



the

JOURNAL

of the Pennsylvania Osteopathic Medical Association

July 2020

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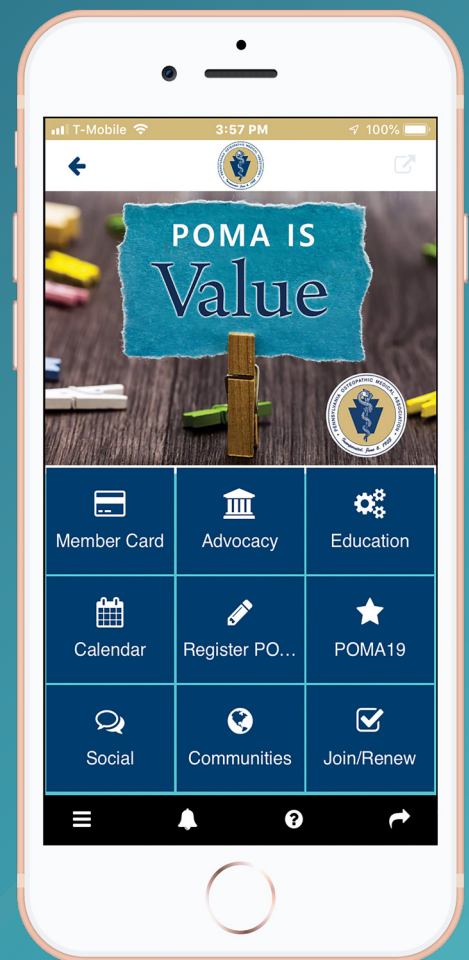
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THE

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These last few months have been so unbelievable that no cover art can appropriately capture the sentiments. Reminiscent of what another publication has done in the past, the cover of this issue is intentionally left blank.

— Mark B. Abraham, DO, JD, JPOMA Editor

CONTENTS

- 4 **From the Editor's Desk**
Mark B. Abraham, DO, JD
- 5 **Op-Ed: Reflecting on Conversations about Death**
Brynn Cardonick
- 6 **LECOM Dean's Corner**
Silvia M. Ferretti, DO
- 7 **PCOM Dean's Corner**
Kenneth J. Veit, DO
- 8 **A Student's Voice**
Jade McLain, PCOM OMS-II & Chelsey Hanson, PCOM OMS-II
- 9 **Out of My Mind**
Samuel J. Garloff, DO
- 10 **About the Authors**
- 10 **Index to Advertisers**
- 11 **Medical Update**
A Comparison of Video Capsule Endoscopy and Terminal Ileum Intubation in the Work-up of Chronic Diarrhea
Thomas R. Geisler, DO, MHSA
- 14 **Medical Update**
A Cadaveric Feasibility Study of Partial Joint Resurfacing for First Carpometacarpal Arthritis
Matthew L. Hintz, DO, MS
- 19 **Write to Us!**
- 19 **CME Quiz**



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FROM THE EDITOR'S DESK

Mark B. Abraham, DO, JD



Mark B. Abraham, DO, JD
Editor-in-Chief

From a Fish You Can't Make a Chicken

For those of you who understand what that means, just smile. You already know where some of this is going. For those of you who don't, you are about to learn.

This *JPOMA* issue was about dying, dying with dignity, how we help our patients and their families in dealing with death and the like. Publication was delayed along with everything else seemingly all over the planet due to the 2019 novel coronavirus, SARS-CoV-2 aka COVID-19. At that point whether or not we wanted to deal with death, whether personally or professionally, we did not have a choice. Our practices changed. Our lives changed. Stay at home orders. Travel restrictions. Essential vs. non-essential workers. Masks or no masks. I can keep going, but why? Not only have we all lived it and are likely tired of it, "green phase" or not, we cannot change anything about it. *From a Fish you can't make a chicken.*

In the past I have mentioned my father, although not necessarily by name. Michael I. Abraham, DO, FACOS, PCOM '66, died April 28. His death certificate listed his cause of death as complications of COVID-19. Dad became a statistic. Five years ago about two days after Father's Day, my father suffered the first of two (2) bleeds, within a three (3) week period, into an acoustic neuroma. When he finally went in for surgery after the second bleed, he never went back to his home. His course was like that of so many of our patients and family members. Hospital to acute rehab to sub-acute. He never left his skilled nursing facility (SNF). They provided the 24-hour care and safety which he needed. Was it anything close to being the same as his home in Bala Cynwyd? Of course not. Our family did everything we could to try and make it feel like his own apartment. It just wasn't the same. It was the new normal. *From a Fish you can't make a chicken.*

