the JOURNAL
of the Pennsylvania Osteopathic Medical Association
June 2017

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LECOM clinical faculty will present topics from the perspective of a primary care physician.

Registration Information

Standard Registration: $1,500
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Standard and Adjunct Faculty Registration includes CME fee, four (4) nights lodging at the Ritz Carlton, Sarasota, Florida and breakfast Monday through Thursday. Commuter Registration includes CME fee and breakfast. It does not include a hotel stay.

CME Credits

LECOM anticipates AOA and AAFP approval for 20 Category 1-A Credits. All lectures will be held between 8 a.m. and 1 p.m. allowing time for afternoon activities around Sarasota.

How To Register

To reserve your spot for the LECOM Summer CME Conference in Sarasota, Florida, go to **lecom.edu/cme** to register. Adjunct faculty can receive a discount by emailing or calling the CME conference office.

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1858 West Grandview Blvd., Erie, PA 16509
(814) 860-5125
www.lecom.edu/cme
cme@lecom.edu

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THE Journal OF THE PENNSYLVANIA OSTEOPATHIC MEDICAL ASSOCIATION

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The Journal of the Pennsylvania Osteopathic Medical Association *(ISSN 0479-9534) is published four (4) times a year, in March, June, September and December, as the official publication of the Pennsylvania Osteopathic Medical Association, Inc., 1330 Eisenhower Boulevard, Harrisburg, PA 17111-2395. Subscription $20 per year, included in membership dues. Periodicals postage paid at Harrisburg, PA, and additional mailing offices. All original papers and other correspondence should be directed to the editor at the above address. Telephone (717) 939-9318 or, toll-free in Pennsylvania, (800) 544-7662. POSTMASTER: Send address changes to* ***The Journal of the Pennsylvania Osteopathic Medical Association****, 1330 Eisenhower Boulevard, Harrisburg, PA 17111-2395.*

FROM THE EDITOR'S DESK

Mark B. Abraham, D.O., J.D.

Mark B. Abraham, D.O., J.D.
Editor-in-Chief

As we embark upon a new year at POMA with a new chief executive officer, Diana M. Ewert, M.B.A., C.A.E., and new president, George D. Vermeire, D.O., there is the obvious opportunity to continue to not only improve OUR organization, but bring new energy, move forward and become a leader amongst professional medical organizations. In addition to the articles from our contest winners, which you will have the opportunity to now read, we again have other submissions. You will have the joy to read articles, which happen to discuss in different ways, on moving forward in the ever-changing world of medicine. Just like in a medical practice where you have your "shoulder days" or "chest pain days" or "rash days," the same is sometimes true for a journal — just coincidence that all should touch on this subject in some form.

Think back to when you were on rotations, or even starting medical school, post-graduate training or practicing as attending, there were various emotions, concerns, trials and tribulations. A busy schedule trying to balance nutrition, sleep, study, work, and when lucky, a much needed social life in order to bring balance to the chaos. Whether the tools were (are) computers, tablets, peripheral devices, smartphones, books and print media or paper charts, the process and goal was the same. Learn. Learn the medicine. Learn to examine. And, learn ***the art of practicing medicine***.

We have all, at some point, worked with other practitioners, be they primary care physicians, specialists, mid-level providers, ancillary providers, such as pharmacy or therapists; ultimately, there was some sort of team approach. Some facilities may have had team meetings for patients as a matter of routine, in addition to when something specific needed to be addressed. More and more institutions are incorporating these. Developing the interdisciplinary approach in medical school is a valuable next step. Not only does it allow students to learn about the benefits and services which may be offered to patients, but it also affords the opportunity to better understand the services, so that when a patient asks about how the psychologist or physical therapist may be able to help that patient, there will be knowledge beyond basics; there will be an ability to understand and appreciate the other discipline and be able to answer questions which the patient may choose to ask you.

Integrative medicine can also work in an interdisciplinary way. Familiarize yourself with other modalities. Be able to understand them for when a patient asks about the benefits of physical manipulation, therapies such as acupuncture, chiropractic vs. OMM, reiki, massage, herbal remedies, and the like. Many may be appropriate at one time or another. Perhaps the nature of the modality itself can help provide other benefits to the patient which we may not recognize at first glance. It may also allow you to try them for yourself. Perhaps you are already a believer in some, such as massage, reiki or acupuncture. Is it a shame that osteopathic manipulation is often an easy target as to what is proven by research and what isn't, as opposed to other modalities. Yes, of course. But, it does not mean we stop researching or using it (or others). Many medical schools over the decades have started to try and offer training in manual approaches. With the merger of osteopathic and allopathic programs, there is talk of how to integrate and involve allopaths into the osteopathic manipulative training, especially in family practice where the certification is "Family Practice and Osteopathic Manipulative Medicine."

I have already heard some suggestions from our colleagues about ways to expand the Journal, which also involve interdisciplinary discussions and are in the process of being formulated. Please continue to help us move forward with submissions and suggestions.

Our past leadership has created the foundation. Let's thank them for their years of service by building upon it.

Collegially,
Mark B. Abraham, D.O., J.D.

OUT OF MY MIND

Samuel J. Garloff, D.O.

NOVUS ORDO SECLORUM

Samuel J. Garloff, D.O.

There are any number of topics we could discuss in this column at present concerning psychiatry, mental health and politics. I am quite anxious to do so. However, as I am sure you are aware, an osteopathic physician in Michigan is in prison for alleged inappropriate physical contact with minor females. It is quite unnecessary to go into detail, but, this is common knowledge due to television reporting on *60 Minutes* as well as multiple newspaper stories. What I found interesting was the response of the medical community.

Initially this was presented as a topic for discussion on SERMO. There was almost immediate condemnation among both MDs and DOs. Within an incredibly short amount of time, however, the discussion led to the use of OMT. It was immediately denounced by the majority of MDs as unhelpful, nonscientific, etc. There were the few osteopathic physicians who cited the literature, and defended the use of this treatment modality. They were rebuked with such statements as "there is no scientific validity, there is no valid research, it is sham therapy," etc.

This made me quite interested to see what treatment modalities are being used by our allopathic colleagues. In the March 7, 2017 issue of *STAT*, there is an article entitled "Medicine with a Side of Mysticism: Top Hospitals Promote Unproven Therapies." An examination of 15 academic research centers yields some remarkable findings. Hospitals affiliated with Yale, Duke, Johns Hopkins and others offer "energy healing" to help treat MS, acupuncture for infertility, and homeopathic bee venom for fibromyalgia. A forum at the University of Florida's Hospital promises to explain how herbal therapy can reverse Alzheimer's disease.

The teaching hospital of the University of Florida is offering cancer patients consultations in homeopathy and traditional Chinese herbal medicine. Thomas Jefferson University Hospital in Philadelphia launched an Institute that offers intravenous vitamin and mineral therapies and the University of Arizona received a $1 million gift to boost practitioner training in natural and spiritual healing techniques.

Duke markets a pediatric program that, according to its website, includes detoxification programs and botanical medications helping children with autism, asthma and ADHD. Duke also has an integrated medicine center charging patients $1,800 a year for membership. Treatments are billed separately.

The Cleveland Clinic has an energy medicine program stating that it is "responding to the needs of our patients and patient demand." MedStar at Georgetown has claimed on its website that reiki is a therapy for blood cancer.

Po Chai Pills are sold at Duke's integrative medicine store. The pill reportedly harmonizes the stomach, stems counter flow ascent of stomach qi, dispels damp, dispels pathogenic factors, subdues yang, and it relieves pain.

Thomas Jefferson University Hospital's website describes homeopathic bee venom as useful to relieve symptoms for arthritis, nerve pain and other conditions. The CEO of Cleveland Clinic has stated that he will take down its online wellness store and no longer sell homeopathy kits.

This is a $37 billion a year business. For all the talk of evidence-based medicine, prestigious medical centers are apparently happy to take the money of an unsuspecting public. UCSF offers a $375 class on cultivating emotional balance, a free class on "laughter yoga" may be had also. Mayo Clinic sells a $2,900 "signature experience" which allows the patient to be seen by a wellness coach.

Reiki is recommended at Johns Hopkins, Yale, the University of Pennsylvania, and Spaulding Rehabilitation Hospital in Boston. NIH states that there is no scientific evidence that natural healing energy exists.

Full disclosure: I am an acupuncture patient. Yes, I am aware of the controversy surrounding this. However, I find similarities with OMT.

"Ya' pays your money and ya' takes your choice." Me, I'd bet on OMT.

LECOM DEAN'S CORNER

Lake Erie College of Osteopathic Medicine

Silvia M. Ferretti, D.O.
LECOM Provost,
Vice President and
Dean of Academic Affairs

"Research is formalized curiosity. It is poking and prying with a purpose."
— Zora Neale Hurston

"Somewhere, something incredible is waiting to be known." So said American astronomer and scientist, Dr. Carl Sagan. This sage commentary indeed underpins the very motivation of countless medical professionals who dedicate their time, talents, and training to the profoundly purposed pursuit of discovery.

