pattern have a lower incidence of heart disease and stroke.

A novel element in the diet debate—evidence

The first well controlled, prospective, outcomes-based trial of the Mediterranean diet was the Lyon Heart study, which was conducted in the 1990s. This was a secondary prevention trial (i.e. patients were identified because they had had a previous heart attack) which was carried out over almost 4 years. Patients in the Mediterranean diet group received intensive training from a dietitan and had serum fatty acid profiles to determine compliance. This trial showed a statistically-significant decrease in cardiovascular outcomes in the Mediterranean diet group—a relative risk (RR) of CVD events of 0.35 and a RR of all-cause mortality of 0.44 (both statistically significant). Impressive.

The PREDIMED study

This landmark study was published in the New England Journal of Medicine in 2013. PREDIMED stands for Prevencion con Dieta Mediterranea; as you can probably guess, it was carried out in Spain. This was one of the best outcomes-based dietary studies ever conducted. The patients were randomized and followed for 4.8 years; the study was stopped early when the beneficial effects of the Mediterranean diet became overwhelming.

Control patients were instructed in a standard low fat diet; study patients were assigned to receive either dietary instructions plus extra virgin olive oil (EVOO) or dietary instructions plus daily consumption of mixed nuts. After the follow-up period, a major and statistically significant reduction in CVD events was demonstrated (RR 0.60). The relative risk of total CVD mortality in the Med diet group was 0.83 (CI 0.54-1.29); perhaps because of early discontinuation of the study, this number did not reach statistical significance.

In the tried-and-true academic tradition of getting as many papers as possible out of your data, the PREDIMED study group has published many subgroup analyses of their population. To summarize, these analyses have shown that most of the CVD reduction was due to stroke prevention, that the incidence of diabetes was reduced (RR in the EVOO group 0.60, in the mixed-nut group 0.82), and that the incidence of atrial fibrillation was reduced (RR 0.62 in the EVOO group). They have shown that the incidence of the metabolic syndrome was lower in subjects who consumed low fat dairy products (RR for low fat yogurt consumers 0.78, for cheese-eaters 1.31), and that the subgroup that did not follow their diet and consumed more saturated fats and trans-fats had a higher risk of CVD (RR as high as 1.81 in the saturated fat group). There is even preliminary evidence that EVOO decreased the incidence of breast cancer.

So, what IS the Mediterranean diet

Interestingly, in the PREDIMED study, the interventions were simple. The intervention groups received instruction in a high fish, low red meat diet. The EVOO group was given free EVOO (average consumption per family was almost ONE LITER PER WEEK!!!) and the mixed nut group was given 30 grams of mixed tree nuts (walnuts, hazelnuts, and almonds) per day.

To start with, the Mediterranean diet should be high in olive oil. Since extra virgin olive oil is highest in phenols (felt to be anti-inflammatory) and was the product studied in PREDIMED, most experts recommend EVOO, even though it is more expensive. Seafood should be the major source of protein and should be consumed 3-5 times a week. The Mediterranean diet is high in nuts, fruits and vegetables; in particular, pulses such as beans, peas, and lentils are emphasized. Whole grain breads and pastas are allowed, as are low fat dairy products such as yogurt—most experts extend this to fat

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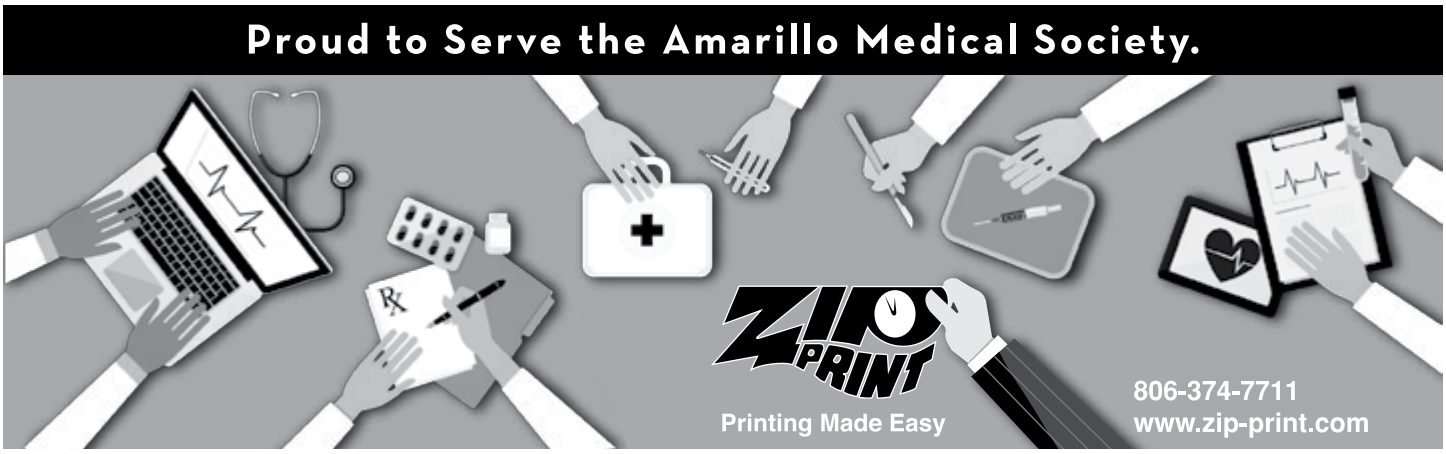

free milk and dairy products. The studies I have seen suggest that most of the benefit comes from the EVOO, the fish, the nuts, and the fruits and vegetables.

Other studies suggest that red wine in moderation (maximum one 5 oz. glass per day in women, two 5 oz. glasses in men) contributes to the beneficial effect of the Mediterranean diet, although this was not studied in the PREDIMED analysis. Numerous other analyses have suggested slight cardiovascular benefit from modest alcohol consumption; so I'm for it.

Foods to be avoided include: red meats, processed meats (such as bacon, lunch meats, etc), yellow cheeses, sugary beverages, commercial bakery goods, and spread fat. Goodbye Whopper with cheese; I loved you in my youth, but my current diet doesn't want me to have anything to do with you.

Does this mean that I should add extra virgin olive oil to everything?

Practically speaking, the answer is "yes." Sauté your vegetables in EVOO. Make your own salad dressing using EVOO. I just whisk my EVOO with an acid (balsamic vinegar is my current favorite but lime or lemon juice works well too) and add whatever spices are at hand (no salt!). Then, I drink whatever dressing is left over in the bowl. My wife makes a great traditional Greek salad with tomatoes, green bell peppers, onions, Kalamata olives, a little feta and –you guessed it—EVOO. The tomatoes provide the acid. Vegetable and bean-based soups such as home-made minestrone are great. Saute your shellfish in EVOO; coat your salmon or tuna with it before grilling. Snack on hummus, unsalted nuts or low-fat yogurt; sop up EVOO and balsamic vinegar with a crust of whole-wheat bread. Try it; you'll like it!

Caveats and conclusions

Here are some drawbacks of the Mediterranean diet:

1. It is more expensive.
2. The effect of the Mediterranean diet in promoting weight loss is modest. After all, EVOO has as many calories as lard (both are fats with 9 Kcal/gram). Nuts are calorie-dense, too.
3. The Lyon and PREDIMED studies may be wrong. We have all seen prospective controlled studies in the NEJM that were superseded by better studies or paradigm shifts in the understanding of disease processes. All conclusions are preliminary conclusions.
4. All diet studies published so far can be criticized. Even the best trials, for instance, are single-blind (it's basically impossible to double-blind a long-term dietary study, as you could well imagine). In addition, all-cause mortality was not decreased in the PREDIMED study. Was the study underpowered, or were other negative aspects overlooked (for instance, the mercury content of most seafood)?
5. Like all diets, the Mediterranean diet is restrictive. (This may be why the vision of Cameron Diaz emerging from a huge bowl of macaroni and cheese seems to be haunting my dreams of late). Perhaps the Mediterranean will prove as unsustainable as other diets.

Despite these caveats, I believe that we now have sufficient evidence—based on prospective, randomized, single-blind, outcomes-based studies—to recommend the Mediterranean diet to our patients, at least to those with a significant risk of cardiovascular disease. In my estimation, the evidence in favor of the Mediterranean diet has exceeded the tipping point of equipoise, and we have robust enough evidence for us to act upon. On an individual basis, I kind of like this EVOO and fish diet. On a population-wide basis, the health benefits could be dramatic.

Selected bibliography

Davis C, Bryan J, Hodgson J, Murphy K. Definition of the Mediterranean diet: a literature review. Nutrients 2015; 7: 9139-9153.

deLorgeril M, Salen P, Martin JL, et al. Mediterranean diet, traditional risk factors, and the rate of cardiovascular complications after myocardial infarction: final report of the Lyon Diet Heart Study. Circulation 1999; 99: 779-785.

Estruch R, Ros E, Salas-Salvado J, et al. Primary prevention of cardiovascular disease with a Mediterranean diet. *N Engl J Med* 2013; 368: 1279-1290.

Lakkur S, Judd SE. Diet and stroke: recent evidence supporting a Mediterranean-style diet and food in the primary prevention of stroke. Stroke 2015; 46:2007-2011.

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Nutrition for the Adolescent Athlete

by Johnnie Faircloth, M.D.

Introduction

Adolescent participation in sports offers many benefits, including the development of self-esteem, peer socialization, general fitness and let's not forget that it is fun. For those athletes who have the determination and talent, sports can also provide access to higher education through athletic scholarships, and an elite few will represent their country or play at the professional level. Many in the sports medicine community, including myself, are of the opinion that, more than ever, today's adolescent athlete is under pressure to achieve at a high level. Early sport specialization and high intensity training are leading to an increasing number of injuries and medical conditions previously seen only in professional athletes. With the goals of improving performance and minimizing some of these risks, athletes, parents and coaches can help to ensure optimum fluid and nutrition intake. Consider the following scenarios.

- A high school senior presents to her doctor with a chief complaint of dizzy spells. She has not had a menstrual flow in over 6 months and her body mass index (BMI) is 16.
- A high school junior presents with a chief complaint of inability to gain weight. He is trying to make the high school football team.

This essay will inform the reader of the pre exercise, post exercise and general fluid and macronutrient requirements of adolescent athletes during exercise or sport participation. It will also address some general principles of weight loss and weight gain. Finally, it will touch on special considerations in athletes who participate in weight sensitive sports and who suffer athletic energy deficit.

General Fluid and Macronutrient Requirements

Macronutrients are large molecules, such as carbohydrate, protein and fat, that are obtained through the diet and provide calories for energy, metabolism and growth. Many adolescent athletes eat a poor diet and therefore fail to consume the correct quantities of macronutrients to adequately meet their performance needs and to maintain optimum growth. I recommend athletes keep a daily record of macronutrient intake.

In general, the daily carbohydrate needs of an athlete are 6 to 10 grams per kilogram (g/kg) of their body weight. Carbohydrates are the body's first choice for fuel during exercise. Insufficient carbohydrate intake will cause premature fatigue during activity and generally low energy levels.

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Protein intake will vary depending on the goals of the athlete. A general rule is to eat protein in quantities of 1.2 to 1.8 g/kg per day. Endurance athletes may want to start at the bottom of the range but athletes who participate in strength and resistance activities should begin near the middle. Signs of insufficient protein intake may be relative muscular weakness and failure to progress in resistance training.