Shortly after the national lockdown of nursing homes and SNFs this past March, I received a call from the social worker there; she and I had a very good relationship for his whole time there. She was letting me know that a letter was being mailed out to families, but she wanted to call and email a copy to me first. They had their first case of COVID-19. Not only could we not go in and physically see Dad, now it was a waiting game. His health had been declining for months; I didn't know if he would make it through this summer.

If COVID was in the facility, his chances of contracting it were high and surviving it slim. When he got sick in April and his condition started to slide, he made it clear that he did not want to go to the hospital. "I will die right here!" That was said via FaceTime to me with his attending physician and a nurse present. Dad chose. Not only was he already a DNR, he was now DNH. Those chances of survival were now zero unless a miracle of biblical proportions was to occur. *From a Fish you can't make a chicken.*

If anyone has had to attend a funeral, wake, viewing or Shiva during these times, it is surreal. At that point, there was a limit to the number of people allowed in the cemetery, but it was on Zoom. The memorial service and two nights of Shiva were on Zoom. Some of you reading this were able to attend — my family and my sister's family in New York City thank you and appreciate it. The one thing that we were able to replicate to some degree and more than one normally has at a funeral, was allowing people to speak. Colleagues, friends, former residents as well as family spoke. Some told stories. Some discussed their relationship. Others told of times when my father helped them. At times, I was able to be the moderator of sorts. As such, not only was I able to make sure that those who wanted to speak had the chance, I also was able to create topics of conversation (knowing my audience as I looked at the Zoom conference). Many topics and stories revolved around his teaching. He loved surgery. He loved teaching it to students and residents, not to mention the five (5) year old boy who stood on a stool near the front of the OR in a gown which still touched the floor despite the stool (and that fit better than even trying to wear the scrubs. In the 1970's they did not make surgical scrubs for 5-year-old's, if you didn't know.)

Dad had a lot of expressions. Some would appear on his 3x5 card file index which he carried for rounds. He had expressions for surgery — "Exposure is the name of the game" or "Only the strong survive." One of his all-time favorite expressions, and one which was, at times, on that card index was *From a Fish you can't make a chicken.*

I grew up hearing that expression. When people hear it for the first (and sometimes second, third or fourth time), it doesn't just sound strange, but it takes a minute to understand.

(continued on page 17)

OP-ED – Reflecting on Conversations about Death

Brynn Cardonick



Brynn Cardonick

Beginning a conversation about death is just the inauguration of a long endeavor that hopefully ends with a change of how we view death in its entirety. The ambiguity surrounding the end of life can begin to be unraveled through talking to those most directly dealing with it. To understand the impact this conversation has on the elderly, I decided to interview two of my favorite elderly people, my grandparents. Having been married for 54 years, the greatest worry of my grandpa, who we call Poppy, surrounds the care of his wife and my grandma, who we call Mommom, when he is no longer able to be there to take care of her. This is a very common worry to have, and I've heard it from a lot of spouses while volunteering at the hospice. The idea that people are even worrying about this solidifies the fact that we need to talk about death, and what the options are when it's getting close. I believe the physician has an integral role in easing this worry. Discussing what your loved one(s) will do after you pass is a very painful conversation to have, but the only way to ease this concern is to make a plan. The physician should accept this conversation with empathy and understanding. What if it was their husband or wife who's care had to be considered?

Poppy also commented that death is not a common topic among friends, and that it is only brought up after a relative or friend passes. Poppy disclosed, "cause of death is discussed, followed by a senior comment of 'hope I die in my sleep'." We are so afraid of the notion of death that we hope it happens when

we're virtually unconscious. As I discussed in my previous article, the medicalization of death in the United States makes us view it in a certain way that arouses fear and anxiety. I believe that your final years on Earth should be spent reveling in the happy moments, not worrying about what's to come. Making death a normal conversation topic between a trusted physician and a patient can ease away the discomfort and uneasiness that may be common in these later years. The end of life does not always need to be entirely sad. It can be a time when you're surrounded by your favorite people, reflecting and laughing about the past. As Poppy said, "the support in the final days is priceless." Everyone should be able to have these last moments of exhilaration and delight, but this can only happen if we open ourselves to the possibility of talking about the end of life.