With this pursuit in mind, and once again placing itself on the cutting edge of this purpose, is LECOM — having recently expanded its research facilities. Like its prior creations, this undertaking is a noteworthy success. Now fully underway in the LECOM West Building — near the School of Dental Medicine Dental Offices — is a ten-million dollar, two-floor, 26,000-square-foot research facility. Currently, five labs have been relocated to the new research center; and five faculty members have begun to use the new facility. The facility is also available to LECOM faculty at Seton Hill who wish to conduct research and educational projects as their schedule allows. The new laboratory provides a superb setting for interprofessional research.

The location, formerly occupied by LORD Corporation, had been designed for industry research. The existing structure was completely reworked and renovated to be made ideal for basic science and for clinical research. The labs, located on the second and third floors, offer nearly three-times the usable space of that of the prior LECOM research lab, which was located off campus, in Millcreek Township, about a 15-minute drive from the LECOM main campus.

Dr. Matthew Bateman, Director of Institutional Planning, Assessment, Accreditation and Research, and Dean of the School of Dental Medicine, championed the design of the research labs. The construction of the labs took place under the auspices of Dr. Silvia Ferretti, LECOM Vice President, Provost, and Dean of Academic Affairs.

Everything that was old or outdated was discarded, replaced with new, state-of-the-art equipment. Salvageable items, such as laboratory glassware, were retained to be pressed into service. All of the equipment was transported to the new lab facility in December of 2016.

"Our faculty has grown, and with the collaborative integration of medicine, pharmacy, and dentistry on campus, we seek to encourage and to develop interprofessional research as we continue to educate and to train at the highest level," averred Dr. Ferretti.

LECOM educators on the cutting-edge of instruction, such as Dr. Randy Kulesza, Director of Anatomy and Assistant Dean of the Post Baccalaureate and Masters of Biomedical Sciences Programs, and his research team, investigate the development of the brain and auditory centers of the brain in a rodent model to advance the understanding of autism. In collaboration with researchers from the University of Montana and the Universidad del Valle de Mexico, he has also discovered significant morphological changes, brainstem pathology, and auditory dysfunction in subjects exposed to pollution. Dr. Bertalan Dudas, Assistant Dean of Research, and his research team, focus upon exploring and characterizing the complex neuroendocrine interactions in the human diencephalon, which are believed to control diverse and complex limbic and cortical functions. Dr. Diana Speelman, Director of Research for the College of Medicine, studies polycystic ovary syndrome (PCOS) from basic science and clinical perspectives. Her research team investigates the molecular etiology of insulin resistance and adipose dysfunction in a rat model for PCOS, with the goal of gaining a better understanding of the mechanisms underlying PCOS such that better therapies can be developed via translational research. In addition, Dr. Speelman's clinical research team is exploring the use of nonpharmacologic interventions, including OMT and yoga, in the treatment of women with PCOS to improve hormone and metabolic health. The latter study is funded by an $87,605 competitive research grant from the AOA.

Significant collaborations exist within the faculty to facilitate discoveries that require a multidisciplinary approach. Drs. Christopher

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PCOM DEAN'S CORNER

Philadelphia College of Osteopathic Medicine

Kenneth J. Veit, D.O.
PCOM Provost, Senior Vice President for Academic Affairs and Dean

The concept of a team-based approach to health care continues to gain traction among practitioners, and many studies have suggested it can be incredibly helpful to the patient. Rather than have different aspects of their health care handled by a number of health professionals in different places, a team-based approach puts the patient at the center, with each member of the health care team working together to ensure none of the patient's needs falls through the cracks.

Those who will one day practice in this changing health care environment will need to be readily prepared to work in a team-based setting. PCOM has focused intently over the past year to create an interprofessional education (IPE) program, through which students from across disciplines can learn from each other by working side-by-side.

In required monthly, three-hour sessions, students in the osteopathic medicine, psychology, physician assistant studies, and organizational development and leadership programs meet as a large group to discuss a specific health care issue. Then, the students break into smaller groups and work together to develop a solution. Finally, the groups come back together and present their suggestions to the facilitating faculty members.

This academic year, faculty from the above mentioned academic programs collaborated on seven IPE sessions, focusing on topics such as evidence-based medicine; the systems and business of health care; and clinician self-care and wellness. All of the topics discussed can have a significant impact on the health care provider, which can impact patient care.

Each session aims to meet the four clinical competencies established by the Interprofessional Education Collaborative, a consortium of health profession associations committed to advancing interprofessional learning experiences in order to promote team-based care and enhance population health outcomes. These competencies are: values/ethics; roles/responsibilities; interprofessional communication; and interprofessional teamwork.

This year, being our pilot year, we were very interested in how the program would be perceived by our students. To that end, after each session, students were given a satisfaction survey to gauge their interest in the topic and its usefulness to their educational experience.

We experienced some moderate success: about 55 percent of the participating students said the sessions were valuable to their learning experience, and roughly the same amount said the sessions gave them a new perspective on the relationship between the health professional and patient. The data we've collected over this first year will be used to modify the IPE curriculum going forward.

We also encountered some challenges during this process — mainly, logistics. It can be difficult to coordinate sessions for students who are in different academic programs, and thus have different academic schedules. Each program also has its own set of evaluations for success — how do we incorporate those into the IPE curriculum? In addition, our foray into IPE has largely been voluntary, and it spans several departments and programs, so securing faculty time, as well as funding, has been more difficult than anticipated, but we are working on ways to smooth out these bumps in the coming academic years.

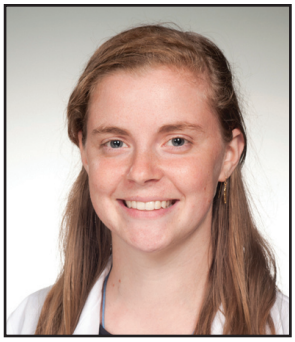
Regardless of issues we've had, PCOM believes strongly in the benefits of IPE. The health care world is moving toward a more team-based approach to patient care and, as a result, we must train our students accordingly. PCOM's unique academic set-up makes us an ideal environment for IPE, as we already educate so many different future health professionals under one roof.

More and more, health care is becoming a team sport, and we can no longer work in silos if we expect to provide our patients with the best possible care. We are working to prepare our students to be as competitive as possible in this changing world.

Fraternally,
Kenneth J. Veit, D.O.

A STUDENT'S VOICE — PCOM

Olivia Hurwitz, OMS-III



Olivia Hurwitz
PCOM OMS-III

A Day in the Life of a Third Year

As third year is coming to a close, we've all been reflecting to some degree on the year past, whether it be by telling frantic second years that life after boards feels like a walk in the park, by trying to decide which rotations felt like they have career potential, or even by posting the all-too-common "finished third year!!" Facebook post. Though everyone's experiences on rotations are certainly different, one theme has been common throughout: being a third year is fun and interesting, but also often uncomfortable and even weird. No amount of schooling can prepare a student for the situations they'll encounter on clinical clerkships, which more likely than not test the student's social wherewithal more than their textbook knowledge. Each day is rife with its own moments of awkwardness that have taught us over the year that, in addition to a functional stethoscope, the only thing you really need on rotations is gumption, and a lot of it.

6:00 am: Wake up in a panic, curse your alarm clock, decide not to shower after all, tap snooze.

6:15 am: Roll out of bed and into some scrubs, feeling both very cool and like an imposter.

6:40 am: Rush to the cafeteria to gulp down some coffee and a protein bar before pre-rounding on your patients, waking up each of them from an apparently deep slumber, only to tell them they'll be woken by the doctor again in about half an hour.

7:00 am: Stand at the nurses' station staring at your scribbled notes, frantically practicing a formal presentation.

7:10 am: Rounds begin. Stand at the back of the group staring at your scribbled notes, frantically practicing a formal presentation.

7:35 am: Finally your turn to present one of your patients. Take a deep breath and begin, "This is a 45-year-old female with a history of—." Realize everyone has already filed into the room.

10:00 am: The resident begins to document at the only computer in the vicinity. Stand behind them, shifting your weight every so often.

10:05 am: Feel uncomfortable for hovering. Back up to lean against the wall.

10:07 am: Step aside because you realize you're blocking everyone's path. Decide it's probably best to stand leaning against the counter of the nurses' station, facing your resident.

10:08 am: Immediately regret this decision and turn sideways while still leaning against the counter. Take out your phone to do practice questions.

10:15 am: Get one question wrong, text a friend about how dumb and awkward you feel, laugh at how dumb and awkward they feel, become concerned that it looks like you're texting and therefore not engaged. Put your phone away, stare into distance.

11:00 am: Get sent to the ED to do a consult. Attempt to get a complete history, while decoding a list of medications you've never heard of and can't even imagine what they're for. Forget to ask about smoking. Perform a physical. Feel like a real doctor.

11:20 am: Present to your resident. Boldly state history ("substernal chest pain about 15 minutes after eating") and physical findings ("cardiac exam normal, regular rate and rhythm, no murmurs"). Timidly attempt an assessment ("sounds like GERD to me. We should start him on a PPI").

11:21 am: The resident shows you his EKG, with a slightly horrified look on her face: "He's having a STEMI." Try to recover with an intellectual, "Ah, yes."

12:00 pm: Watch the resident document the consult, while listening to your stomach growl. Internally debate if you should use this time to go grab lunch because you're not busy or if that would make you look bad, but what if there's not enough time to eat later in the day? Lose your nerve to speak.