Fat intake will make up the rest of the athlete's daily calorie needs. Fats are used by the body during sport and performance activities after carbohydrate has been depleted. A general rule is to consume fat in quantities that equal 15 to 30 percent of daily energy needs.

Calculating Energy Needs

In order to maintain performance, growth and metabolism, all high level athletes need to be able to estimate caloric and macronutrient needs. Failure to consume adequate calories and macronutrients can result in an energy deficit with resulting poor performance or health problems. A good estimate of energy requirements can be obtained by using the Harris-Benedict equation. This equation estimates the baseline metabolic needs or basal metabolic rate (BMR) of an individual at rest and then can be modified according to activity level.

Harris-Benedict Equation

BMR male = 66.47 + (13.75 x weight in kg) + (5.003 x height in centimeters) – (6.755 x age in years)

BMR female = 655.1 + (9.6 x weight in kg) + (1.8 x height in centimeters) - (4.7 x age in years)

1.2 – 1.9 multiplication factor for activity. (sedentary to vigorous)

To use the Harris-Benedict equation the athlete must plug in their weight in kilograms, height in centimeters and age in years and perform the calculation. This result is then multiplied by a factor of 1.2 for very sedentary (non-athlete) people or up 1.9 for athletes who work out or compete twice in a day at a vigorous intensity level. This will provide an estimate of the daily caloric needs and should be used in conjunction with the macronutrient estimates mentioned previously. If inadequate performance level, insufficient strength gains or unsatisfactory weight changes occur, then the daily needs are adjusted. This trial and error method should meet the needs of most adolescent athletes.

Game Day Nutrition

The adolescent athlete may want to adjust their nutritional intake on the day of competition or heavy training. Optimum performance and recovery can usually be achieved by the following game day recommendations for carbohydrate, protein and fluid intake. This recommendation assumes that the athlete already consumes adequate calories and drinks 8 to 10 glasses of water per day and, therefore, is well hydrated and has no energy deficit.

Three to 4 hours before competition, the athlete should consume about 4 g/kg of carbohydrate. One to 2 hours prior to competition it is recommended to consume 0.5 to 1 g/kg of carbohydrate and 90 to 180ml of water if weighing less than 40kg or 180 to 360 ml if weighing more than 40kg. During events lasting less than 1 hour the athlete should drink 500ml of water per 15 minutes. Carbohydrate intake during competition is unnecessary for athletic events lasting less than 1 hour. For events lasting longer than 1 hour, the athlete should add 0.7 g/kg of carbohydrate every 15-20 minutes of competition or heavy training. For maximum recovery following an event the athlete should consume 1 to 1.5 g/kg of carbohydrate and 0.2 to 0.4 g/kg of protein. In addition, water intake following exercise should be about 500 ml per 0.5 kg of body weight lost during the event.

Weight Gain

There are times when the adolescent athlete needs or desires to gain weight. Principles of healthy weight gain in young athletes include the presence of endogenous anabolic hormones to support hypertrophy of muscle and lean tissue, with sufficient carbohydrate intake to minimize muscle catabolism and sufficient protein intake to support muscle and tissue repair and hypertrophy. After calculating daily expenditures, the athlete will need to increase overall calorie intake to make weight gains. An increase of 300 to 400 calories per day over expenditures and consumption of 1.5 to 1.8 g/kg per day of protein should be sufficient and safe. Adding extra fat into the diet is not recommended unless the athlete has significant difficulty in gaining weight. These dietary recommendations are usually sufficient when used in conjunction with proper resistance training and rest intervals.

Weight Loss

At times an athlete will need to lose weight in order to improve health and performance. If the athlete is currently maintaining their weight, a goal for weight loss should not exceed 1.5% of total body weight per week. An overall weekly calorie deficit of 3500 to 7000 calories should enable the athlete to lose 1 to 2 pounds per week. This is best achieved by combining an increase in daily calorie expenditure with decreased daily calorie intake. If possible, measuring the athlete's body mass index with skin fold calipers or another method is more accurate than weight on a scale when determining actual body fat loss.

The Female Athlete Triad and Energy Deficit

The female athlete triad refers to a constellation of signs and symptoms related to energy availability, menstrual function and bone mineral density. The athlete may suffer fatigue and performance problems, dysmenorrhea or amenorrhea, and may suffer stress fractures or have other signs of decreased bone density. Affected athletes commonly engage in sports where weight and body image are important or perceived to be important. Cross-country runners, gymnasts and dancers are more commonly affected. The presence of an eating disorder is not necessary, and the athlete's BMI may be normal. Treatment consists of increasing calorie intake and decreasing training. Psychological intervention is sometimes necessary. Suspicion of this disorder mandates referral to a physician who is experienced in working with athletes and may require disqualification from activity until health is restored.

NATIONAL DOCTORS' DAY
MARCH 30

Potter-Randall County Medical Society celebrates National Doctors' Day to recognize the service and dedication of its members in promoting a healthy community.

On March 30, we will celebrate Doctors' Day, which was first observed in Winder, Georgia in 1930. According to Wikipedia, Eudora Brown Almond, a physician's wife, decided to declare a day in honor of doctors. The red carnation was chosen as the symbolic flower for National Doctors' Day.

In 1958, a resolution commemorating Doctors' Day was adopted by the U.S. House of Representatives, and legislation was introduced both in the House and Senate to establish a national Doctors' Day in 1990. President George Bush signed S.J. RES #336 (which became Public Law 101-473) in 1991, forever designating March 30 as National Doctors' Day.

President Bush wrote in the Proclamation, "In addition to the doctors whose names we easily recognize, there are countless others who carry on the quiet work of healing each day in communities throughout the United States indeed, throughout the world. Common to the experience of each of them, from the specialist in research to the general practitioner, are hard work, stress, and sacrifice. All those who serve as licensed physicians have engaged in years of study and training, often at great financial cost. Most endure long and unpredictable hours, and many must cope with the conflicting demands of work and family life." President Bush urged that all Americans "observe this day with appropriate programs and activities."

Defining Malnutrition

by Aubre LeFever, RD, LD, CNSC – Baptist St. Anthony's Hospital

Adult malnutrition is a common but often under recognized problem in healthcare. The estimated prevalence of malnutrition (or undernutrition) ranges from 15%-60% depending on the setting and criteria used. With the mandate from The Joint Commission in 1996 that nutrition screening be implemented within the first 24 hours of admission, multiple criteria as well as several different approaches have been developed with no single, universally accepted approach to diagnosing adult malnutrition. Widespread confusion among healthcare practitioners has resulted, particularly from the use of historic definitions for malnutrition that rely on changes in acute phase proteins (eg, serum albumin and prealbumin) as the primary diagnostic indicator for malnutrition. Changes in serum albumin or prealbumin do not predictably occur with weight loss, protein energy restriction, starvation, anorexia nervosa, or negative nitrogen balance. These acute phase proteins appear to better correlate with severity of the inflammatory response rather than poor nutrition status. There is now an appreciation for the important role that the acute and chronic inflammatory response plays in the pathogenesis of malnutrition in disease or injury due to the metabolic alterations and anorexia that ensue. For these reasons, a new approach to defining adult malnutrition has been proposed by the Academy of Nutrition and Dietetics (Academy) and the American Society for Parenteral and Enteral Nutrition (ASPEN) in which standardized, etiologically based diagnostic language that integrates the role of the inflammatory response on malnutrition is used to both identify and document adult malnutrition in clinical practice.

Characteristics of the New Approach

In 2012, the Academy and ASPEN came out with a consensus document that described the recommendations for the identification and documentation of adult malnutrition (Figure 1). The 6 criteria are:

- Insufficient energy intake: % nutrients consumed/administered vs required
- Unintended weight loss
- Loss of muscle mass
- Loss of subcutaneous fat
- Localized or generalized fluid accumulation that may mask weight loss
- Diminished functional status as measured by hand-grip strength

Because no single parameter is definitive for malnutrition in adults, a positive finding in any 2 characteristics is indicative of malnutrition. These characteristics are not discrete variables but operate on a continuum and should be evaluated on admission and at regular intervals.

Applications in Clinical Practice

The incorporation of these characteristics into clinical practice includes an evaluation of patient history and clinical diagnosis, physical exam/clinical signs, anthropometic data, laboratory data, food/nutrient intake and functional status. A patient's clinical diagnosis and medical history can aid in the assessment of the risk for malnutrition and whether or not inflammation is present. Co-morbidities and the function of the GI tract are of particular importance when evaluating risk of malnutrition. A physical exam can show the presence of fluid accumulation, muscle wasting, fat loss or signs of micronutrient deficiencies. Unintended weight loss is a well validated measure of malnutrition and should be measured regularly during the inpatient stay. It is important to remember that, while malnutrition can occur at any body mass index (BMI), the risk of poor nutrition is increased at both extremes of BMI. Laboratory data, such as C-reactive protein, serum albumin, negative nitrogen balance and others, are helpful in assessing the inflammatory response. Food and nutrient intake is evaluated in terms of estimated intake as determined by a modified diet history, 24-hr recall, calorie count or the documentation of periods of inadequate food intake compared to estimated energy requirements over time. Lastly, functional status can be assessed by handgrip strength as appropriate. As more performance measures become widely accepted/validated, we will likely see other methods for measuring functional status emerge.

Considerations in the Application of the New Malnutrition Diagnoses

It is important to consider that each of the characteristics used in the diagnosis of adult malnutrition may occasionally be seen in patients for whom a malnutrition diagnosis is not necessarily appropriate. Examples might include an elderly woman who regularly consumes "less than recommended calories" but maintains a stable, lower than recommended BMI, and is "healthy" and able to function well in the home environment, or the spinal cord injured patient who suffers from weight loss related to de-innervation and disuse but is consuming adequate calories.

Another problematic scenario for the diagnosis of malnutrition is the young or middle-aged adult who is acutely, critically ill. Documentation of

a malnutrition can be difficult for these patients as "on admission" they often present with no malnutrition criteria but can become malnourished in a matter of days, because the massive inflammatory response seen in these patients limits the effectiveness of nutrition intervention. Furthermore, periods of interrupted feedings due to the variety of medical and/or surgical interventions also contribute to the rapid downslide in nutrition status in this population. Therefore, compromised ability to eat immediately prior to admission, repeated and extended interruptions in feeding regimens, frequent holding of enteral feeding and unintended weight loss are parameters that are particularly important in this category of patients. It is also vital that critically ill patients, in particular, are monitored closely to determine the actual level of nutrients delivered so that patient needs are adequately met.

Summary

The characteristics recommended by the Academy and ASPEN for the identification and documentation of adult malnutrition are an effort to better and more systematically diagnose malnutrition or undernutrition. They are a dynamic work in progress, and clinicians should expect to see changes and possible expansions in the characteristics used to identify and document malnutrition with the accumulation of more evidence. Periodic revisions based on new evidence will help to improve the health of the public and to maximize the efficiency of healthcare resources.

References:

1. Jensen GL, Bistrian B, Roubenoff R, Heimburger DC. Malnutrition syndromes: A conundrum vs. continuum. *JPEN* 2009; 33(6):710-716.

2. Jane VW, et al. Consensus Statement: Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: characteristics recommended for the identification and documentation of adult malnutrition (undernutrition). *JPEN* 2012; 36(3): 275-283.

3. Jensen GL, et al. Recognizing malnutrition in adults: definitions and characteristics, screening, assessment, and team approach. *JPEN* 2013; 37(6): 802-807.