I know talking about death is easier said than done. The love I have for my grandparents is unsurmountable, and it's painful for me to consider that there will be a time when I can't tell them how much I love them to their faces. More important to me is that they don't spend their final years in fear of what is to come. I want to be certain that Poppy isn't worried about who will take Mommom to get her nails done and to comfort Mommom when she's anxious about who will take the waffle maker off the top shelf. Physicians need to jumpstart conversations about these issues, not specifically about nail appointments and waffle makers, but about easing the pain of leaving a loved one behind.

LECOM DEAN'S CORNER

Lake Erie College of Osteopathic Medicine

Living Intentionally



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

"It is only when we truly understand that we have a limited time on earth — and that we have no way of knowing when our time is up — that we begin to live each day to the fullest, as if it were the only one we had.

—Elisabeth Kubler-Ross

Life passes quickly. It is a truism that can be confirmed simply by asking anyone over the age of 50. Since the limitations of earthly life are definite, one must endeavor to deepen, broaden, enliven and find purpose within the confines of a life.

Indeed, sage thinkers have suggested and even supported the notion that people would live longer if they did not know how old they were. Age places restrictions upon truly living. LECOM has been ever aware of these life lessons.

Thus, it was with a snip of a ceremonial ribbon in November of 2019, that officials at LECOM unveiled the new home of the LECOM Center for Health and Aging (Center), a facility which is superbly suited to address the needs of an older population that is ever growing.

The integrated and comprehensive network of LECOM Health blends the synergy of academia, clinical practice, and personal care to advance and expand its long-established connection between us and the Erie community.

Since its acquisition in 2014, the Center has distinguished itself as the preeminent resource and advocate for the advancement of healthful living among older adults who seek an active, fulfilled lifestyle. With lifelong learning and discovery objectives underpinning its mission, an assemblage of classes, social programs, comprehensive medical screenings, health and prevention education, and strength and mobility programs augment a robust array of offerings.

The options, conveniences and amenities of the Center extend well beyond the foregoing by providing important advice and guidance to seniors and their families that facilitate contentment and independent lifestyles; and by offering complementary services that adapt to the ever-changing needs associated with aging.

The Center will continue to offer many of the same services that its members have come to expect and upon which they rely. Additionally, other programs and services will expand to satellite sites at the LECOM Health Senior

Living Communities.

The truly inspired and innovative Center addresses the need to provide a more centralized location to better serve the residents of northwestern Pennsylvania.

In addition to the Center, the five floor \$42 million LECOM Senior Living Center (opened in 2015) accommodates 138 residents who live in private rooms, grouped in "neighborhoods" of 18 rooms throughout four of the five levels. The Senior Living Center draws together an amalgam of stimulating and innovative, patient-centered health care opportunities and advances the education of future physicians, pharmacists and dentists.

Each suite is furnished and equipped for the resident's privacy, comfort, accessibility and need for space. Every neighborhood provides a feeling of home for the residents starting with activities of daily living areas that have kitchens, dining rooms, large-screen TVs, computer stations and Wi-Fi connectivity. A full calendar of activities is available for residents to enjoy if they choose.

The Senior Living Center far outshines the standard in senior residences offering a full-service pharmacy, spa, beauty salon, a restaurant, and addressing a range of needs and wishes of the residents. The offerings allow residents and family to share in normal, routine activities that they may have enjoyed previously in their relationships.

For its residents, the Senior Living Center provides the feel of home while simultaneously ensuring a superlative level of care for the growing elderly population in the region. The Senior Living Center is in keeping with our mission and its historical focus upon osteopathic medicine and caring for the whole person — mind, body and spirit.

Indeed, the Senior Living Center is part of the only health system in Northwestern Pennsylvania that is able to provide a true continuum of care. The goal is not simply adding years to seniors' lives, but adding life to those years.

"Living" — the central word in the moniker of the facility — is underscored by every well-conceived detail and attentive appointment found throughout the glistening structure.