12:45 pm: Get sent to see another ED consult. Take a deep breath and just get it over with, "Ok. Do you mind if I get some lunch on my way there?", praying this doesn't make you look lazy, disinterested, or weak. Realize the resident could not care less about when you eat lunch, as she says, "Yes, of course. Definitely eat."

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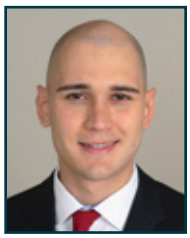
ABOUT THE AUTHORS



Capt. Joshua S. da Silva, D.O.

Olga Stetsyuk, D.O.

Capt. Joshua S. da Silva, D.O., was presented with second place in the 2017 POMA Clinical Writing Contest for his article, *"Malnutrition and the Physician."* An intern at Crozer-Keystone Health System, he will begin an emergency medicine residency in Dayton, Ohio, this summer, with plans to pursue a critical care fellowship and serve in the United States Air Force. Capt. da Silva is a graduate of Moravian College in Bethlehem, and a 2016 graduate of the Philadelphia College of Osteopathic Medicine, where he was a Health Professions Scholarship Program Air Force student.

Olga Stetsyuk, D.O., received the 2017 POMA Golden Quill Award for her manuscript, *"The Effect of Cataract Surgery on Intraocular Pressure in Glaucoma Patients, Glaucoma Suspects, and Normal Patients."* A second-year ophthalmology resident at Millcreek Community Hospital in Erie, Pennsylvania, she completed an internship at Saint John's Episcopal Hospital in Far Rockaway, New York. Dr. Stetsyuk is a graduate of Saint Anselm College in Manchester, New Hampshire, and a 2014 graduate of the University of New England College of Osteopathic Medicine in Biddeford, Maine.

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The Journal of the POMA is seeking professional articles from *YOU*!

The September 2017 issue will focus on the opioid crisis in America.

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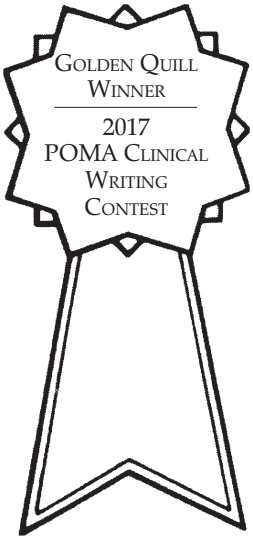
Medical Update
The Effect of Cataract Surgery on Intraocular Pressure in Glaucoma Patients, Glaucoma Suspects, and Normal Patients

by Olga Stetsyuk, D.O.



Abstract

Purpose. To determine the effect of cataract extraction on intraocular pressure in patients with glaucoma, glaucoma suspects and non-glaucoma patients.

Methods. Retrospective chart review was performed on all patients undergoing cataract surgery at the Erie Eye Clinic between January 5, 2015, and June 8, 2015. Established diagnoses of glaucoma, including primary open angle glaucoma (POAG), angle closure glaucoma (ACG), pseudoexfoliation/exfoliation syndrome, borderline glaucoma and ocular hypertension were recorded for all patients. The preoperative intraocular pressure (IOP) and one month postoperative intraocular pressure for each patient was recorded if documented in the medical chart.

Results. A total of 132 patients and 137 eyes were reviewed during the study period. The mean age was 69.98±9.88. Fourteen eyes were identified with glaucoma (including POAG, ACG, pseudoexfoliation syndrome); 19 eyes were identified as glaucoma suspects (including ocular hypertension and borderline glaucoma); and 104 eyes were identified as normal with no history of glaucoma. The mean difference in postoperative IOP from preoperative IOP for patients with glaucoma, glaucoma suspects and normal patients was 4.96±8.78, 1.74±4.89 and 0.1±2.4, respectively. There was a statistically significant difference between postoperative and preoperative IOP between groups ($p=0.000072$). A post-hoc Tukey HSD test identified a statistically significant difference between the group of glaucoma patients and normal patients ($p=0.0010053$). There was no statistically significant difference between the glaucoma versus glaucoma suspect patients, and the glaucoma suspect versus normal patients ($p=0.0514$, $p=0.2196$, respectively).

Conclusion. Phacoemulsification cataract extraction with intraocular lens implantation has a lowering effect on IOP in patients with glaucoma, glaucoma suspects and normal patients. The greatest effect is observed in patients with glaucoma versus normal patients. Multiple proposed mechanisms are discussed, as well as recent studies suggesting similar findings.

Introduction

Cataracts and glaucoma are the two leading causes of visual loss and blindness worldwide.[1,2] As both of these ocular diseases show increasing prevalence with age, it is not uncommon to find that many patients develop these conditions concurrently. Intraocular pressure remains to be one of the only treatable risk factors in glaucoma, and medical treatment of glaucoma often leads to increased incidence of cataract.[3,4] Because these ocular conditions frequently coexist and surgical intervention is often required in order to improve or preserve vision, combined cataract and glaucoma surgical techniques have been developed and are currently used in order to achieve long-term control of IOP,[3,5,6] particularly in glaucoma patients requiring cataract extraction who also have advanced optic nerve cupping and visual field loss, or who require multiple medications to control IOP and may be noncompliant with medical care.[3,6] Recent studies have shown, however, that cataract surgery alone may lower IOP in eyes with glaucoma, particularly phacomorphic or lens-induced glaucoma.[3,5,7,8]

Methods

A retrospective chart review was performed and a composite list was obtained of all patients undergoing phacoemulsification cataract extraction with intraocular lens implantation at the Erie Eye Clinic between the dates of January 5, 2015, and June 8, 2015. Patients with ICD-9 codes for glaucoma, 365, were identified and their history was recorded, as were patients without a diagnosis of glaucoma. The patients' sex, age, preoperative IOP for each eye, one month post-operative IOP for each eye, and any complications of the cataract surgery, were also recorded. All patients without a recorded one month IOP were excluded from the final data submitted for analysis. Patients with varying glaucoma diagnoses, such as primary open angle glaucoma, primary angle closure glaucoma and pseudoexfoliation syndrome, were grouped into one category identified as patients with glaucoma. Patients that were identified as having borderline glaucoma, as well as patients with a diagnosis of ocular hypertension, were grouped into a glaucoma-suspect category. Finally, patients without any prior history of glaucoma were also recorded as normal patients. The mean difference and one +/- standard deviation in IOP pre- and post-operatively was calculated and recorded for each group. A one-way analysis of variance (ANOVA) test was performed on the three groups (k=3) using Open Source Epidemiologic Statistics for Public Health,[9] and was followed by a post-hoc Tukey HSD test, using one-way ANOVA with post-hoc Tukey HSD Calculator[10] to determine the statistical difference in preoperative and postoperative IOP changes between groups.

Inclusion and Exclusion Criteria

A raw total of 244 eyes were reviewed during this time period. Incomplete data records were excluded from the final data analysis. This included eyes for which no preoperative or post-operative IOP was recorded in the chart, as well as eyes for which IOP was recorded based on palpation findings. Following exclusion criteria, a net total of 137 eyes were submitted for final data analysis. Inclusion criteria for each of the three groups studied (glaucoma, glaucoma suspect and no glaucoma or normal) consisted of previously established diagnoses of glaucoma or ocular hypertension versus normal eyes. Eyes with an established diagnosis of glaucoma, including primary open angle glaucoma (POAG), pseudoexfoliation/exfoliation syndrome and angle closure glaucoma (ACG) were included in the glaucoma group, for a total of 14 eyes. Eyes with borderline glaucoma, as well as eyes with diagnosed ocular hypertension, were included in the group of glaucoma suspect, for a total of 19 eyes. Finally, eyes with no history or previously established diagnosis of either of the glaucoma sub-groups were included in the group of normal eyes, for a total of 104 eyes.

Data Analysis and Results

A net total of 132 patients and 137 eyes were reviewed during this period. The mean age was 69.98±9.88. Of the 137 eyes studied, 14 eyes were identified with glaucoma (POAG, ACG, pseudoexfoliation syndrome); 19 eyes were identified as glaucoma suspects (including ocular hypertension and borderline glaucoma); and 104 eyes were identified as normal with no history of glaucoma. The mean preoperative IOP in glaucoma, glaucoma suspect and normal patients was 19.96±7.94, 18.16±3.42 and 15.85±2.59, respectively (Figure 1). The mean postoperative IOP in glaucoma, glaucoma suspect and normal patients was 14.93±2.43, 16.42±4.51 and 15.74±1.91, respectively. The mean difference in IOP for glaucoma, glaucoma suspect and normal patients was -4.96±8.78, -1.74±4.89 and -0.1±2.4, respectively (Figure 2).