4. McClave SA, et al. Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient: Society of Critical Care Medicine and American Society for Parenteral and Enteral Nutrition. *JPEN* 2016; 40(2): 159-211.

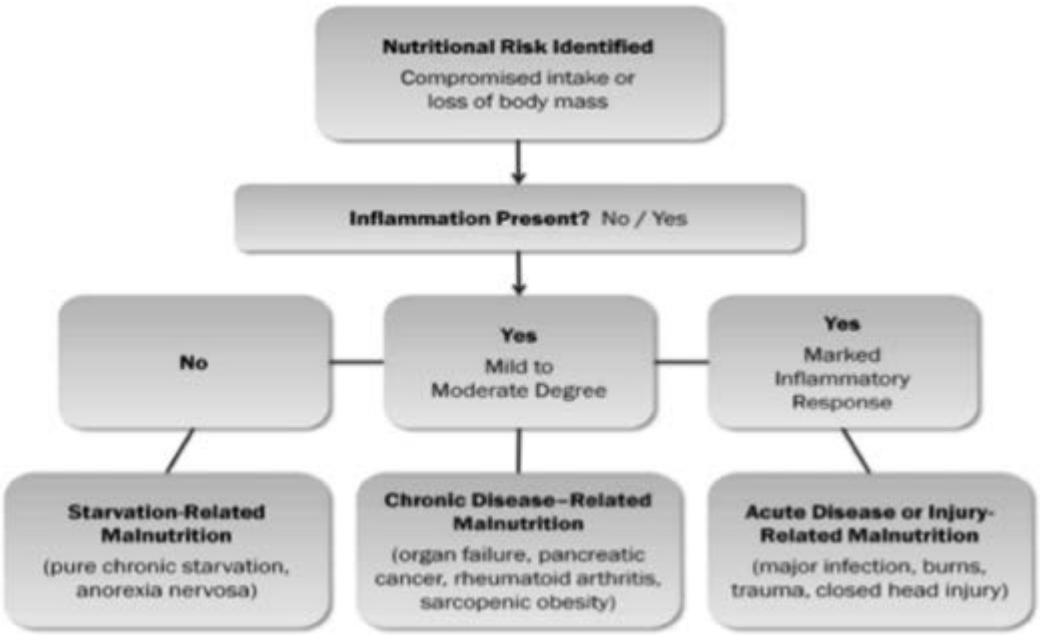

Figure 1. Etiology-Based Malnutrition Definitions. Adapted from reference (1): Jensen GL, Bistrian B, Roubenoff R, Heimburger DC. Malnutrition syndromes: A conundrum vs. continuum. *JPEN J Parenter Enteral Nutr.* 2009;33(6):710-716.

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Nutrition Hot Topics

by Amanda (Allen) Ast MS, RD, LD

A Registered Dietitian (RD) is one of the front line defenses to educate Americans on nutrition basics, to engage in behavior modification, and to assist in understanding nutritional lifestyles that lead to better health. A RD is a nationally recognized nutrition expert, specializing in clinical, community, and food service dietetics. Essentially they are the food and nutrition experts who can translate the science of nutrition into practical solutions for healthy living. RDs are responsible for providing personally tailored nutritional health advice for patients, educating and assisting patients with management of chronic diseases, and helping individuals make positive lifestyle changes.

Hot Topics in Community and Clinical Nutrition

Community Nutrition:

The New Dietary Guidelines may seem like a mountain of unattainable goals for individuals to engage. However, it is important to realize what these guidelines Are and Are NOT. From the USDA website: http://www.cnpp.usda.gov/DietaryGuidelines

"The primary audiences are policymakers, as well as nutrition and health professionals, not the general public. The Dietary Guidelines is a critical tool for professionals to help Americans make healthy choices in their daily lives to help prevent chronic disease and enjoy a healthy diet. It serves as the evidence-based foundation for nutrition education materials that are developed by the Federal Government for the public."

This is a model to gauge what is healthy. In our current culture, Americans are daily bombarded with inconsistent diet information and definitions of "healthy". There are vast resources available- viable or not- to fulfill every diet dream. These Dietary Guidelines can be a standard of care, for all other "diets" to be measured against.

So, how can the **Dietary Guidelines** "guide" medical professionals?

In a nutshell, the Guidelines tell us this:

Follow a healthy eating pattern across the lifespan.

- Make it simple, make it a lifestyle, making it the "norm" for our patients. Avoid fad diets. Adopt a better understanding of what "healthy eating" looks like.

Focus on variety, nutrient density, and amount.

- Educate on the role that each macro and micronutrient brings to the functionality of the human body. Target the limited exposure to basic nutrition education for most Americans. With the internet comes the ability to educate, as well as to promulgate every inappropriate fad diet and unrealistic current food trend. Teach patients how to decipher knowledge from trash.

Limit calories from added sugars and saturated fats and reduce sodium intake.

Shift to healthier food and beverage choices

- Add basic skills to patients'/consumers' ability to make choices.
- Convenience foods and beverages are more readily available than ever, all hours, every day. Convenience foods are driven by low cost production. Convenience foods are generally of lower nutritional quality, with added fat and salt to improve shelf life.
- Americans have the right to accurate information regarding the choices they are making. Despite the increase in labeling of all food and drinks purchased, Americans need to understand what that the nutritional data means.

Support healthy eating patterns for all.

- Generational curses-can they be reversed? RDs assist all age groups, and it is vastly evident that most Americans learn how and what to eat from those who raise them. Federal and state government initiatives are focusing on improving school age nutrition education. However, more needs to be done to help post-school Americans understand the role of nutrition in their overall health, and to access the tools to engage today's food supply and industry.

Clinical Nutrition:

Shifting to Clinical Nutrition, RDs engage in a different aspect of patient care. In the acute care setting, RDs are a part of the patient's interdisciplinary care team to assist with reaching and maintaining appropriate nutritional care, promoting successful discharge from the hospital. Evidence based research has shown that expedited and appropriate nutritional care decreases the patient's recovery time and hospital length of stay. RDs can specialize in Clinical Nutrition Support Certification, to offer advanced expertise in Enteral and Parenteral Nutrition. This service is an integral piece of the medical team model when EN or PN are a necessity for a patient's recovery.

The American Society of Parental and Enteral Nutrition provides the gold standard of care in evidence based research and guidelines to assist physicians, pharmacists, nurses, and dietitians in caring for patients when utilizing EN and/or PN. In January, 2016, APSEN published its new Critical Care Guidelines. While at the ASPEN international convention shortly after this publication, I was able to attend a session in which the publishers reviewed the research, data collection and review process for preparing these guidelines.

Summary of the 2016 ASPEN Critical Care Guidelines

EN = Enteral Nutrition,
PN = Parenteral Nutrition
*Nutritional Assessment

- Avoid use of protein markers (albumin, transferrin, pre-albumin)
- Evaluate co- morbidities, function of the GI tract, and risk of aspiration

*Estimation of Needs

- Simple weight based predictive equations, with hypocaloric/high protein diets in obese, and overall continual evaluation of intake and needs
- Protein is of high importance; protein restriction in patients with liver disease is usually counter-productive

*Early EN yields both non-nutritional and nutritional benefits

- Start EN in well-nourished by 5-7 days
- If EN not feasible in first 7 days in ICU, start PN
- Less resistance to use of PN vs EN due to less reduction of line infection

* Standard high protein polymeric formula appropriate for majority

* Use PN earlier in high risk pts when EN not feasible

- Start PN if severely malnourished in 1-2 days
- Transfer off PN when 60% of nutritional goal is met by EN or PO intake

* Appropriate monitors to assure safety, tolerance

- Do not use gastric residuals as measure of tolerance
- Assess for aspiration risk, and take steps to reduce risk with initiation of prokinetics and nursing directives

*Interpret guidelines as they apply to institutional and individual patient populations

- Branched chair amino acid (BCAA) - free formulas not necessary with liver failure
- Appropriately provide protein in higher risk populations: hemodialysis, wounds, etc.

*Guidelines are not dogma. Clinical judgment always takes precedence over guidelines

Nutrition-Focused Physical Examination

RD's have begun a national initiative to perform a nutrition-focused physical exam to develop nutrition care plans that include diagnosis, intervention, monitoring, and reassessment of patients. Clinicians are completing assessment of body fat, muscle, micronutrient status, fluid accumulation, abdominal exam, and functional performance. Exams also include identifying feeding tube location and ileus/bowel obstruction and quantifying lean body and fat mass through review of abdominal radiographs, CT scans, ultrasound scans, and bioelectrical impedance. Current evidence shows that performing a physical examination is necessary to determine if malnutrition is present in a patient.

The Hybrid: Clinical and Community Nutrition= Outpatient education

RDs practice as outpatient clinicians as well. This links clinical knowledge with the community setting. This population served is typically more motivated to engage in learning and behavior modification. The variety of patients counseled in the outpatient setting is enormous. Some clinics will choose to focus on specific areas such as pediatrics, eating disorders, renal diseases, or diabetes. In our Amarillo and surrounding area there are a number of resources available to physicians for improving patient outcomes. Utilization of an outpatient dietitian can be a helpful tool for personalized and unique goal setting and monitoring by the RD. Also, RDs are the first line of defense in most newly diagnosed chronic diseases such as diabetes and renal disease. RDs are also integral players for the care of patients with eating disorders, a rampant problem in our area. RDs coordinate a team of a psychiatrist, counselor, and PCP, and often provide referrals to outpatient and inpatient ED treatment facilities.

Outpatient RDs are often called upon to assist in community events, care fairs, physician training sessions, and employee wellness activities. This engagement is helpful in creating relationships with individuals who might have misconceptions of the practice, assistance, and care an RD can provide.

March is National Nutrition Month

National and local programs will be promoting nutrition education and awareness during this month. Nutrition is not isolated to one demographic. All people need and eat food. As we are offered more and more food choices and food ideas, the term "healthy" becomes muddy and unclear. As health professionals, let us engage in promoting practices and tools to our patients that are research and evidence based. Let us lead our patients toward measurable and attainable goals, and provide them with the resources to do so.

Let's keep it simple, and make it stick.

Helpful sites and references:

http://www.bsahs.org/content/nutrition-education

http://www.nwtexashealthcare.com/community-information/diabetes-education-class#.VrzEgrQrLcs

McClave SA, Taylor BE, Martindale RG et al. Society of Critical Care Medicine and American Society for Parenteral and Enteral Nutrition. Guidlines for the provision and assessment of nutrition support therapy in the adult critically ill patient. JPEN J Parenteral Enteral Nutrition. 2016 Feb; 40(2): 159-211.

http://www.move.va.gov/

White JV, Guenter P, Jensen GE et al. Consesus statement: Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: Characteristics recommended for the identification and documentation of adult malnutrition. *JPEN* J Parenteral Enteral Nutr. 2012; May 36(3):275-83.

McClave SA, Martindale RG, Vanek VW, McCarty M, Roberts P, Taylor B, Ochoa JB, Napolitano L, Cresci G, American Society of Parenteral and Enteral Nutrition Board of Directors, and the American College of Critical Care Medicine. Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.). *JPEN* J Parenter Enter Nutr.2009;33(3)277-316.

Toueger-Decker R. Physical assessment skills for dietetic practice. The past, present and recommendations for the future. Topics in Clinical Nutrition 2006;21(3)190-198.

Rivers E, Nguyen B, Havstad S, et al: Early goal-oreinted therapy in the treatment of severe sepsis and septic shock. *N Engl J Med* 2001, 345: 1368-1377.