As a further benefit, the facility allows our medical, pharmacy and dental students to work in a collaborative setting and to learn

(continued on page 17)

Philadelphia College of Osteopathic Medicine

Under the long-term leadership of Dr. Katherine Galluzzi, Chair of Geriatrics and Palliative Care, PCOM has been in the vanguard of advocating and educating DO students in "end-of-life" care. With Dr. Galluzzi's years of knowledgeable thoughts and actions, I have asked her to share on this important topic through the POMA Dean's Corner. POMA clinicians know so well that the relationship with our patients and their loved ones are never more important than in their final days. I so respect the work that is performed constantly on the "front lines" by so many dedicated osteopathic physicians in our state.

Fraternally,
Kenneth J. Veit, DO

We're Planning for End of Life Far too Late

Katherine E. Galluzzi, DO, CMD, FACOFPdist.

No one wants to talk about illness or disability when they're well, and no one wants to talk about end-of-life care, or death, when they're sick. These conversations are not only unpopular, many of us — physicians and patients alike — simply avoid having them.

The Conversation Project found that 92 percent of people surveyed said that talking with their loved ones about end-of-life care is important, yet only about one-third had actually done so. Similar surveys conducted by the California Healthcare Foundation in 2012 and the Kaiser Family Foundation in 2017 found that 80 percent of respondents said that if seriously ill they would want to talk to their doctor about wishes for medical treatment towards the end-of-life, yet less than 20 percent had.

These conversations are hard — but they can no longer be left until the very last minute; health care professionals need to start the dialogue years and even decades earlier.

Last fall my husband spent several days in the hospital. Waiting for the elevator on my way home one night I heard "Rapid Response, 4 West. Rapid Response, 4 West" (which was his unit). When the elevator doors opened, a team burst forth and sprang past me, the woman in the lead shouting, "where's the rapid?" I chuckled to myself, remembering my own days as a house officer running to codes; then I thought, "I hope it goes well."

The next morning, I called my spouse to ask whether he'd had a good night and he said "Yeah, and I got to see my first code." Earlier that morning a Code Blue was called over-

head; the noise and bustle from the nearby room was inescapable. In addition, he overheard the telephone conversation between the attending (an "older doctor") and a family member. The doctor was asking whether the team should continue to do everything, because the patient's "brain had been without oxygen for 15-20 minutes." Apparently, the family did want everything done. But later that day he watched as a gurney carrying a sheet-covered body was wheeled past his room, followed by two downcast-appearing family members.

We've all seen and been involved in scenarios like this, but hearing it play out through my husband's non-medical perspective made me revisit the concept of preparing for and allowing natural death. A crucial conversation might have taken place the evening before, or even better — days, weeks or months before. The patient was obviously seriously ill, serious enough to call the Rapid Response team. Was the patient's family fully aware? Were they prepared and present for the imminent death of their loved one? Was she? The Conversation Project and other organizations have tools that can assist families and physicians with these difficult, yet crucial conversations. "Departure Lounges" in the UK and "Death Cafes" in the US help people access information, share stories and discuss end-of-life goals. At PCOM, we've hosted "Death Over Dinner" programs to discuss end-of-life care realities with residents and students.

A recent sub-analysis of the REAPPROPRIATE (Resuscitation Appropriateness) study evaluated attitudes about cardiopulmonary resuscitation in adults over age 80. This multinational trial found that the survival to hospital discharge of the "appropriate for CPR" group was 3 percent and for nursing home patients it was 0 percent. Analysis of clinicians' perceptions showed that, despite these documented poor outcomes for older patients undergoing CPR, many emergency providers do not consider resuscitative efforts to be inappropriate. The researchers state that "a professional and societal debate is urgently needed to ensure that first we do not harm older patients by futile CPR attempts."¹

We need to shift our thinking from reactive ("Your mother has stopped breathing and her heart has stopped beating. What do you want us to do?") to proactive ("Let's talk about what would be most important to you

(continued on page 18)



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

A STUDENT'S VOICE

Jade McLain, PCOM OMS-II and Chelsey Hanson, PCOM OMS-II

Reviving Death: Understanding How to Handle the Inevitable



Jade McLain,
PCOM OMS-II



Chelsey Hanson,
PCOM OMS-II

Death is an inevitability of life but something that physicians train vigorously to combat and keep at arm's length. This is essential for patients to receive life-preserving care and be treated with new technologies that were previously out of reach. Preventing death is almost synonymous with the oath we take when we begin our medical journey. An important topic of discussion is how to move forward when we have exhausted all medical options and a patient now must face an unimaginable new reality.