An analysis of variance (ANOVA) was performed to determine whether there was a significant dif-

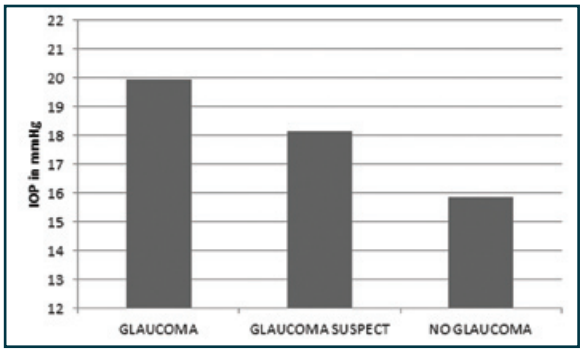


Figure 1: Mean preoperative intraocular pressures in mmHg: Preoperative IOP was the most recent IOP measured in the preoperative period. IOP ± 1 S.D. in glaucoma patients: 19.96 ± 7.94; glaucoma suspect patients: 18.16 ± 3.42; and normal patients: 15.85 ± 2.59.

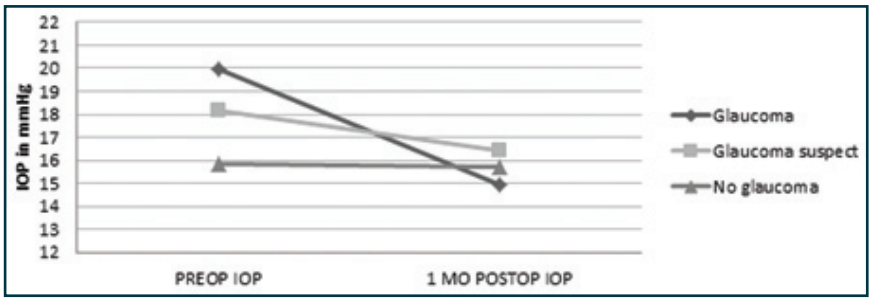


Figure 2: Mean intraocular pressure before and after cataract surgery in mmHg: Preoperative IOP was the mean of the most recent IOP measured in the pre-operative period. Postoperative IOP was the mean of IOP measured at one month in the postoperative period. Mean difference in IOP ± 1 S.D. in glaucoma patients: 4.96 ± 8.78; glaucoma suspect patients: 1.74 ± 4.89; and normal patients: 0.1 ± 2.4.

ference in intraocular pressure as an effect of cataract surgery in patients with glaucoma, glaucoma suspects and normal patients with no history of glaucoma. There was a statistically significant difference in preoperative and postoperative IOP between all three groups (p=0.000072). A post-hoc Tukey HSD test identified a statistically significant difference between the groups consisting of glaucoma patients and normal patients (p=0.0010053). There was no statistically significant difference between the glaucoma versus glaucoma suspect patients, and the glaucoma suspect versus normal patients (p=0.0514, p=0.2196, respectively).

Conclusion

There is a statistically significant difference in preoperative and postoperative IOP as a result of cataract surgery (p=0.000072). The effect of cataract surgery on IOP was most significant between the group of patients with known glaucoma and normal patients without glaucoma (p=0.0010053). The null hypothesis was rejected and the alternate hypothesis was accepted, confirming that cataract surgery does have an effect on lowering intraocular pressure in all patients, especially in patients with glaucoma.

Discussion

Vision impairment and blindness in the United States and worldwide are primarily the result of age-related ocular disease, including age-related macular degeneration (AMD), cataracts, diabetic retinopathy and glaucoma.[1,2,11] Specifically, cataracts and glaucoma are the two leading causes of vision loss and blindness worldwide,[1,2] and accounted for over 60 percent of blindness in visually impaired adults, particularly among African-Americans, within the United States in 2004.[12] The prevalence of adult vision impairment and age-related eye diseases in the United States, as determined by the National Eye Institute and Prevent Blindness America, based on 2010 U.S. Census populations estimated close to 24.5 million (17 percent) and over 2.7 million (2 percent) cases of cataract- and glaucoma-related vision impairment, respectively, in adults over the age of 40.[11] Because cataracts and glaucoma are both diseases of advanced age, they typically coexist in elderly patients, and can occur sequentially with cataracts having a causative effect on developing glaucoma.[13-15] Delay in the extraction of hypermature cataracts can lead to phacomorphic glaucoma, even in eyes with anatomically open angles.[13] Phacomorphic glaucoma is a type of secondary angle closure glaucoma that is the result of anterior displacement of the lens-iris diaphragm by an intumescent cataract, leading to pupillary block and iridocorneal angle closure (Figure 3).

Figure 3: *Pupillary block mechanism of phacomorphic glaucoma and angle closure: Anterior displacement of the lens-iris diaphragm from a hypermature cataract results in pupillary block and subsequent iridocorneal angle closure causing severely elevated IOP. [used from "Meds that don't mix with glaucoma patients." pentavisionevents.com][16]*

Cataract extraction is the only definitive treatment in pharcomorphic glaucoma, as it serves to "reset" or even depress the anatomical position of the lens-iris diaphragm. Several other cataract-surgery-induced IOP lowering mechanisms have been proposed. Shrivastava and Singh[17] proposed a process of conversion of an anatomically narrow angle to a more open angle following phacoemulsification cataract extraction with intraocular lens implantation as a direct result of the anterior chamber angle configuration. A postmortem study of human eyes in 1976 by Van Buskirk[18] suggested that an implanted lens increased tension on the zonules, subsequently widening trabecular spaces and, thereby, reducing aqueous outflow resistance.[8,18]

Frequent co-existence of cataracts and glaucoma requiring surgical intervention has led to the development and current use of combined surgical techniques, such as trabeculectomy or implantation of a glaucoma filtration device combined with phacoemulsification.[3] The majority of current literature shows that combined glaucoma-cataract procedures are superior over cataract extraction alone for long-term IOP control.[3,5-7] However, recent studies have demonstrated that cataract surgery is possible as a stand-alone surgical intervention not only in phacomorphic or angle closure glaucoma, but also in eyes with open angles.[3] These studies are limited in their ability to generalize treatment guidelines by their report of short-term results, inclusion of a mix of medically-treated glaucoma patients, and single-center investigations.[8]

Long-term effects of cataract surgery on IOP were reported by two retrospective studies carried out by Shingleton et al[19] and Poley et al,[20] who reported an overall mean decrease in IOP following cataract surgery that lasted up to three to five years.[19,20] These results were most recently corroborated by the Ocular Hypertension Treatment Study

(2012) — a multicenter, randomized clinical trial designed to determine the safety and efficacy of IOP lowering medication in delaying the onset of POAG in patients with elevated IOP. The study also investigated changes in IOP after cataract surgery in the observation group of the OHTS, and found an average decrease in postoperative IOP from baseline preoperative IOP of 4 mmHg, resulting in a 16.5 percent decrease. Nearly 40 percent (39.7 percent) of patients exhibited a ≥20 percent postoperative IOP reduction. The effect on IOP was sustained at one year, and though diminished, persisted for at least 36 months following cataract surgery.[8]

This retrospective study demonstrated that modern phacoemulsification cataract extraction surgery with intraocular lens implantation does have a lowering effect on intraocular pressure ($p=0.000072$). The greatest difference was observed in patients with glaucoma ($p=0.0010$), who also had the highest mean preoperative IOP. Cataract surgery decreased the one-month post-operative IOP in the glaucoma group by 4.96 mmHg, for a total of 24.8 percent reduction from preoperative IOP.

Study Limitations and Future Considerations

The study was limited by its retrospective design and data collection through chart review, small cohort, and the exclusion in data analysis of factors such as history of or current medical treatment for glaucoma, and anatomical specifications of the eyes such as axial length and anterior chamber depth. These factors should be included in future prospective studies in order that a new generalized set of guidelines may be developed to help direct the treatment and management of these complex patients.

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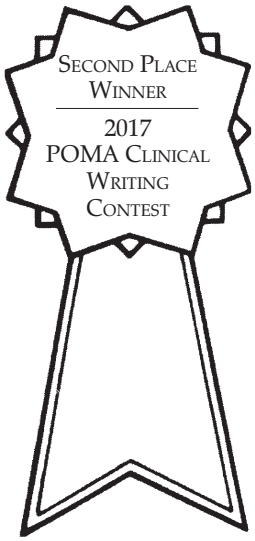
(continued on page 25)

Medical Update
Malnutrition and the Physician

by Capt. Joshua S. da Silva, D.O.



Introduction

Recent studies have revealed that 100 percent of human beings do, in fact, eat (no reference needed). Not everyone has CHF, or COPD, but you would be hard-pressed to find anyone alive who does not eat. Now that this groundbreaking data has been revealed, think back to your last patient and see if you can remember any information at all about their nutritional status. The ironic thing is that most of us cannot! We can recall any information required about their kidney disease, but nutrition is not something that we stress to be of importance. If 100 percent of patients eat, then nutritional support should be as reflexive as DVT prophylaxis, and lack of nutrition is by no means benign.

Malnutrition can delay wound healing, prolong hospital stays, worsen chronic illnesses, and create electrolyte abnormalities precipitating additional acute problems. One cross-sectional study by Mowe and Bohmer in 1991 showed physicians only caught 36 percent of malnourished patients.[1] That means that 64 percent of malnourished patients were leaving the hospital without proper nutrition follow-up, and that was over 15 years ago! In 2017, our patients are living longer with their chronic conditions, and the population of elderly patients is expanding. There is also the problem of nutrition medicine not being a focus in medical school, as it is not on any of our board exams.