Gatt M, MacFie J, Anderson A, et al: Changes in superior mesenteric artery blood flow after oral, enteral and parenteral feeding in humans. Crit Care Med 2009; 37(1): 171-176.

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Nutritional Guidance for the Surgical Weight Loss Patient

by DeeAnne Sisco BSN, RN, CNOR, CBN

Surgical weight loss is an excellent option for those that cannot lose weight through diet and exercise or who have serious health problems caused by obesity. Because these procedures restrict the amount of food that can be consumed, there is much to know about improving the quality of food and about following recommendations for nutritional supplement use. Furthermore, optimizing the nutritional value of each and every meal is crucial, as one can only consume very small portions.

Good nutrition after weight loss surgery is a lifelong consideration that should be well coordinated with one's surgeon, bariatric dietician, and other members of the bariatric surgery team. This type of ongoing monitoring prevents nutrient deficiencies and ensures long-term weight loss. The management of postoperative nutrition begins in the preoperative phase with a full assessment of nutrient status. This process includes an assessment of co-morbidities, past body weight, and current nutritional intake. Readiness for change, any psychosocial issues, and goal-setting all should be included in this assessment to promote good nutrition care.

It is very important to follow the recommended nutrition guidelines following bariatric surgery. The following are recommendations made to the surgical weight loss patient regarding nutrition management:

Protein

Foods high in protein should be eaten first and are necessary in the surgical weight loss diet to maintain muscle mass and promote good healing. The recommendation for protein intake is about 60-80 grams of protein per day. Some of the best sources of protein are eggs, poultry, lean meats, fish, cheese, and milk. When choosing meats, tender cuts are best and, often times, meats are digested a little easier with the addition of broths or gravies to moisten them. It may be necessary, especially in the early months after surgery, to use protein supplements such as shakes and bars to meet daily protein consumption goals. The primary goal when choosing these types of supplements is to keep them under 5 to 10 grams of sugar.

Carbohydrates

It is recommended that patients avoid starches such as bread products, rice, and pasta as they can trigger consumption of more unhealthy carbohydrates. Carbohydrates are a primary source of fuel in the body and may be attained through the consumption of fruits and vegetables. Each meal should contain at least one serving of fruit or vegetable. Tolerance of these foods can be an issue, but will improve with time. It is important to aim for a balanced diet and to optimize each meal.

Fluids

Adequate fluid intake is essential, 48 to 64 ounces of fluid should be consumed each day. These fluids should be consumed between meals, never with a meal. Consuming fluids with meals can lead to faster emptying of the pouch. When the pouch is empty, it causes the feeling of hunger. The quicker the pouch empties, the greater the temptation to eat between meals.

Choose fluids that are non-carbonated. The gas in carbonated beverages can cause discomfort and stretching of the pouch. It is also important to avoid high calorie beverages. Water with fruits infused in them, and decaffeinated coffee or tea are superior choices.

Vitamin Supplements

Bariatric surgery affects absorption of certain vitamins and minerals and requires supplements. Deficiencies can develop quickly. Patients must take vitamin and mineral supplements as recommended by their surgeon to prevent deficiencies. It is further suggested that regular lab testing be done to monitor nutritional status. After surgery, patients are no longer able to swallow pills larger than 8mm due to the risk of obstruction. They should buy all supplements in a liquid, chewable, or sublingual form. A multivitamin, calcium citrate, vitamin D, and

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vitamin B12 are all important parts of maintaining good nutritional status.

Other Helpful Tips:

Eat slowly

Waiting 1 to 2 minutes between bites will help avoid overeating and will allow the body to feel satisfied. One can even utilize baby spoons and forks to assist in slowing down eating. Take 30 minutes to eat meals to, once again, allow the body to experience satiety.

Chew Food Carefully

Chewing food 15 to 20 chews per bite until the food is a pureed consistency prior to swallowing will help one to avoid getting something stuck in narrowed outlets. Failing to chew foods well or taking too large of bites can also result in vomiting.

Eat Three Meals Per Day

This prevents the urge to snack or graze throughout the day adding extra calories. If going longer than four hours between meals, a small high protein snack may be included. Each of these meals should be no more than 6 to 8 ounces total, eating only until a feeling of satisfaction is achieved.

Exercise

Regular exercise is foundational in long-term weight loss and overall health. Building and maintaining muscle mass is key in fostering a healthy metabolism. Choosing exercises that are enjoyable and consistent is important. Also, the setting of realistic goals will help in accomplishing an effective exercise regimen.

Support Groups

Patients who attend support groups both before and after surgery have been shown to lose more weight and to maintain weight loss success better than those who do not attend. Meeting with other patients and healthcare professionals promotes healthy eating and lifestyle changes that foster long-term success for the surgical weight loss patient.

Conclusion

Having a good understanding of proper nutrition is critical for the success of the surgical weight loss patient. Regular dietary consults are needed to properly manage the tool that surgery provides. A comprehensive bariatric program includes nutritional supplementation, routine monitoring of the patient's physical/mental well-being, laboratory values, and frequent counseling to reinforce nutrition education, behavior modification, and principles of responsible self-care. Nutritional complications, if undiagnosed and untreated, can lead to adverse health consequences and to loss of productivity.

Aills L, Blankenship J, Buffington C, Furtado M, & Parrott J. ASMBS Allied Health Nutritional Guidelines for the Surgical Weight Loss Patient. *Surgery for Obesity and Related Diseases* , March 2012, 73-108.

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Nutrition in Chronic Kidney Disease

by Tarek H. Naguib, M.D., MBA, FACP

Over one third of the adults in the United States continue to be obese with no improvement in sight. While the obesity epidemic complicates the management of chronic kidney disease (CKD), I note that not only obesity increases the incidence of CKD but also the control of obesity brings about salutary effects to the course of CKD across its different stages.

Effects of Obesity on Kidney Function

The early evidence of association of obesity with CKD came from Fox et al (JAMA 2004) who studied 2,585 attendees in a community clinic including a follow up duration of 12 years. High body mass index (BMI) was found to raise the odds for incident CKD reflecting odds ratio (OR) of 1.23 in the period of 1978 - 1982. Subsequently, Kramer et al (Am J Kidney Dis 2005) reported on the Hypertension Detection and Follow-up Program, where over 5,900 hypertensive persons with elevated BMI were found to display an increased risk of CKD, with OR 1.2 for overweight & 1.4 for the obese.

In the following year, Hsu et al (Ann Intern Med 2006) reviewed data from the Multiphasic Health Checkups, in the period from 1964 to 1985, when about 320,000 persons were analyzed. The authors correlated BMI with those who developed end-stage renal disease (ESRD). The odds for ESRD were reported as follows: overweight 1.87, class I obesity 3.57, class II obesity 6.12, and extreme obesity 7.

While the above studies revealed the association of obesity in persons with CKD, those with CKD and hypertension, and those with ESRD, Grubbs et al (Am J Kidney Dis 2014) confirmed the increased risk of CKD in a directly proportional fashion to BMI in about 2,800 persons who had normal kidney function over 10-year follow-up period even after adjusting for age, race, sex, smoking, lipids, and activity level.

The U.S. veterans' population was also studied in this regard. In over 238,000 veterans (surveyed by the National Institute of Health) who were on an exercise and diet program, those who lost even less than 1% of their body weight had protective hazard ratio for the development of diabetes. Again, most benefit was noted in the persons with higher ranges of BMI. Then Lu et al (Lancet Diabetes Endo 2015) studied a National cohort of 3.4 million veterans and noted that out of the 8% who had rapid decline in kidney function, elevated BMI was a prominent risk factor that even reflected higher mortality.

These findings suggesting a role of BMI in potential causation CKD stimulated researchers into exploring possible mechanisms to explain the phenomenon. Exaggerated filtration in the nephron (kidney filtering unit) was reported to occur with obesity. Chagnac et al (J Am Soc Nephrol 2003) noted that 30% body weight reduction was followed by decreased kidney hyperfiltration and albumin excretion in urine by at least 20%.

Stages of obesity related CKD

Stage I (Subclinical CKD – hyperfiltration stage): In this stage the patient has no clinical evidence of kidney disease but an incidental biopsy will reveal enlargement of glomeruli and mild scarring.

Stage II (Obesity-Related Glomerulopathy - mild damage): This stage reflects the same findings of the hyperfiltration stage as outlined above with the addition of protein loss in urine and decreased kidney function.

Stage III (Obesity-Related FSGS – severe damage stage): This stage reflects the same findings in stage II with the addition of FSGS (scarring) lesions on kidney biopsy; there still is no edema or low blood albumin. However, this stage reflects more protein loss in urine, more severe kidney dysfunction, and poor prognosis.

Benefits of Weight Loss

Morales et al (Am J Kidney Dis 2003) revealed that, in obese persons with diabetes and CKD, a low calorie diet that led to 4% loss of body weight was followed by improved urine protein loss by 31% (from 2.8 g to 2.0 g) whereas the control group, who had no weight loss, had worse urine protein loss from 3.0 g to 3.5 g. Shen et al (Clin J Am Soc Nephrol 2010) noted similar findings in 63 persons with obesity-related CKD whose diagnoses were confirmed with kidney biopsies, again bolstering the argument for weight loss benefit in obese persons with CKD.

To address whether the same ben-

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efits can be derived from weight loss derived from bariatric surgery, Chauhan et al (South Med J 2010) reported in the Longitudinal Assessment of Bariatric Surgery Study (LABS) that 1691 patients who had Roux-en-Y surgery displayed correction of diabetes, hypertension, lipids, urine protein loss, and kidney function; all by more than 30%. This comes at the cost of infrequent adverse events in relation to bariatric surgery including kidney stone formation, temporary kidney failure, and wound complications.

However, the most interesting information came from Friedman et al. (Clin J Am Soc Nephrol 2013) who studied 6 obese persons with advanced diabetic nephropathy who were placed on very low calorie ketogenic diet, thereby producing body weight loss of about 12% that was followed by decline in urine protein loss by 36%. What is more important is that there is a statistically and clinically significant decline in serum creatinine, cystatin C, fasting insulin, glucose levels, and insulin resistance. This study is a paradigm shift that challenges the long standing recommendation of restricting dietary protein in persons with CKD. These findings also suggest the lack of deleterious effects of liberal protein intake in the context of very low calorie diet that produces weight loss, however mild it may be!

Low versus High Protein Diet

Protein-restricted diet has been the time-honored recommendation for persons who suffer from CKD. It has been a bit controversial however. While the proponents of protein restriction stand by the evidence in literature, the opponents suspected that it is the phosphorus content in the protein diet – not the protein itself – that may be associated with the deleterious effect on kidney function. They also contend that protein restriction along with other dietary restrictions may actually lead to malnutrition, especially when carbohydrates are restricted on account of diabetes and fats are restricted on account of dyslipidemia and/or cardiovascular disease.

As outlined above, a strict low carbohydrate diet in the range of 60 grams per day may well lead to weight loss and salutary effects on persons with renal disease. These persons do not need protein or fat restriction; hence the relative ease of applying this diet in comparison to well-established diets like the American Diabetes Association diet that requires the complex task of calculating servings of different food groups every meal.