This conversation is one that we become familiar with first as medical students, working with standardized patients to simulate an experience in discussion of death and dying. When the real day comes however, we know that it is nowhere near the same experience. Dr. Atul Gawande mentions this difficulty in his book *Being Mortal*. He illustrates that this discussion is one of the hardest challenges in medicine, so much so that in one particular case a physician lied regarding new treatment options despite the fact that the patient had no chance to survive the illness. Dr. Gawande continues on to describe the anguish felt knowing that there was nothing more that could be done for the patient. This is not to speak poorly of those physicians, but to evaluate how incredibly delicate these situations can be. It seems as important to get exposure early in medical education in talking about death with patients as it is to be exposed to discussions about health and wellness. We understand that the physician-patient relationship becomes sacred and special, with a physician wanting nothing but success and happiness for the patients they treat. How can one not help but to feel as though a discussion about death and dying is in some way a failing on our part as medical professionals? Death is a natural process, and like the thousands of other natural processes taught during our education, can be something we help guide our patients through.

Our training begins to open our eyes to the profoundness of death and provides us with the tools to one day handle such a reality. The ability to effectively diagnose, treat and provide therapy during the course of death is fundamental. However, these actions alone will not suffice. This then begs the question of how physicians should interact with patients and families in order for death to be seen with dignity and comfort, and not overshadowed

by the stigma of society or the conflicting mindsets of doctors. In other words, how can we, as student physicians, one day help patients experience a "good death?" This concept is currently debated, with arguments centered upon the subjectivity of what "good" means while others question the very essence of such an idea and whether it can exist. As students, it would benefit us to comprehend how multifaceted the end of a patient's life can be and our role in achieving a good death as it pertains to each patient — one that is done with dignity and according to the wishes of the patient while providing a sense of comfort and acceptance to all involved. Such an endeavor begins with physicians establishing a foundation upon which death and dying can be handled openly. A conversation may seem simple, but this is essential to the core of the physician-patient relationship. Dialogue begins with honest communication, involving the teaching of information and acknowledgment of new understanding. This communication must be continuous throughout the course of serious illness, medical treatment and the inescapability of the end of life, as this can help patients, their loved ones and physicians to better cognize death. This also gives those affected by a dying patient a greater opportunity to shift their frame of mind from shame or grief to acceptance and strength.

As Oates and Maani describe in *Death and Dying*, the majority of individuals from the ages of 1 to 44 die from inadvertent injuries, as of 2019. In addition to the progression of a serious or terminal disease, sudden death affects the conversation in a different way. Unforeseen circumstances cause the discussion of death and dying to come about in an aggressive, unpredictable manner heightened by emotions and the aberrant nature of the grieving process. It is undoubtedly difficult for physicians, promoters of health and life, to prepare themselves for the emotional wrath or confusion of family members as well as personal pressure and anguish that they may experience. Albeit an overwhelming thought, we must remember that talking about death is more important than succumbing to emotions in this instance, as it gives us the ability to find moments of relief and growth amidst the circumstances. Medical school makes us aware of the resources available to patients and their loved ones. From social workers and

(continued on page 26)

Exordium and Terminus Part Two: Just the Facts Ma'am

In the last issue I discussed CRISPER, BRAIN, stem cell research and SPARC. For fun, take a blank sheet of paper and list all the osteopathic physicians you know doing research in these areas on the front and list all the osteopathic colleges involved in this research on the back. How did you do?

Eye-opening, isn't it? Before we continue our discussion of the ACGME merger, a review of recent history may be beneficial. During the time I have been involved with the POMA, I have had the pleasure of working with and knowing several AOA presidents from Pennsylvania. They have all distinguished themselves as leaders of the profession and performed their functions well, bringing pride to the state association. Two, however, I feel merit special mention. The staff of the AOA worked closely with all of the past presidents. They obviously formed opinions. Doctors Ron Esper and Carlo DiMarco are held in high regard. Why? They cared about teaching osteopathic students and physicians in training. How was the staff aware of this? Both men held daily rounds by telephone prior to starting work of the Association. Both would schedule follow-up meetings around call back times with their trainees. They demonstrated to all those around them their dedication to their patients and those who benefited from their tutelage. This I feel demonstrates true love and dedication to our profession. These actions are emblematic of the history of our profession.