The result is that we, as the new generation of doctors, do not value the impact of nutrition and are not properly educated in diagnosing and treating malnutrition in our patients. Even we, as osteopathic physicians, who value our holistic view of the patient, have allowed nutrition to fall by the wayside. Recent surveys have shown that as many as 33 percent of patients admitted to the hospital have some degree of malnutrition, and so it is time we as physicians paid closer attention to this growing issue.[2]

That is the purpose of this article — to offer explanation and guidance to osteopathic physicians in an effort to improve our patients' quality of life.

How Can We Get Better At This?

The American Society for Parenteral and Enteral Nutrition (or ASPEN) defined malnutrition as "an acute, sub-acute or chronic state of nutrition, in which a combination of varying degrees of over-nutrition or under-nutrition with or without inflammatory activity have led to a change in body composition and diminished function."[3] Diminished function is the key here, and it is why physician recognition of this process must improve. For the sake of simplicity, this article will focus only on the under-nutrition portion, as over-nutrition is something that we, as Americans, see quite routinely.

ASPEN also highlights three main types of patient "scenarios" where clinicians should be extra vigilant of malnutrition. The first and most obvious scenario is in the context of starvation or environmentally-related deprivation. It makes sense that people who do not eat for prolonged periods of time are at risk and nutrition should be consulted as support. With correct intervention, most of these patients can be successfully rehabilitated. The next two are easy to remember because they appear in the context of acute and chronic illness.

By acute illness, I mean things like trauma, closed head injuries, severe burns and other major processes such as sepsis and respiratory failure. It is no wonder that energy expenditure, as well as protein requirements, are elevated in these patients, which in turn puts them at risk for malnutrition. They may have even been completely normal before the acute illness occurred. What makes things worse is that nutritional support is often delayed, as the primary focus, naturally, is on stabilization.

Chronic illness is, of course, what medicine thrives on, and that features but is not limited to CHF, diabetes, cancer (in general), inflammatory bowel diseases and kidney diseases. In chronic processes, response increase to demand is milder, but results in a chronic loss of lean muscle mass and fat. The loses are

slow and far less dramatic than the first two scenarios mentioned. The result is that it may go completely unnoticed by the patients and, worse, their physician. Treatment for these patients requires diets that are tailored to the disease process and focused on the preservation of muscle mass.[2,4]

Better Identifying Malnutrition: The Next Step

The second step, now that we know in which scenarios to be worried, is how to properly spot these patients. Most of these methods of improvement are actually all based around more thorough history taking, and are completely free and require minimal time.

Assess recent intake vs. current energy needs. All this would take is a few extra questions to the patient or their provider, such as: "Have you been eating less then you normally do recently?" Understand that an actual measurement of the patient's current energy needs would be best left up to nutrition. However, these questions can help point you in the direction of a consult.[5]

Assess weight change from baseline. Again, this can be a simple question of "Have you lost any weight recently?" It may be difficult though because as said before, in chronic illnesses the patient may not notice. A quick look at the patient's last visit can be helpful to find a baseline weight. Beware in those with significant edema, as this can mask the weight loss. If you are suspicious of weight loss, especially in chronically-ill patients, a nutrition consult could never harm them.[5]

Physical exam. This is an area that we can excel in as physicians, if history fails us. It does not even require any alteration of the way you conduct your physical, all that is needed is to make a few additional visual observations. The main thing to take note of is any loss of body fat or muscle mass.

For body fat, look for sinking or a hollow look around the eyes, loss of mass in the upper arms (triceps), lower back, or any sunken ribs. Depleted body fat also can look like loose skin, depression between the ribs, and hollowing of the skin.[6]

For muscle mass, look at the upper body, more specifically the clavicles, back of the hand, scapula, and especially wasting or depression of the temples. Any prominent or protruding bones, such as protruding hip bones, should throw up a red flag. It is important again to note the presence of edema, as this can mask the physical signs that were mentioned above.[6]

Grip strength. Surprisingly, grip strength has come to be of importance in this whole assessment. Malnutrition causes both loss of muscle mass and inhibits muscle protein synthesis, which in turn affects the patient's strength.[7] Handgrip strength, therefore, is now being used as a marker for nutritional status. It has been shown in clinical trials to be a predictor of mortality and overall nutritional status. It is non-invasive and requires no blood that may further deplete the patient. The proper way to measure strength is with a dynamometer, but it is not really needed, as the effect can be noticed with the patient simply squeezing your hands, just as in normal strength testing. In addition to testing for symmetry, also test for strength, and consider it a red flag when you encounter a very weak patient.[8]

Albumin and Pre-Albumin: It's a Trap!

It is important to point out first that pre-albumin is NOT a precursor to albumin. Both proteins are made by the liver, but serve very different physiologic purposes. Pre-albumin, also known as transthyretin, is actually a thyroid hormone transport protein. It has a shorter half-life then albumin (almost two to three days shorter) and is most importantly, expensive to order. Albumin, as we know, binds any different cations and vitamins in addition to regulating the oncotic pressure of the blood.[9]

Now, these two molecules have been touted in the past to be markers of malnutrition, but as the title of this paragraph says, "It's a trap!" If you search the ASPEN guidelines you will find no mention of these molecules, and for good reason. Although there is some conflicting evidence, most of the literature points to pre-albumin and albumin as "negative" acute phase reactants.[3] This means that they fall with the patient's severity of disease, and can be totally separate from their nutritional status. A correlation can be made to other acute phase reactants, such as transferrin. Albumin levels also fluctuate with fluid status, and as a matter of fact, pre-albumin and albumin levels can be completely normal in the setting of malnutrition.[10]

We are taught to take all lab results within the context of the bigger picture, and a misunderstanding of what these two molecules are, and more importantly are not, can lead to harm for our patients. It can lead us away from a diagnosis of malnutrition, away from consulting the experts, and can extend our patient's road to recovery. The truth of the

matter is that we as physicians have little to no training in nutrition medicine. So, if these two lab tests are no longer useful, then what can we do to identify these patients?[2]

A Special Kind of Malnourished Patient

Once these patients are identified, goal is then to pump them full of as much food as possible. Right? So, you can guess at the answer to that question, and the reason many of us may know already. It is the elusive process simply known as the refeeding syndrome. The syndrome remains elusive for two main reasons: 1) it is complicated, and 2) not a lot of research has been done in the field. More on this later — history lesson first.

Refeeding Syndrome: A Brief History

The first notions of the potential complications of feeding a severely malnourished patient came out of articles published right after the end of the Second World War. The term was originally coined by Keys et al. in 1944 after studying a series of eight men who purposely starved themselves for 6 months in conscientious objection to the war. After feeding these men, some of them developed heart failure, which was thought to be due to severe hypophosphatemia; now a hallmark of refeeding syndrome.

A year later in 1945, patients liberated from concentration camps flooded into Europe's health care infrastructure. The average caloric intake of prisoners was 1,000 calories a day, with the weaker receiving only 500 calories a day due to the inability to forage. As these patients were fed, there were high incidences of sudden unexplained death after admission and unexplained death after the patient appeared to be improving.[11] Four years later, a similar event happened in Japan with similar physical and mortality findings. Even on the other side of the world, scientists were finding the same things.[12]

Pathogenesis

Understanding refeeding syndrome requires a better understanding of fed and fasting physiologic states. Generally, a state of starvation, or fasting, is described as a catabolic state where the body has switched from carbohydrate metabolism to fat and protein metabolism as its primary source of fuel. This switch of fuel sources is the catalyst for the myriad of other alterations the body performs, and it begins with the GI tract sensing a drop in caloric intake. After eating, the body upregulates insulin and downregulates glucagon, and in a fasted state the reverse happens, with less circulating levels insulin and more glucagon.[13]

The pancreas responds to the drop in glucose seen by the intestines by modulating its secretion of insulin. Insulin may be the most crucial factor in the whole adaptation process, and has been identified as the main catalyst behind the development of refeeding syndrome. Insulin's effect drives the storage of glucose as adipose and the synthesis of other fatty acids. Elevated levels of glucagon initiate breakdown of these adipose stores to use as energy. Metabolism of adipose stores releases free fatty acids into the blood. Along with ketone bodies, these two molecules serve as the body's new sources of material for its many biological processes, with fatty acids serving as the main source.[13,14] Survival time after the metabolic switch, therefore, is mainly dependent on the size of usable adipose tissue. This has interesting implications on patients that may seem otherwise to be in perfect health, such a body builders. Because of their lower amounts of adipose, their lean body mass may waste very quickly during times of prolonged starvation. So, while these patients seem at the peak of health, they may require more attention than you may think. The other main source of fuel is derived from glycogen stored in the muscles and liver. The liver and muscles store about 300 grams of glucose as glycogen which can provide up to 24 hours of energy. The breakdown of glycogen produces ketone bodies, and through gluconeogenesis the body converts these ketones into glucose.[13,14]

In a fasted state, muscle burns primarily fatty acids as fuel. As the fasted state deepens and glycogen is depleted, loss of lean body mass occurs as muscle begins to be broken down into their component amino acids. The proteins are then further broken down into ketones. To preserve muscle mass for as long as possible, basal metabolic rate can decrease by almost 25 percent. Cell volumes of the various organs also drop for the postulated reason of the loss of intracellular storage macromolecules. Finally, the brain switches its main energy source to ketones and glucose alone. It does not use fatty acids, not because it does not have the capability, but because the fatty acid is too large to pass through the blood brain barrier.[13,14]