In conclusion, a strict low carbohydrate diet (with liberal protein and fat intake) yields weight loss and clear benefits for the management of CKD, in contrast to the long-held notion of protein restriction in CKD. Even partial adherence to the low carbohydrate, liberal protein and fat diet still brings about benefit for the renal function and allows medication reduction including blood pressure, diuretic, and diabetes medications. In short, this diet protects against the development of dialysis requiring ESRD.

References

Naguib MT. Kidney Disease in the Obese Patient. *SMJ* 2014;107(8):481-485.

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The Essential Vital-Amines: Stories of the Discovery of Vitamins

by Rouzbeh K. Kordestani, M.D., MPH

Introduction

In the early 19th century, diseases such as pellagra, beriberi and scurvy ravaged society. The underlying cause of these diseases was unfortunately not known. Many physicians and scientists of the times, from Germany, France, Holland and England, worked diligently describing the specifics of these disease processes. However, no causal pathogen was noted. The presentations were too random; the damage was too great. The initial thoughts were that many of these diseases were infectious in origin. But again, since the exact nature of these diseases could not be elucidated or replicated, there was no true answer.

As the hypothesis of an infectious cause of these processes was slowly ruled out, more scientists thought that these diseases were due to unknown chemicals. Vitamins were initially thought to be an undiscovered protein (Casimir Funk, biochemist), without which animals did not fare well. Since vitamins were equated to other essential proteins, they were wrongly categorized as –Amines. Because their absence in many cases proved lethal, they were further categorized as "Vital." Soon after the phenomenon was described, these Vital –Amines were grouped as Vitamines. In time, the –e was lost as it became known that these factors had nothing to do with proteins and the more traditional –Amines. From then on, the name for the grouping simply stuck: "Vitamins."

Vitamins and the Nobel Prize

Surprisingly, even when discoveries about Vital-Amines were made, very little acclaim or credit was given. In fact, as the list of Nobel accomplishments and awards attests, there were no prizes given to any of the scientists that worked on and/or discovered vitamins until 1928-29.

The Nobel Prize can be given in the area of Medicine/Physiology or Chemistry. Since Vitamins had to be first discovered, then isolated, refined, and produced, at each step the role of a scientist could be applauded or critiqued. This made the job of discovering Vitamins a bit harder. To try to isolate a factor that no one had ever seen was quite difficult. The early scientists simply saw patterns of malaise. Based on this pattern recognition, they reasoned that some form of chemical substance was missing. They then followed this pattern and made small adjustments. In time, the pattern was broken and the malaise healed. Unfortunately, all too often the data did not exist to be able to make a full scientific conclusion. Also, in many cases, the scientists themselves moved on or simply died off. This only further crippled the discovery process. The actual process

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is rather curious as some of the following stories will show. It seems that only after a group of scientists from different disciplines had come up with the same answer and had been able to differentially isolate the future vitamin, was there an actual discovery. This proved to be a frustrating process.

The award selection process for the Nobel has its own faults. Since so little was known about these "Vital-Amines", the Nobel Selection Committee simply chose to ignore the discoveries. Only several decades into the 20th century did they start to take note. The award selection process was made even more frustrating by two additional factors. In the early 20th century, Europe was plagued on two occasions with World Wars (I and II). The World Wars derailed much of the research done in the area of vitamins for years. Also, many of the scientists who helped to discover these chemicals were Jewish or German or both. There was an unwritten rule that no scientists or scientific team associated with the warring regimes was to be given a Nobel prize. Only scientists who survived and endured were finally recognized. Unfortunately, many of the Jewish scientists did not survive (The Nobel prize is not given posthumously). So even though some of these discoveries (and the scientists who made them) were applauded, they were never recognized.

The Discovery of Vitamin B1

The story behind Vitamin B1 bears particular attention. The disease in question was beriberi. The British colonial physicians first described the phenomenon as early as 1803. Early on, beriberi was thought to be due to a "factor" missing in the diets of soldiers. Yet little progress was made. Early observations were lost as they were fragmented among different colonial territories. This changed with Christiaan Eijkman.

A Dutch group under Eijkman resumed research around 1890 in Java. Eijkman discovered that the disease beriberi was reproducible. He also observed that no medical professional handling these afflicted patients would contract the disease. For this reason, he correctly concluded that the process was not infectious in origin. He then proceeded to replicate diets of hospitalized soldiers. These diets were high in cleaned and washed white rice. Even in regular patients fed with a diet high in white rice, Eijkman would see the same symptoms—the characteristic muscle weaknesses and loss of sensation seen with beriberi. He then repeated the experiment in animals. He saw that he could replicate the findings by feeding chicks the same diet. When the rice was not dehusked, however, and kept in its natural form, beriberi was not seen. Furthermore, when brown (unprocessed) rice was fed to sick individuals and experimental animals, the disease could be slowly cured. So Eijkman reasoned that the cure was in the rice shavings. Unfortunately, Eijkman was forced to abandon his work prematurely due to personal illness. His experiments and his findings were then picked up by Dr. Grijins, a fellow Dutchman. Soon thereafter, Vitamin B1 was described. For his work, Eijkman was awarded the Nobel Prize in 1929. His work led to the cure of beriberi.

The Discovery of Vitamin A

The story of the award for Vitamin A is curious. Initially, it began with night blindness. In many parts of the world, night blindness posed a serious problem. However, the underlying etiology had not been discovered. At that same time, George Wald was a young graduate student studying physiology at Columbia University. He was given a grant to further his studies in a laboratory in Germany. There he was assigned to study the physiology of the eye. During his dissections of animal specimens, he obtained a purple compound from retinal tissue named rhodopsin. With further analysis, he was able to confirm that the compound was related to Vitamin A. (Initial structural work on Vitamin A had already been completed). Wald then continued his dissections in the laboratory of Dr. Karrer in Zurich and was able to extract enough material so that the vitamin could be produced in larger quantities. During his work with Karrer and afterwards, back in labs in the United States, Wald was able to further study rhodopsin. He showed that by stimulating rhodopsin with light, both opsin and a compound he named "retinene" could be obtained. Only later was he able to note that retinene and Vitamin A were the same. Vitamin A therefore was given the name "retinol." Because of this series of events, Wald deduced that Vitamin A had a direct relationship with night blindness, since without retinol, there would be a rhodopsin deficiency in the eye. For his discoveries, Wald was awarded the Nobel Prize in 1937 (Dr. Karrer shared the award in the same year).

The Discovery of Vitamin D

As with Vitamin A, the story of Vitamin D's discovery is curious. As the United States was growing and becoming an industrial nation, the country saw a surge in urbanization. Infantile rickets was a growing problem in the cities of the United States. As the problem grew, more children were affected. No specific cure was available. In fact, the underlying pathology causing infantile rickets was unknown. One of the early scientists in the area of vitamins was Elmer McCollum, an American. He was already noted for work that later led to the discovery of Vitamin A. McCollum had recently moved to the new institution at Baltimore, Johns Hopkins. There he had access to new labs and began to experiment with human diets. He was able to produce conditions similar to human rickets with a diet containing unbalanced proportions of calcium and phosphorus and lacking in certain animals fats. These diets were similar to those of workers in the urban cities. By adding and subtracting certain soluble fats, McCollum was able to correct the malady. This combination of sterols required activation by ultraviolet light and conversion from cholesterol. This sterol substance still had to be isolated. The task of isolation was given to a German structural chemist, Adolf Otto Windaus. Windaus was then a leading chemist working on structures of sterols. He soon isolated the chemical that was later named Vitamin D. The Nobel prize was given to Adolf Otto Reinhold Windaus in 1928 (Surprisingly, McCollum did not share in the award for the discovery).

Conclusion

The discovery of Vital-Amines has proven to have tremendous impact on the lives of modern man. Maladies such as scurvy, pellagra, and beriberi have gone from being death sentences to interesting and curious findings. The scientists who discovered these vitamins worked across multiple specialties such as biology, physiology, chemistry, engineering and biochemistry. Their work saved millions of lives by describing, categorizing, isolating, replicating and producing vitamins for the population at large. While initially their work was ignored, these scientists and their final contributions have led to the award of 19 individual Nobel prizes in scientific disciplines. In this way, these scientists have not only proven their worthiness, but they have also shown that the discovery process is alive and well.

ACE Inhibitors no Good? JAMA (12/22) – A study in the Lancet of Endocrinology revealed lack of benefit for ACE inhibitor (ramipril) in kidney transplant patients in terms of end-stage disease and death, compared with placebo!

Opioid Overdose Continues to Climb JAMA (2/9) – Fatal drug overdoses in the United States reached an all-time high in 2014 (over 47,000), driven largely by heroin and prescription opioid pain reliever abuse that accounted for 14% increase from the previous year.

Governors Aim to Limit Opioid Prescription New York Times (2/21) – The National Governors Association decided to devise protocols to reduce the use of opioid pain medications, likely to include numerical limits on prescriptions or other restrictions.

Marijuana Use Has Doubled among US Adults JAMA (12/22) – US adults using marijuana has doubled from 4.1% to 9.5% between 2001-2002 period and 2012-2013 period.

Prostate Cancer Rate Dips JAMA (2/9) – As men forgo prostate-specific antigen tests in accordance with US Preventive Services Task Force recommendations, new reports of prostate cancer has dropped.

Colorectal Cancer Rate Dips JAMA (2/9) – CDC announced that 30 states have met the Healthy People 2020 goal to reduce the cancer to 39.9 per 100,000 population or less.

Cervical Cancer Rate Dips JAMA (2/9) – CDC announced that 27 states reached the cervical cancer target of no more than 27.2 cases per 100,000 females.

Processed Meat Increases Colorectal Cancer JAMA (12/15) – A meta-analysis of 10 studies found an 18% increased risk of colon cancer for every 50 grams of processed meat consumed per day. Other studies showed association with stomach cancer as well!

Hepatitis C Drugs Top Medicaid Expenditures JAMA (2/9) – Because a course of hepatitis C treatment costs $84,000, Medicaid programs were able to treat only 2.4% of about 700,000 hepatitis C enrollees.

Medicaid Cost of Obesity Care JAMA (12/22) – Medicaid programs paid $8 billion for medical care related to severe obesity in 2013, accounting for 11% of the $69 billion in costs associated with the care of severely obese patients that year.

Cost of Severe Obesity in 2013 JAMA (12/22) – In 2013, the total cost of severe obesity was $69 billion:
- 11% paid by Medicaid
- 30% paid by Medicare & other federal programs
- 27% paid by private health plans
- 30% paid by patients out of pocket

Weight Gain During Pregnancy JAMA (12/22) – CDC analysis showed that only a third of pregnant women actually gained proper weight till full term; a third were over gainers, and a third were under.

Acupuncture Fails in Menopause! Ann Intern Med (2/2) – A randomized controlled trial for evaluating Chinese medicine acupuncture revealed no benefit against sham acupuncture for women with moderately severe menopausal hot flashes.

Lactation Benefits for Mothers Ann Intern Med (12/15) – In mothers who develop diabetes during pregnancy, the intensity and duration of lactation were associated with protective effect against diabetes in these women after delivery.

Mass Screening for Breast Cancer Ann Intern Med (2/16) – U.S. Preventive Services Task Force updated the screening recommendations to use biennial screening mammography for women aged 50 to 74 years. Screening below 50 should be individualized based on risk and choice. The Task Force indicated lack of sufficient data to recommend screening above age of 74 years.

Global Burden of Scabies JAMA (2/16) – Mass treatment of scabies in Australia and Fiji indicated that the oral route (ivermectin) proved more successful than cream application (permethrin). It is estimated that the global burden of scabies reaches 100 million infected persons. The disease has been recently added to the WHO list of neglected tropical diseases.

Survivors of Ebola have Problems JAMA (2/16) – Among 277 survivors of Ebola virus disease, 76% had long term joint pains, 60% had visual problems, and 24% had hearing problems. The literature indicates that the virus lingers in the eyes for extended periods after the symptoms of the disease resolve.

Need to Prevent Infection Spread via Air Travel JAMA (2/9) – Government Accounting Office reports that a plan is needed to prevent spread of infection in air travel among 3 billion world air-travelers each year.

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Zika Fever

Reported by Tarek Naguib, M.D., MBA, FACP

What is Zika fever?

The Zika fever is a viral disease that causes fever, rash, headache, pink eye, and joint and muscle pains. Most will recover quickly and not require hospitalization. However, 80% of people who have Zika will not show any signs or symptoms.

Where did the name come from?

The virus was discovered in 1947 in the Zika Forrest in Uganda in Africa, a place that has several other mosquito borne virus diseases like yellow fever and dengue fever.

How do I suspect Zika fever?

The disease should be suspected in persons who have the above symptoms and who have recently returned from an afflicted area like Central and South America and Africa.

How to diagnose Zika fever?

There is a blood test that is performed by the CDC laboratories to diagnose the disease.

What are the causes of Zika fever?

The Zika virus is transmitted by a mosquito that is widely present in Central and South America and Africa. It is also available in warm areas in the United States such as Florida and Texas. The virus also is transmitted via sexual intercourse with a person who has the disease.

How do doctors treat Zika fever?

There is no specific treatment for Zika fever, but it usually resolves on its own.

What is the importance of Zika fever?

Pregnant women are at greatest risk for complications of Zika fever, as there have been reports of the virus possibly causing babies to be born with microcephaly (small head) and problems with hearing.

How can I help prevent Zika fever?

Avoid mosquito bites and avoid unprotected sexual relations with persons who may be infected with the disease.

Use insect repellents that contain DEET or other approved repellents. Wear long, loose and light-colored clothing outside. Remove all standing water in and around your home and limit outdoor activities during dusk and dawn when mosquitoes are most active. Pregnant women should consider postponing travel to areas with ongoing Zika virus outbreaks. If travel is required, strict mosquito exposure prevention is strongly recommended.

For Doctors

Providers must fill out the "Zika Virus Disease Case Investigation Form" for each patient being tested. CDC requires this information for all Zika virus testing. Providers must send one copy of the case investigation form with the patient to the lab and send one copy to the City of Amarillo Department of Public Health at fax 806-378-6307

For Labs

Laboratories should submit specimens according to the guidelines on the form "Chikungunya and Dengue PCR and Serology Specimen Criteria." This form outlines the process needed to test for Zika virus, which will include chikungunya and dengue virus testing, as all three viruses are circulating in the affected counties.

Please direct all questions to The City of Amarillo Department of Public Health, Communicable Disease Program Manager, at 378-6327

Based in part on The Health Advisory from The City of Amarillo Department of Public Health

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A Dramatic Presentation of Metastic Melanoma

by Kim Nguyen, M.D., Robert Cooper, M.D., Muhammad Nazim, M.D.

Introduction:

Skin cancer can be divided into two types: melanoma and nonmelanoma. Nonmelanoma skin cancer refers to basal cell and squamous cell carcinoma. Melanoma arises from melanocytes, pigment producing cells of the body. It is divided into four major subtypes based on growth patterns, which include: [1] superficial spreading melanoma, [2] nodular melanoma, [3] lentigo maligna melanoma, and [4] acral lentiginous melanoma. A rare variation can present as amelanotic melanoma. Risk factors that can predispose an individual to melanoma are environmental factors, genetic factors, and phenotypic factors due to gene/environment interactions. UV radiation in sunlight is the biggest predisposing factor for induction of melanoma.

Presentation of case:

We present a case of a 42-year-old male who was referred to the surgery clinic for a mole on his chest that had been increasing in size over the past 8 months. On physical exam, he had a large fungating lesion on his chest (Figures 1 and 3). There was diffuse lymphadenopathy and cutaneous nodularities (Figure 2) that had appeared about 2 months ago, along with digital clubbing. He appeared cachectic and reported a 10-pound weight loss over the last month.

The patient had not been to see a physician in many years. Biopsy of the mass revealed malignant melanoma with 3 to 5 mitotic figures per square millimeter. Tumor markers HMB-45 and Mart-1 were positive and S-100 was negative. Additional biopsy of a nodule in the right upper arm was consistent with malignant melanoma with features suggesting metastasis (Figure 3).

The patient was offered oncological treatment options as well as palliative care but unfortunately passed away shortly after presentation.

Figure 1: Enlarging mass on patient's chest with areas of necrosis

Figure 2: Cutaneous nodularites on the patient's back consistent with metastasis

Figure 3: Measurement of mass emphasizing extent of growth

Discussion:

The gold standard for diagnosing melanoma lies in pathology. Staging is based on the TNM classification system. Of all the histologic features, the Breslow tumor thickness or depth of invasion is the strongest predictor of survival (1). Melanocyte differentiation antigens can help distinguish melanocytes from other tumor types; in particular S100 has high sensitivity for melanocytes and melanoma (2).

Prognosis is dependent on stage at diagnosis, with advanced stage and metastasis giving the patient the poorest prognosis(3). The incidence and overall mortality rates of melanoma have been increasing over the past few decades (4). This presents a public health problem as patients who develop metastatic disease usually have a poor prognosis 3. Fortunately, early detection and excisional surgery provide cure rates of over 90%.

Our patient's biopsy report indicated that his lesion was negative for S-100 and positive for HMB-45 and Mart-1. Although S-100 is usually positive in patients with metastatic melanoma, studies have shown that the loss of S-100 antigencity does occur and results in an escape from immune surveillance (5). When S-100 antigenicity is negative, confirmation of the diagnosis may be made with other tumor markers including Mart-1 and HMB-455. The biopsy report also indicated that there were 3 to 5 mitotic figures/square millimeter. Mitotic rate, described as the number of mitotic figures/square millimeter, is the second most important prognostic factor in survival, after tumor thickness. Higher mitotic rate is associated with increased risk of growth and metastasis, as well as decreased survival (6).

Conclusion:

The treatment options for melanoma include surgery, radiation therapy, chemotherapy, immunotherapy, and molecularly targeted therapy; however, once melanoma has metastasized, it is generally fatal, with survival between 6 and 15 months. Dacarbazine is FDA approved for the treatment of melanoma, although other drugs can be used including temozolomide, cisplatin, and the taxanes. Interleukin 2 and the monoclonal antibody ipilimumab, both of which affect T-cell function, have also been used in the treatment of melanoma. If a C-kit mutation is detected, imatinib has been shown to be effective as well (7). A BRAF inhibitor, PLX4032, is showing promise in BRAF V600 positive tumors (8). Surgical resection is yet another treatment option in patients with resectable disease, which in some cases allow patients to expect a long-term disease-free survival. However, patients who present with extensive disease are most often treated with palliative care.

Prevention, by way of wearing protective clothing, regularly using sunscreen, and avoiding sunburn, can lower the risk of developing melanoma. Educating patients on early skin cancer detection is the key to lowering mortality and morbidity of melanoma. Unfortunately, the lack of access to care may inhibit patients from receiving the care they require.

Due to the advanced stage of presentation, our patient passed away shortly after being offered oncological treatment options as well as palliative care.

References:

1. Balch CM, Soong SJ, Gershenwald JE, et al. Prognostic factors analysis of 17600 melanoma patients: validation of the American Joint Committee on Cancer melanoma staging system. J Clin Oncol. 2001; 19:3635-48.

2. Bolognia, J, Jorizzo JL, and Rapini, RP. *Dermatology*. 2nd ed. Vol. Two. St. Louis, Mo.: Mosby/Elsevier, 2008.

3. Clark WH Jr, From L, Bernardino EA, Mihm MC. The histogenesis and biologic behavior of primary human malignant melanoma of the skin. Cancer Res. 1969; 29: 705-27.

4. Lens MB, Dawes M. Global perspectives of contemporary epidemiological trends of cutaneous malignant melanoma. Br J Dermatol. 2004; 150: 179-85.

5. Aisner DL, Maker A, Rosenberg SA, Berman DM. Loss of S100 antigenicity in metastatic melanoma. Hum Pathol. 2005; 36:1016-19.

6. Thompson JF, Seng-Jaw S, Balch CM, et al. Prognostic significance of mitotic rate in localized primary cutaneous melanoma: an analysis of patients in the multi-institutional American Joint Committee on Cancer melanoma staging database. J Clin Oncol. 2011; 29:2199-205.

7. Urba WJ, Washington CV, Nadiminti H. Chapter 87. Cancer of the Skin. In: Longo DL, Fauci AS, Kasper DL, Hauser SL, Jameson JL, Loscalzo J, eds. Harrison's Principles of Internal Medicine. 18th ed. New York: McGraw-Hill; 2012. http://www.accessmedicine.com/content.aspx?aID=9115234. Accessed March 10, 2013.

8. Bailey EC, Sober AJ, Tsao H, Mihm Jr MC, Johnson TM. Chapter 124. Cutaneous Melanoma. In: Goldsmith LA, Katz SI, Gilchrest BA, Paller AS, Leffell DJ, Dallas NA, eds. Fitzpatrick's Dermatology in General Medicine. 8th ed. New York: McGraw-Hill; 2012. http://www.accessmedicine.com/content.aspx?aID=56062430. Accessed March 10, 2013.

How Does Hyponatremia in Children Affect Hospital Length-of-Stay?

by Poonam Thakore, M.D.; Zachary Sartor, BS; Tetyana Vasylyeva, M.D., PhD, FAAP – TTUHSC

Abstract

Objectives: The primary objective of this study is to determine the prevalence of hyponatremia in pediatric patients hospitalized with common acute illnesses. The secondary objective is to evaluate the percent of cases in this population in which hyponatremia was coded appropriately. The third objective is to study the effects of hyponatremia on length of hospital stay, in this patient population.

Methods: A retrospective chart review of pediatric patients admitted to Northwest Texas Healthcare System pediatric floor and pediatric intensive care unit (PICU) from January through December of 2012 was conducted. Patients were grouped based on diagnosis, which included bronchiolitis, acute asthma exacerbation, gastroenteritis, and surgery/trauma. Age, sex, sodium level at admission and/or during the course of hospitalization, and length of admission were recorded. Prevalence and odds ratio for each diagnosis group were calculated. Average length-of-stay (LOS) for patients with and without hyponatremia were compared with a two-tailed, unpaired t-test, and p <0.05 was used for significance.

Result: A total of 452 patients were available for analysis after exclusion. Overall prevalence of hyponatremia in our study group was 16.6%, although 21.7% of patients did not have serum chemistry studies performed at admission or during hospitalization. Floor and PICU patients with hyponatremia had longer lengths-of-stay compared to those with normal sodium (4.65±0.53 vs. 2.99±0.14, p=0.003 for floor patients and 11.00±1.80 vs. 5.75±0.50, p=0.01 for PICU). Additionally, none of the cases of hyponatremia discovered during review were entered as a diagnostic code in the medical record.

Conclusions: In our study we found that hyponatremia has high prevalence among hospitalized pediatric patients, although not always diagnosed appropriately. Also, hyponatremia is associated with increased length of hospital stay on a pediatric floor and PICU.