The problem with refeeding syndrome is when a normal physiologic response occurs in a physiologic state that is no longer compatible with that response. The body is very adaptable,

even to the point of creating its own energy, if none is available from food. However, this adaptation has its limits, mainly in the cofactors that are required for metabolic processes that the body cannot make on its own. Insulin secretion signals to the body to resume usual methods of energy production and storage, however, many of the factors required from those pathways have been dangerously depleted. Restarting normal mechanisms depletes them even further, resulting in multisystem chemical and electrical abnormalities.[13-15]

It is important to note that in some cases serum electrolyte levels may be normal due to renal adaptation and retention, as well as other mechanisms such as recruitment from bone, especially if an acidosis is present. Severely malnourished patients may also have normal albumin due to decreased breakdown of proteins, and due to fluid shifts into the interstitium that may make serum albumin levels appear falsely high.[14]

It also does not always take months of starvation to become malnourished. Any patient with negligible food intake for more than five days has an increased risk of refeeding syndrome.[1] The syndrome generally occurs within three days and usually no longer than ten days after refeeding.[14]

Prevention Before All Else

So, it was mentioned before that there has not been a whole lot of research done on refeeding syndrome. As a matter of fact, there is no current, consistent definition with which to make the diagnosis. Treatment is symptomatic, and the primary emphasis in the literature has been placed on prevention.[16] It seems to me it would be rather challenging to create randomized trials without a consensus definition.

Thankfully, we do have an actual criterion for a patient that is at high-risk for this syndrome, as published by the National Institute for Health and Clinical Excellence (NICE) in 2006.[17]

Major Criteria (one required)[17]

- BMI less than 15 kg/m^2
- Unintentional weight loss greater that 15 percent within the last 3-6 months
- Little or no nutritional intake for more than 10 days
- Potassium less than 3.5, phosphate less than 2.7, or magnesium less than 1.6

Minor Criteria (two required)[17]

- BMI less than 18.5 kg/m^2
- Unintentional weight loss greater than 10 percent within the last 3-6 months
- Little or no nutritional intake for more than 5 days
- A history of alcohol abuse or drugs including insulin, chemotherapy, antacids or diuretics

These criteria have allowed for some quantification of this special population. In one of the only epidemiologic studies to quantify the high-risk population, it was found that about 9 percent of 1,661 patients examined were flagged by dietitians as being high-risk for refeeding syndrome. They also found that these patients on average weighed 13 kilograms (28.7 lbs) less, had a four day longer hospital stay, and required three times more time dedication by the dietitian. Speaking in terms of electrolytes, 52 percent of high-risk patients experienced significantly low levels of potassium, magnesium, or phosphate within seven days of assessment, with 9 percent having "very low" levels.[18] This review, conducted in Australia, demonstrates not only the time requirement these patients demand, but also their longer hospital courses and the very real risks that occur during the initial stage of refeeding.

A separate audit of 102 patients showed that 22 of those (21.5 percent) were at high-risk, and only 32 percent of those were treated per best practice with 9 percent progressing to clinically diagnosed refeeding syndrome with the classic electrolyte aberrancies and complications.[19] This addresses one of the serious concerns that has been raised in the handling of this syndrome. Lack of physician education has resulted in widespread under-reporting and under-treating of high-risk patients, and has consequences that have not yet been quantified. Even from dietitian to dietitian within the same hospital there are variations of approach, with some using a more cautious approach and some who elect to be more aggressive in terms of both feeding and electrolyte repletion.

In general, the overall body of literature for this disease process is poor. There remains no consensus definition for diagnosis, the criteria used to access risk lack rigorous sensitivity and specificity, the epidemiology of this population is only briefly described in one paper, and many of the recommendations put forth in other safety protocols are based on prior experience.[14,17,20,21] The literature is in consensus on one thing, and that is that treatment efforts should be aimed towards prevention. The most effective means of bringing this about is through consistent and evidence-based practice guidelines and screening protocols.

For this reason, we at ASPEN have now begun work on a consensus clinical guideline

for the prevention and treatment of refeeding syndrome. There are other protocols in other parts of the world to this effect, with the most recent published four years ago, by the Irish Society for Clinical Nutrition and Metabolism, or IRSPEN. The proposed protocol would be entirely based in current literature recommendations with compensations for renal failure, an aspect left out by previous protocols.

ASPEN Consensus on Refeeding Syndrome: Coming Soon

The protocol would consist of three sections: 1) screening, 2) recommendations for feeding rates, and 3) repletion of electrolytes. The screening of these patients would be using the NICE high-risk guidelines published in 2006. Although somewhat lacking in sensitivity and specificity, they have been shown to be useful for screening.[18,20,22-26] Screening by the dietitians has already begun at our facilities, and has been an effective way to identify these patients without significant detection variability between providers.

Feeding rates would be based on data collected from previous studies and currently published protocols in other parts of the world. Because of the relative lack of controlled data on the topic of feeding rates, the main goal here is to consistently treat our patients with rates that have been previously shown to be safe by other groups.[13,14,20,21,25,27] These recommendations for feeding rates would vary for patients showing either moderate or severe malnutrition, and in the three main feeding methods: 1) patient driven enteral feeding, 2) enteral feeding tubes (i.e. NG, OG, PEG, PEJ tubes), and 3) parenteral feeding.

The final phase is the safe and effective repletion of potassium, magnesium and phosphate. Other protocols, such as the IRSPEN Refeeding Protocol propose suggestions for repletion without accounting for decreased renal function. Our protocol would be adapted in this manner, and would allow for us to give evidence-based recommendations on the repletion of patients with chronic kidney disease stages I-IIIa (leaving stage IIIb and IV to clinician discretion). This phase would also include recommendations for daily thiamine and multivitamin supplementation.[14,16,17,20,21]

The creation of an effective infrastructure using a consistent protocol will not only allow us to screen and treat with efficiency, but will be vital in the continued study of this disease. It will allow us to more easily study these population groups and conduct randomized, control trials to further advance our management. It will also allow us to easily adjust our practice based on new data, and will unite our efforts in caring for these patients through consistency and evidence based practice.

Summary

We as physicians may have missed the mark, but there is hope for us yet. Thankfully, we have the consult of expert dietitians, and so our job is made a great deal easier. The primary areas in which we can help our patients is to know when to look for malnutrition, knowing what to look for, and knowing who to talk to about our findings. By early intervention we can decrease hospital stay, improve wound healing, and accelerate recovery from acute and chronic illnesses alike. If there was a pill that did all that, it would be as common as metformin. The ASPEN website is also an amazing resource for continued learning and further support.

Take Away

- The three scenarios to look for malnutrition: deprivation, acute illness and chronic illness.
- Add questions to your history assessing recent intake and weight changes from baseline.
- To assess body fat look around the eyes, arms and ribs.
- To assess muscle mass look at the clavicles, dorsum of the hand and the scapula.
- Grip strength has been shown to be an accurate marker of nutritional status.
- Albumin and pre-albumin have been shown to be inadequate markers.
- A certain percentage of malnourished patients are at high risk for refeeding syndrome.
- Refeeding syndrome is a constellation of abnormalities caused by normal physiologic responses occurring in non-physiologic conditions.
- The mainstay of treatment for refeeding syndrome is prevention.
- ASPEN is creating a consensus guideline to help guide our practice.

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George D. Vermeire, D.O., Installed as 106th President of the POMA

Dr. George D. Vermeire, POMA's 106th president.

George D. Vermeire, D.O., was installed as POMA's 2017-2018 president during the Annual State Banquet, held April 28, 2017, at the Radisson Valley Forge and Valley Forge Event Center in King of Prussia, Pennsylvania.

Dr. Vermeire has been a member of the association for over 40 years. A member of the POMA House of Delegates, the Board of Trustees and the Executive Committee, he is also a past treasurer of District 2.

A board certified family physician, Dr. Vermeire is the medical director in the Northeast Region for Aetna, Inc., in Blue Bell. He is also the Aetna liason to the American Osteopathic Association (AOA). He previously served as a professor of family medicine at the Philadelphia College of Osteopathic Medicine (PCOM), and as a private practice family physician in Philadelphia.

A graduate of the University of Pittsburgh, Dr. Vermeire received his D.O. degree from PCOM in 1974. He completed an internship at Zieger-Botsford Hospitals in Farmington Hills, Michigan.

Chairman of the POMA Foundation, he is a member of the American Osteopathic Association, the American College of Osteopathic Familiy Physicians and the Pennsylvania Osteopathic Family Physicians Society.

A transcript of Dr. Vermeire's presidential speech follows:

Thank you, Mike, Tony, Rob and the administrative team, and District 10, Alice, Carol and Carol.

Thank you, Mike, for your leadership and insight. You realized the challenges facing POMA would not be solved in one year and that the best way to ensure continuity was to involve the President-elect in all discussions.

Thank you, Tony, for continuing this practice. Over the last year, there were a lot of things happening at POMA and Mike, Tony and I were involved at every step. Tony will work with me and the new President-elect to continue what was begun this year and institute new programs for the next year.

Thank you, Rob, for leading us through this transition. Thank you to all the administrative staff for how well you have met the challenges of this transition and have moved POMA forward.

Thank you District 10. When I first attended district meetings, Alice Zal and Carol Henwood welcomed me and encouraged me to become more involved. They nominated and supported me to be elected to the POMA Board of Trustees. Carol went on to become President of the American College of Osteopathic Family Physicians, and Alice became POMA president. Alice mentored and supported my candidacy for leadership positions leading to tonight.

Brian Keeley, Carol Bowes-Lawlor and the other officers, have invigorated the district which now hosts 20-30 members at our monthly meetings. Their dedication and devotion are an inspiration to all who know them. Let me share with you an extreme example of this dedication. Carol was in Las Vegas yesterday and had the opportunity to stay there to celebrate her birthday as only can be done in Vegas. But here she is tonight, so I thought the least we could do is sing Happy Birthday to her. Happy Birthday to you…

We might not be Michael Bublé, but we are **FAMILY**. You will be hearing a lot about all the changes in POMA, but the one constant force is the Osteopathic Family. Unlike our personal family, we weren't born into the Osteopathic Family. We studied hard and did all we could to be accepted. We applied for acceptance into this family.

Osteopathic Distinctiveness: The search for a difference, the search for equality, and now what? This is where the Osteopathic Distinctiveness begins. The admissions committee of a College of Osteopathic Medicine saw something special in each of us. All the applicants were smart and had good grades, but there was something distinct in each of us. For each of us who was admitted, there were thousands who are not physicians today.

We were all taught Osteopathic Philosophy, diagnostic skills, and Osteopathic Manipulative Medicine. After two years we were all pretty proud of our distinctiveness. Then we went out on clinical rotations. We saw some physicians who demonstrated a distinctively Osteopathic approach to patients. And then we saw a lot of other DOs who did not seem any different than their MD counterparts.

Since 1894 with the founding of the first Osteopathic School, Osteopathic physicians have fought for equality with allopathic physicians. AT Still founded a new approach to diagnose and heal the sick. Given that the tools of the mainstream medical practitioners were bloodletting, heavy metal poisoning and amputation, it's no wonder there was such demand for a new way. From his autobiography and the incorporation documents of the American School of Osteopathy, it's clear that he saw Osteopathy as distinctively different but equal.

I can now tell you that graduates with the DO degree are equivalent to graduates with the MD degree. And the reason I am certain this is fact: the Accreditation Council for Graduate Medical Education (ACGME) says it's true. The fight is over. We have achieved equality.

Ok, we are equal, but are we distinctively different? We were chosen and trained by distinctively different colleges. We even learned different approaches to treating patients and some different ways to treat patients.

Now all residents, DO and MD, will be entering equally into residencies. Some of these residencies will offer an additional Osteopathic program, Osteopathic Recognition, that is available to DO and MD residents. The existential question is: Will DOs after completing their unified residency, Osteopathically Recognized or not, choose AMA specialty certification or AOA specialty certification?

Collaboration and Participation

POMA faces enormous challenges in the years ahead. In order to meet these challenges, POMA needs to be nimble. We need to increase our member communication, and that is two-way communication. We need to keep you informed and we need to listen to your needs and ideas.

Innovation: Creating new value, understanding needs, and serving more DOs.

POMA is now on LinkedIn, Facebook and Twitter. We will be texting and emailing. We will constantly be asking your opinion.

We are overhauling the committee structure, eliminating committees that don't add value, and focusing on a few key committees with the expectation that they will be active, innovative, and responsive to challenges. We will also form task forces to deal with short term issues.

We are investing in a new IT system that will enhance communication and enable us to create databases that will make us more effective. We need to know which DO knows what legislator, and which DO has special expertise when we need to create a task force or appear before a legislative committee.

CME is one of our core missions, but we are exploring new ways to provide CME to meet changing member needs and increase the number of DOs we serve.

We will explore new ways to bring more value to our members.

We have already launched an effective legislative agenda with a skilled government affairs consultant, Bruce Hironimus. Last year we stopped legislation that would have granted CRNPs the same practice rights as DOs and MDs, but it's back again this year. We need to maintain respected relationships with key legislative leaders so that we will be effective at stopping harmful bills and support favorable ones going forward.

We have a new CEO, and Diana and the POMA administrative team are fired up, they are talented, they are committed, but they can't do it alone.

The elected officers are dedicated and hard working, but we can't do it alone.

We delegates who take the time to come here and attend district meetings are critical to success, but we can't do it alone.

We need a dynamic collaboration between the members, the leaders and the administrative staff to be a Pennsylvania Osteopathic Medical Association we can all be proud of.

We also need to collaborate with other associations like the Pennsylvania Osteopathic Family Physicians Society, PAMED, the AOA, ACGME, and the Pennsylvania Legislature. We need to let our voice be heard that we are a force in Pennsylvania health care and a leading force in Osteopathic Medicine in this country.

I hope you see that there is a renewed energy in the Pennsylvania Osteopathic Medical Association. We need all DOs to get involved. Go to your district meetings. Become a delegate to POMA and the AOA. Run for office. Write an article for publication. Contribute to POMPAC. Stay informed about what's going on. **Make a difference!**

I fully expect that you will join me in the challenge, and I invite you to constantly let me know how we are doing, and what we can do for the benefit of our Osteopathic Family.

POMA Hosts 109th Annual Clinical

A Year of Change

POMA ushered in a new era during its 109th Annual Clinical Assembly and Scientific Seminar. Nearly 1,400 attendees came to Valley Forge and experienced new ways of communicating, networking and learning with the overarching goal of improving patient care.

This year, POMA adopted the phrase, *POMA on the Move!* This concept was brought to reality during the Clinical Assembly. It was a new direction with renewed enthusiasm and spirit. The conference brought forth an awakening of pride in Pennsylvania osteopathic medicine. The reinvention of POMA is alive! The horizon has a new look. Let us all engage and enjoy as a family should!

The extraordinary success of this year's Clinical Assembly was largely thanks to the efforts of Ernest R. Gelb, D.O., general convention chairman; Kieren P. Knapp, D.O., convention vice chairman; Bernard I. Zeliger, D.O., exhibit chairman; Kenneth J. Veit, D.O., education program chairman; Michael A. Venditto, D.O., education program vice chairman; educational session coordinators John W. Becher, D.O., Craig A. Frankil, D.O., Jeffrey S. Freeman, D.O., Benjamin R. Kuhn, D.O., David Kuo, D.O., and Richard A. Pascucci, D.O.

#POMA109 #POMAontheMove #Change #NewTechnology #Collaboration

Attendees were likely to see, and use, all of the above hashtags in social media interaction about this year's conference. Throughout the past year, POMA has taken great strides in moving the organization forward with the goal of increasing not only awareness and education, but communication within the organization and with the membership. The inclusion of social media via Facebook, Twitter, and LinkedIn provided methods for attendees to interact with each other by sharing posts about seminars, commenting on some of the topics that were brought up and seeing highlights from parts of the conference they could not attend.

The next big addition to this year's conference was POMA's mobile conference app. The app not only made it easy to organize each day's schedule but it prompted attendees to interact with each other by discussing hot topics, sharing photos, setting up appointments, and even competing with one another through the built-in interactive game.

Rounding out our list of technological innovations this year was the option for electronic payment for on-site registration. Of the 127 on-site registrants, our team processed 80 percent of them with credit card payment. This process not only made registration more efficient for the POMA staff, but it also streamlined registration for attendees.

We are thrilled with the response we've received about these additions to the conference and we're excited to say that these changes are just the start.

Assembly and Scientific Seminar

POMA on the Move! Town Hall Meeting

Adopting the theme — reinventing POMA, the leadership of the association participated in the first ever Town Hall meeting. Their goal in convening such a gathering was to engage in a wide-ranging exploratory conversation with the membership; all in an effort to shape the future. Given the extraordinary level of activity and uncertainty currently being experienced in the health care arena, the timing was perfect! The energy in the room, the level of interest, and the conversations that touched upon a range of issues and concerns was a clear demonstration of value and relevance.

The stage was set by an opening question asking how POMA can communicate better? The response from the panelists underscored the reality that POMA cannot move forward without the ideas and feedback of our members. These types of forums, where a large number of POMA members come together in one place enabled the leadership to talk about upcoming plans, consider new processes for communication and to open the channels to receive member feedback.

Interim Executive Director Robert H. Moran, MBA, MPA, ACC, opened the meeting by talking about POMA's reinvention. Reinvention inevitably means change and the rest of the 2016-2017 leadership team (Dr. Anthony E. DiMarco, President; Dr. George D. Vermeire, President-elect; Dr. Joan M. Grzybowski, Vice President; Dr. William A. Wewer, Secretary-Treasurer; and Dr. Michael J. Zawisza, Immediate Past President) took turns discussing some of the changes in POMA's future.

The meeting ended with a chance for attendees to ask questions of the Leadership team and raise questions about everything from the revitalization of POMA to legislation issues affecting the medical industry. We hope that the lines of communications this meeting started will remain open and provide an increased flow of ideas and comments as we continue to move forward.