Keywords: hyponatremia; length-of-stay; pediatric ward; pediatric intensive care unit.

Introduction

Hyponatremia is the most common electrolyte abnormality in hospitalized patients, and in adults is associated with increased morbidity and mortality [1, 2]. Etiologies of hyponatremia include endogenous increase in anti-diuretic hormone (ADH) level in response to febrile illness and physiologic stress from surgery or hospitalization and iatrogenic over-hydration with hypotonic fluids [3,4].

Hyponatremia in the hospitalized patient reflects free water imbalance and can lead to neurologic complications. Symptoms range from lethargy and confusion to more serious consequences like seizures. Severe hyponatremia can lead to life-threatening acute hyponatremic encephalopathy especially in children who are more susceptible to neurologic insults [5, 6]. In mild and moderate hyponatremia most patients are asymptomatic. Accordingly, hyponatremia may often be underdiagnosed. There is a relative paucity in studies examining the adverse effects of hyponatremia in children. Although many studies have examined hospital-acquired hyponatremia in special populations like surgical and intensive care patients [7, 8], only one study has examined general inpatient prevalence [9]. Therefore, there is relatively little data on the effects of mild hyponatremia, (130-135 mEq/L) on the general pediatric inpatient population, with prevalence largely unexplored. The purpose of this study is to demonstrate the prevalence of hyponatremia in children admitted with common acute illnesses, to evaluate the total percent of cases who have routine laboratory chemistry performed, to evaluate if hyponatremia was properly coded as a diagnosis, and to examine the impact of hyponatremia on duration of hospital stay.

Methods

Study Design

Retrospective chart review of pediatric patients who were admitted to the pediatric inpatient service at Northwest Texas Healthcare System pediatric floor and intensive care units (PICU) from January through December 2012 was done after IRB approval. Patients were grouped according to admission diagnosis including bronchiolitis, acute asthma exacerbation, gastroenteritis, and surgery/trauma and were excluded if serum chemistry studies were not performed at admission or during the course of hospitalization. Age and sex were recorded. The sodium level either at admission or during hospitalization was recorded for each patient. Hyponatremia was defined as mild if the sodium was 130-135 mEq/L, moderate if 125-129 mEq/L, or severe if <125 mEq/L. The number of days admitted was recorded for each patient.

Statistical Analysis

Quantitative data are presented as mean with standard error or measure reported. Prevalence reported as a percentage, and odds ratio with 95 % CI was calculated for each diagnosis group for the general inpatient population and for PICU separately. Average number of days of LOS for hyponatremia and normal sodium were compared using an unpaired, two-tailed t-test with a significance threshold of $p < 0.05$ for the total population and for PICU patients separately.

Results

A total of 577 patient charts between ages of 0 to 21 year old were screened; 452 or 78.3% had serum chemistry studies performed and were analyzed for the study. Of all the groups, patients with asthma exacerbation had the lowest rates of inclusion (72%), meaning they were least likely to receive routine chemistry studies at or during admission. We also noted significant male prevalence among hospitalized children with bronchiolitis and asthma.

Of the 452 patients, 75 had plasma sodium concentration < 135 mEq/L. Among the hyponatremic patients, only one patient had a sodium level less than 130 mEq/L and none had a level less than 125 mEq/L. Gastroenteritis was associated with the highest level of hyponatremia at 26%. Prevalence of hyponatremia in asthma exacerbation (6%) was lowest as compare to the rest of the groups, but associated risk was statistically significant as determined by its odds ratio (p=0.0002).

There were a total of 65 patients admitted to PICU with one of the diagnoses studied. Of these patients, there were 10 cases of mild hyponatremia and no moderate or severe cases. Prevalence was highest for the surgical/trauma group (24%).

The mean duration of hospital stay in all study patients with hyponatremia was significantly longer (p = 0.003) as compared to patients with normal serum sodium level at admission or with the first

| *continued on page 42*

Table 1—Study population

Diagnosis	Total Patients Screened	Total Patients included (Percent)	Male	Female	Average Age
Bronchiolitis	154	128 (82%)	76	52	0.80±0.73
Asthma Exacerbation	190	137 (72 %)	80	57	5.67±4.17
Gastroenteritis	72	69 (95%)	39	30	2.69±3.57
Surgery/Trauma	161	120 (75%)	69	51	7.46±0.49

Note: Only 78.3% of all patients has done lab on admission or during hospitalization.

Table 2—Prevalence of Hyponatremia

Diagnosis	Case of Hyponatremia	Mild	Moderate	Severe	Prevalence (Percent)	Odds Ratio	95% CI	P value
Bronchiolitis	24	23	1	---	19	1.2	0.74-2.16	0.3
Asthma Exacerbation	8	8	---	---	6	0.2	0.10-0.49	<0.001
Gastroenteritis	18	18	---	---	26	2.0	1.10-3.70	0.02
Surgery/Trauma	25	25	---	---	21	1.9	1.16-3.37	0.01
Total	75	74	1	---	16.6	---	---	---

Table 3—Prevalence of Hyponatremia for PICU

Diagnosis	Total Patients	Case of Hyponatremia	Mild	Moderate	Severe	Prevalence (Percent)
Bronchiolitis	21	4	4	---	---	8
Asthma Exacerbation	25	2	2	---	---	19
Gastroenteritis	2	0	---	---	---	---
Surgery/Trauma	17	4	4	---	---	24
Total	65	10	10	---	---	15

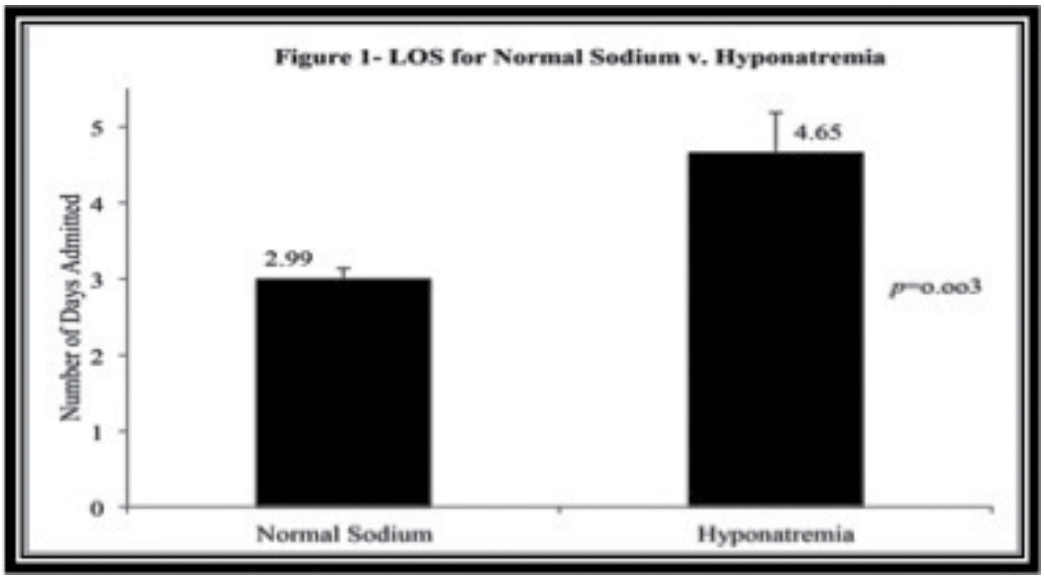
metabolic panel analysis in the hospital [Figure 1].

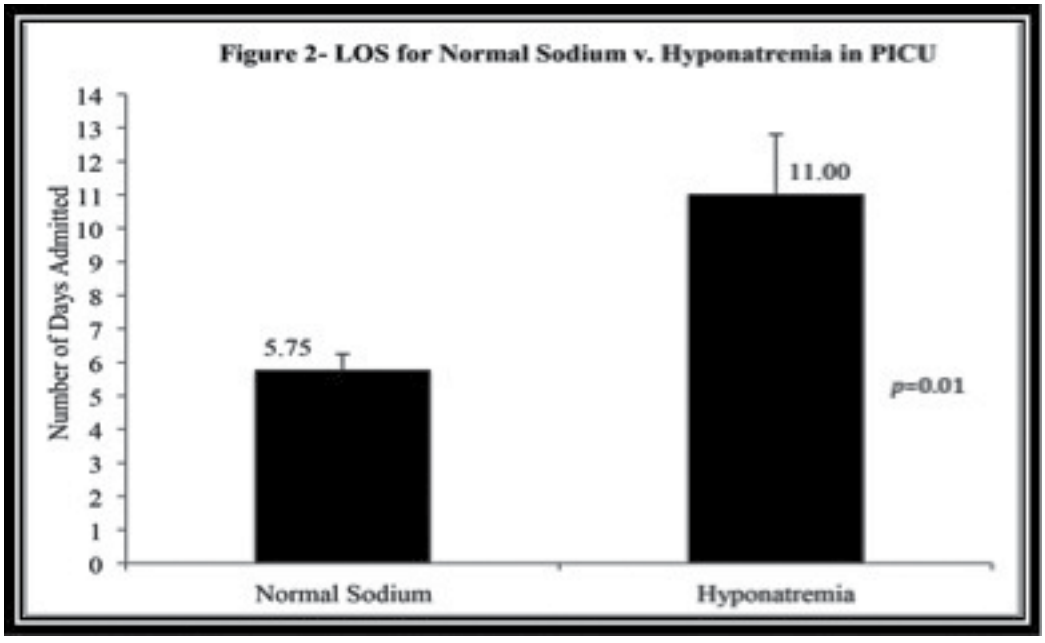
Likewise, the LOS was increased for PICU patients with hyponatremia to a greater extent than for the overall study population [Figure 2].

Discussion

During the study period hyponatremia, especially mild, was frequently present in hospitalized pediatric patients admitted with acute illnesses. Hyponatremia was prevalent at an overall rate of 16.6% and at a rate of 24% for patients admitted to PICU. Despite this, 21.7% of patients did not have serum chemistry studies performed at admission or during hospitalization. There were wide variations in prevalence between the diagnosis groups. The differences could be attributable to

| *continued on page 44*





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differences in non-osmotic secretion of ADH which can vary according to the particular acute illness and its severity. Interestingly, the risk of hyponatremia was significantly associated with all study groups except bronchiolitis (p <0.05).

It is possible that true rates of hyponatremia may be higher than what is reported herein, because 21.7% of patients were excluded due to lack of lab work at admission or during hospitalization. Upadhyay *et al.* reported previously that hyponatremia in hospitalized patients has been not stated frequently [3]. None of the cases of hyponatremia herein were documented in the medical record as the patients were not symptomatic during the course of hospitalization. Of the 75 cases, only one had sodium values less than 130 mEq/mL, and there were no cases of severe hyponatremia during the study period. This may explain why hyponatremia was never coded as a diagnosis during hospitalization.

Bronchiolitis, which is the most common cause of lower respiratory disease in children age less than 2 years, is known to produce hyponatremia due to increased release of ADH [10], with increased risk of seizure and other severe complications [11]. Another study shows that even mild hyponatremia in PICU patients with bronchiolitis is associated with increased length of stay and duration of ventilator support [1]. Likewise, asthma exacerbation and status asthmaticus are thought to be associated with a similar mechanism of non-osmotic ADH secretion, thus predisposing patients to hyponatremia. Even though the prevalence of hyponatremia in asthma was much lower (6%) compared to other group, it was associated with increased risk of longer hospital stay (odd ratio= 0.2, 95% CI= 0.10-0.49, p value<0.001). In both groups hyponatremia was associated with prolonged hospitalization as compared to the patients with normal sodium levels.

Gastroenteritis, a very common infection in pediatrics patients, is known to be associated with electrolyte abnormalities and hyponatremia in particular [12]. One study reported hyponatremia incidence in 15.1 % [13], while another study reported 40.7 % incidence of hyponatremia in pediatric patients with gastroenteritis [14]. Prevalence of hyponatremia for this study period was consistent with above results with an overall rate of 26 %. Moreover, prevalence of hyponatremia in gastroenteritis was highest as compared to other diagnosis groups in our study.

Prolonged hospitalization as a result of hyponatremia may well be under recognized. Adults in ICU with hyponatremia had increased mortality and needed ventilator support resulting in prolonged ICU stay [15]. Similarly, hyponatremia in our study population was associated with an increased LOS, showing that mild and subclinical levels of hyponatremia can prolong the course of common pediatric diseases, especially in PICU patients where resource utilization is more intensive.

Hyponatremia in surgical patients has been studied the most in children. Preoperative fluid status can be disturbed due to fasting and diarrhea, vomiting,

fever, bleeding, or physiologic response to stress. Observational studies have shown that post-operative rates of hyponatremia range from 12.9% to 40% [16, 17], and these studies are consistent with the results of our study that show a 21% prevalence. However, there are no studies reporting the prevalence of unsuspected hyponatremia on admission in pediatric patients undergoing surgery, nor do any studies examine the effects of surgical hyponatremia on hospital stay. Therefore, our results are novel. Despite the high rates of hyponatremia in surgical patients, only 75% of patients in the surgical group had serum chemistry studies performed. Thus monitoring perioperative serum sodium level in children in the perioperative period may need to be better prioritized. Physicians should always consider mild hyponatremia as an additional risk that may effect outcome measures such as LOS.

There are several limitations to this study that warrant discussion. First, there was exclusion of a large percentage of patients due to lack of serum chemistry data, suggesting that true prevalence may be higher. Second, our study does not address etiology of hyponatremia. Many studies showed that use of hypotonic fluid therapy in pediatric patients increases the risk of hospital induced hyponatremia [18-21]. In our study's patient population, this analysis was not possible. A clinical trial examining the association of hypotonic versus isotonic fluid therapy with hyponatremia in these patients may be warranted. Regardless of these limitations, our results demonstrated a significant association between prevalence of hyponatremia and its impact on duration of hospital stay.

Conclusion

We found that mild hyponatremia has high prevalence in pediatric patients hospitalized for bronchiolitis, acute asthma exacerbation, gastroenteritis, and surgery/trauma. None of the cases of mild hyponatremia discovered during this review was acknowledged by physicians or coded as a diagnosis in the medical record. Hyponatremia could be an independent risk factor for longer hospital stay in children admitted to both the floor and the PICU. Further work to examine the role of hypotonic fluids in precipitating hyponatremia is needed.

References

1. Luu R, DeWitt PE, Reiter PD, Dobyns EL, Kaufman J. Hyponatremia in children with bronchiolitis admitted to the pediatric intensive care unit is associated with worse outcomes. J Pediatr. 2013; 163:1652.
2. Balling L, Gustafsson F, Goetze JP, Dalsgaard M, Nielsen H, Boesgaard S, et al. Hyponatraemia at hospital admission is a predictor of overall mortality. Intern Med J. 2015; 45:195-202.
3. Upadhyay A, Jaber BL, Madias NE. Incidence and prevalence of hyponatremia. Am J Med. 2006; 119:S30-5.
4. Moritz ML, Ayus JC. Prevention of hospital-acquired hyponatremia: a case for using isotonic saline. Pediatrics. 2003; 111:227-30.
5. Moritz ML, Ayus JC. Preventing neurological complications from dysnatremias in children. Pediatr Nephrol. 2005; 20:1687-700.
6. Arieff AI, Ayus JC, Fraser CL. Hyponatraemia and death or permanent brain damage in healthy children. BMJ. 1992; 304:1218-22.
7. Eulmesekian PG, Perez A, Minces PG, Bohn D. Hospital-acquired hyponatremia in postoperative pediatric patients: prospective observational study. Pediatr Crit Care Med. 2010; 11:479-83.
8. Singhi S, Jayashre M. Free water excess is not the main cause for hyponatremia in critically ill children receiving conventional maintenance fluids. Indian Pediatr. 2009; 46:577-83.
9. Armon K, Riordan A, Playfor S, Millman G, Khader A, Paediatric Research Society. Hyponatraemia and hypokalaemia during intravenous fluid administration. Arch Dis Child. 2008; 93:285-7.
10. Rodrigues RM, Schvartsman BG, Farhat SC, Schvartsman C. Hypotonic solution decreases serum sodium in infants with moderate bronchiolitis. Acta Paediatr. 2014; 103:e111-5.
11. Pop Jora D, de Suremain N, Arnaud C, Greteau S, Guellec I, Renolleau S, et al. VRS bronchiolitis with severe hyponatremia leading to acute seizures: a report of three cases. Arch Pediatr. 2014; 21:1359-63.
12. Hanna M, Saberi MS. Incidence of hyponatremia in children with gastroenteritis treated with hypotonic intravenous fluids. Pediatr Nephrol. 2010; 25:1471-5.
13. Begum JA, Hoque MM, Hussain M, Hasan MNA, Molla MH. Impact of electrolyte disturbances in outcome of acute diarrhoea in children. DS (Child) H J. 2010; 26 : 36-40.
14. Badeli HR, Golshekan K, Shahrdami M, Azizi Asl MR, Hassanzadeh Rad A. Frequency of hyponatremia in gastroentric patients treated with intravenous hypotonic fluid. J Ped. Nephrology. 2013; 1:23-27.
15. Padhi R, Panda BN, Jagati S, Patra SC. Hyponatremia in critically ill patients Indian. J Crit Care Med. 2014; 18: 83–87.
16. Eulmesekian PG, Perez A, Minces PG, Bohn D. Hospital-acquired hyponatremia in postoperative pediatric patients: prospective observational study. Pediatr Crit Care Med. 2010; 11:479-83.
17. Au AK, Ray PE, McBryde KD, Newman KD, Weinstein SL, Bell MJ. Incidence of postoperative hyponatremia and complications in critically-ill children treated with hypotonic and normotonic solutions. J Pediatr. 2008; 152:33-8.
18. Choong K, Arora S, Cheng J, Farrokhyar F, Reddy D, Thabane L, et al. Hypotonic versus isotonic maintenance fluids after surgery for children: a randomized controlled trial. Pediatrics. 2011; 128:857-66.
19. Neville KA, Sandeman DJ, Rubinstein A, Henry GM, McGlynn M, Walker JL. Prevention of hyponatremia during maintenance intravenous fluid administration: a prospective randomized study of fluid type versus fluid rate. J Pediatr. 2010; 156:313, 9.e1-2.
20. Rey C, Los-Arcos M, Hernandez A, Sanchez A, Diaz JJ, Lopez-Herce J. Hypotonic versus isotonic maintenance fluids in critically ill children: a multicenter prospective randomized study. Acta Paediatr. 2011; 100:1138-43.
21. Montanana PA, Modesto i Alapont V, Ocon AP, Lopez PO, Lopez Prats JL, Toledo Parreno JD. The use of isotonic fluid as maintenance therapy prevents iatrogenic hyponatremia in pediatrics: a randomized, controlled open study. Pediatr Crit Care Med. 2008; 9:589-97.

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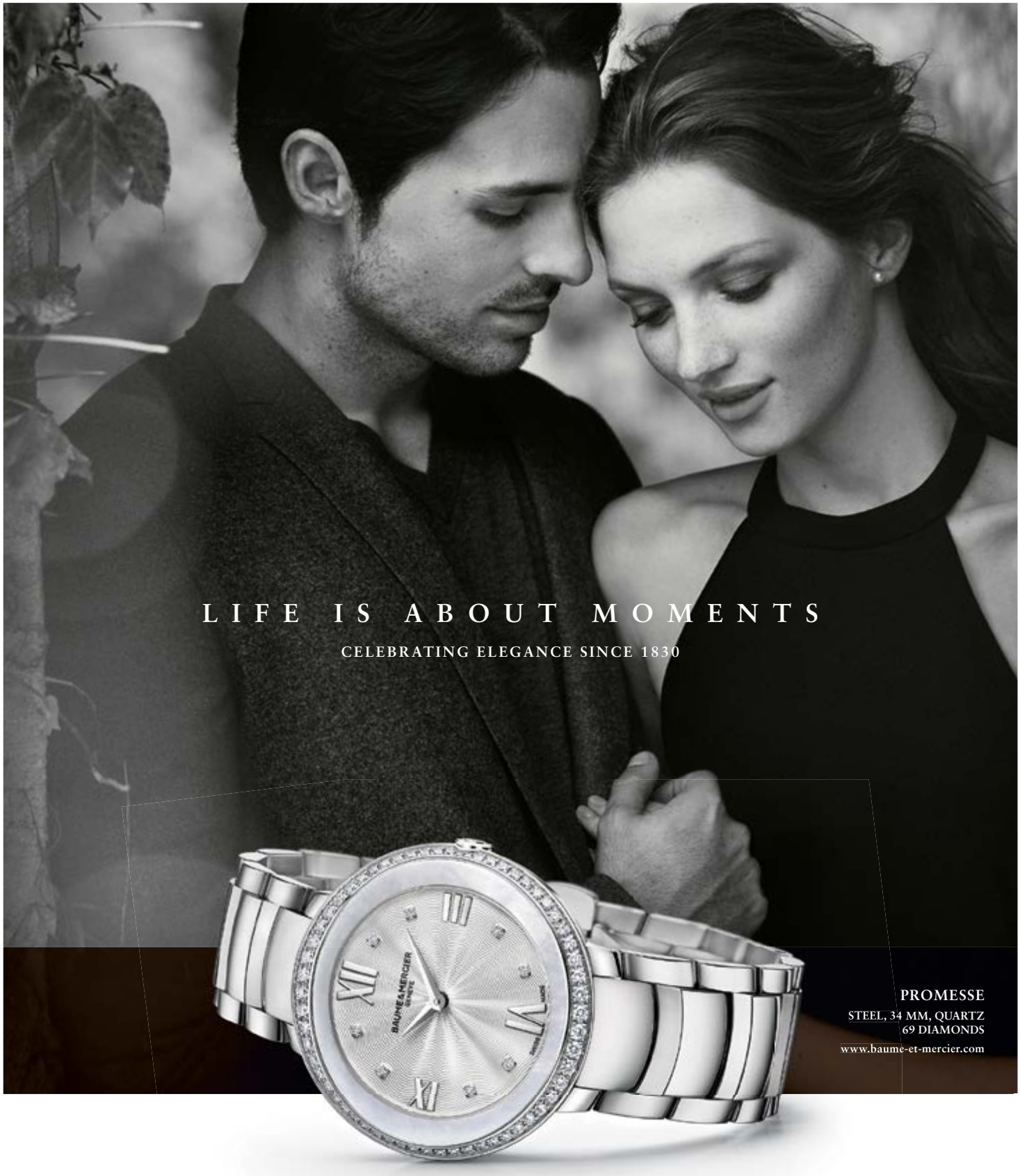

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