The Town Hall model proved very successful and will likely be a part of future meetings. The experience clearly reflected a membership who wants to engage with one another, has many questions and represents a range of perspectives, and views the role POMA can play in shaping the future, as pivotal to their future. The challenges, voiced by one of the panelists at the conclusion — How do we maintain this level of momentum? How do we share what went on here with members who were not in attendance and need to be engaged? And finally, how do we find our voice and tell a compelling story about osteopathic medicine?

These questions are ones that should not be answered then dismissed, but rather kept with us as we continue to grow and move forward.

Save the Date!

Make plans now to attend our 110th Annual Clinical Assembly, May 2-5, 2018 in King of Prussia!

Congratulations D.O. Class of 2017!!

POMA would like to extend a warm welcome and congratulations to this year's 619 D.O. graduates from Pennsylvania's campuses of the Lake Erie College of Osteopathic Medicine (LECOM) and the Philadelphia College of Osteopathic Medicine (PCOM).

LECOM honored its D.O. graduates with a Senior Awards Luncheon on May 26, 2017, at the Ambassador Conference Center in Erie. During the luncheon, POMA President George D. Vermeire, D.O., presented the POMA Outstanding Student Award to Paul Gordon Robbins, LECOM Erie, and William George Wert, LECOM at Seton Hill.

On May 28, LECOM held its 21st commencement ceremony at the Erie Insurance Arena, where 362 new D.O.s. from the Erie and Seton Hill campuses received their degrees.

PCOM hosted its Commencement Dinner Dance on June 1, 2017, at the Hilton Philadelphia City Avenue. During the evening's celebrations, Dr. Vermeire presented the POMA Outstanding Student Award to Matthew A. Costa.

On June 3, PCOM graduated 257 doctors of osteopathic medicine during its 126th commencement ceremony at the Kimmel Center for the Performing Arts in Philadelphia.

Congratulations to all of 2017's D.O. graduates and good luck as you begin the next step in your osteopathic careers.

Welcome to our osteopathic family!

Dr. Vermeire presents the POMA Outstanding Student Award to Paul Gordon Robbins, LECOM Erie (L) and William George Wert, LECOM at Seton Hill (R).

Dr. Vermeire presents the POMA Outstanding Student Award to Matthew A. Costa, PCOM.

PCOM STUDENT'S VOICE *(continued from page 8)*

1:25 pm: Wrong again.

3:07 pm: A rapid response is called on one of your patients. Feel a surge of nerves as you and the resident fast-walk to the room. Push yourself into a corner, hopping from front to back as you attempt (and fail) to stay out of the way of the people who will actually save this patient's life. Smile sympathetically when the nurse manager points out how crowded the room is, and wonder if it would be better to step out, but don't, because you don't want to leave your resident's side. Breathe a sigh of relief when the patient's heart rate comes back up, and wonder how you'll ever handle this situation when you're a resident yourself, in just over 365 days.

6:30 pm: Arrive back at home, unwrap a Lean Cuisine, and slump on the couch while it cooks. Find a new episode of *Chopped* online and wish you were a chef while shoveling in the piping hot microwave linguini alfredo. Imagine what you'd say to each contestant if you were a judge, especially the ones who attempt to make ice cream for dessert, which never works.

7:00 pm: Catch up on old episodes of *The Office* while doing practice questions online. Get a 58% on the questions.

10:30 pm: Roll into bed, and lie awake replaying every pimp question you got wrong, the weird joke you made when you were trying to bond with a patient, the fact that you're probably going to fail boards if you don't find more time to study. Dream up an interesting alternative job.

11:30 pm: Finally drift off to sleep, looking forward to starting again tomorrow!

EFFECT OF CATARACT SURGERY ON INTRAOCULAR PRESSURE *(continued from page 13)*

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CORRECTION

In the December 2016 issue of the *Journal of the POMA, the name of* MariaLisa S.M. Itzoe (PCOM '20), co-author of the article, "Adapting Unmanned Aerial Vehicles for Emergency Medical Response," was mispelled. We apologize for the error.

 (continued from page 6)

Keller and Nancy Carty (microbiology), and Drs. Kyle Scully and Erika Allen (pharmacology) are focusing their investigations upon the use of essential oils as a way to enhance antibiotic efficacy and potentially to overcome the antibiotic resistance of bacteria.

Many other supremely capable leaders in the field, such as Dr. Jack Lee, Dr. Heather Jones, and Dr. Justine Schober are involved in probative studies and championing training tools, many of which are facilitated through research endeavors undertaken at the new LECOM Research Laboratory Center.

LECOM leadership in the research field is wholly integrated across the program disciplines. From Dr. Kyle Scully with expertise in chemical safety to Dr. Thomas Corso, Professor of Biochemistry and Neuroscience in the Department of Pharmaceutical Sciences at the School of Pharmacy, LECOM research cuts across the medical sciences to prove and to seek out the complex understanding that underpins discovery.

The LECOM Research Collective (LRC) is an organization within LECOM. The LRC has laboratories at the campuses in Erie and Bradenton, with varied disciplinary focuses that represent the scientific and scholarly interests of the school and endeavors to be at the forefront of osteopathic biomedical research.

Biomedical research that specifically bridges basic science and clinical research is termed translational research, which integrates the basic and clinical research domains to accelerate knowledge translation from the bench to bedside, and back again. This building block of research is undertaken to advance and to support the development of knowledge in the healthcare field. It is a highly useful tool in the furtherance of a well-rounded medical education.

Basic science research is a rapidly evolving area in biomedical research. "The LECOM Masters in Biomedical Sciences Program is one aspect at the very heart of this undertaking, as is a desire to encourage student research with regard to recent changes in the post-graduate medical education residency program. This entire process will engage more students: the Masters scholars as well as residents at the hospital. It is truly a system-wide undertaking, embracing pharmacy faculty and students and those in dental training," noted Dr. Ferretti.

Collaborations with other schools, such as Auburn Veterinary School, will allow LECOM researchers to conduct human and animal osteopathic investigations. The new Research Laboratory Center is facilitating these superlative endeavors.

"If one looks back 30 years, when laboratories were being constructed, every medical student had his or her own four walls and his or her benches. They all had their own isolated and individual laboratory," explained Dr. Bateman. That is not the way that laboratories are being built these days. The preferred model is a large open space with bench after bench. Each individual is designated a bench or two, depending upon his or her productivity; and then, instead of having individual rooms, there are shared or common rooms, where students come in and out to utilize the equipment. Not only is this model much more cost effective for the school, but it also allows the students to utilize the equipment to its fullest potential. Multiple investigators can make use of that same equipment; and shared understanding and enhanced learning are the result," stated Dr. Bateman.

"This new facility will have a very large impact upon the researchers. With the shared equipment, they can perform experiments that they have been unable to conduct in the past," Dr. Bateman affirmed.

All of these endeavors are intended to provide the comprehensive educational offerings necessary for medical students to gain the fullest knowledge and understanding available as they advance to become the healthcare professionals of tomorrow.

LECOM, ever an impassioned innovator, ever on the cutting edge, and always prepared to presciently embrace and advance the visionary possibilities of a purposed promise, calls to mind the observation of the Nobel Prize-winning Hungarian biochemist, Albert Szent-Gyorgyi, who noted that, "Research is conducted to see that which everyone else has seen, and to think that which no one else has thought."

To those who commit themselves to this noble endeavor, to those who work in the arena of formalized curiosity, who poke and pry with a purpose, LECOM welcomed not only this grand facility, but its proud and hearty commendation.

CME Quiz

Name _____

AOA # _____

1. Cataract extraction with phacoemulsification and intraocular lens implantation is shown to be statistically significant in its effectiveness of lowering intraocular pressure in patients with known glaucoma.
   True False

2. Which of the following is caused by anterior displacement of the iris-lens diaphragm due to a hypermature cataract causing pupillary block and subsequent iridocorneal angle closure, leading to severely elevated intraocular pressure?
   a. phacoantigenic glaucoma
   b. phacomorphic glaucoma
   c. primary open angle glaucoma
   d. pseudoexfoliation syndrome

3. Which of the following is a major criterion for refeeding syndrome?
   a. Little or no nutritional intake for more than 5 days
   b. BMI less than 15 kg/m^2
   c. A history of alcohol abuse or drugs including insulin, chemotherapy, antacids or diuretics
   d. BMI less than 18.5 kg/m^2

4. Albumin:
   a. Does not fluctuate with fluid states
   b. Is the final product of the breakdown of pre-albumin
   c. Is a poor marker of nutritional status
   d. Is a thyroid transport protein

5. What is a good marker for a patient's nutritional status?
   a. Albumin
   b. Pre-albumin
   c. Electrolyte levels
   d. Grip strength

To apply for CME credit, *answer the following questions and return the completed page to the POMA Central Office, 1330 Eisenhower Boulevard, Harrisburg, PA 17111-2395. Upon receipt of the quiz, we will forward it to the AOA CME Department. You will receive two Category 2B AOA CME credits. Please include your AOA number.*

Answers to Last Issue's CME Quiz

1. a
2. c
3. b
4. d

(Questions appeared in the March 2017 Journal.)

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