Just recently, USMLE has announced that they will no longer score part one of their examination numerically. This will start January 2022. All MDs must take and pass all three parts of the USMLE to practice medicine in the United States. Part one scores have been used in the residency match schema. Correspondingly, all DO graduates must take COMLEX part one as a graduation requirement. This test, at the time of this column, continues to be scored numerically. What does this mean for the ACGME residency match? Only DOs will be ranked. All MD candidates regardless of their score will simply be marked as passed.

In 2019, a group of medical students wrote an invited commentary for *Academic Medicine*. In their article they stated that preparation for the examination took time away from their medical school curricula. They also stated that students could spend \$1,000 in commercial

preparation to prepare for part one. In a response that ran alongside, Peter Katsufakis, MD, CEO of the NBME and Hank Chaudry, DO, CEO of the FSMB stated that numerical scores can help residency programs differentiate among thousands of applicants for a limited number of slots.

Later the same year at the Invitational Conference on USMLE scoring, the FSMB hosted the AMA, AAMC, ECFMG and representatives from state boards to attend.

Now that the changes have been announced, Dr. Chaudry has stated "these new policies strengthen the integrity of the USMLE and address concerns about Step One scores impacting well-being and medical education." Dr. Katsufakis states "the USMLE program governance carefully considered multiple sources coming to these decisions. Recognizing the complexity of the environment and the desire for improvement, continuation of the status quo is not the best way forward."

Huh? In order to more fully understand this turnabout, it must be remembered that the USMLE is owned by the FSMB and the NBME. Remember, when applying for residency positions only DOs will be numerically ranked.

Is this significant? 22.7% of licensed US doctors are IMGs. The number of IMGs in practice has grown by approximately 28,000 since 2010. 98% of IMGs speak two or more languages fluently. 62% are primary care physicians, double the 31% of US physicians working in a primary care specialty. Only 58% of IMGs were born outside of the United States.

According to the ECFMG in 2002, there were 2,160 medical schools worldwide. In 2018 they reported 3,203. This represents a 48% increase in only 16 years. If we look simply at the Caribbean, the number of schools over the same time, increased by 75%, from 52 to 91. Worldwide, only approximately two-thirds of countries with medical schools have some system of quality review. ECFMG will not have a worldwide accreditation system in place until at least 2023. Until then they must rely on several different reporting agencies. These number approximately 150.

If we think of physician graduates applying for residency positions, they fall into the following categories: US born and trained MDs, US born and trained DOs, US born and

(continued on page 18)



Samuel J. Garloff, DO

ABOUT THE AUTHORS



Thomas R. Geisler, DO

Thomas R. Geisler, DO, MHSa, “A Comparison of Video Capsule Endoscopy and Terminal Ileum Intubation in the Work-up of Chronic Diarrhea” is in the last year of a gastroenterology fellow at the Lake Erie College of Osteopathic Medicine (LECOM). A graduate of Allegheny College in Meadville, Pennsylvania, and a 2014 graduate of Des Moines University College of Osteopathic Medicine in Iowa, he also received his master degree in health services administration from LECOM. Dr. Geisler completed an internal medicine residency at Ohio University’s Heritage College of Osteopathic Medicine and St. Joseph’s Health Center in Warren, Ohio. Upon completion of his gastroenterology fellowship, he will begin an advanced endoscopy fellowship program at the Arizona Center of Digestive Disease Health in Phoenix. In his free time, Dr. Geisler enjoys spending time with his wife and two-year old twins.



Matthew L. Hintz, DO

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Index to Advertisers

Classified Advertisement	10
ISMIE.....	cover 4
Physicians' Health Programs	10
POMPAC	19

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Medical Update

A Comparison of Video Capsule Endoscopy and Terminal Ileum Intubation in the Work-up of Chronic Diarrhea

Abstract

A retrospective chart review was performed on 129 patients with chronic diarrhea who underwent terminal ileum (TI) inspection with biopsy and subsequent video capsule endoscopy (VCE). Patient demographics and examination/biopsy results, along with symptom improvement post initiation of therapy after colonoscopy, were collected and compared to VCE results. The average patient age was 44, and 65 percent were female. Ninety-two patients (71 percent) yielded a normal result with TI intubation, biopsies on TI intubation yielded normal results with 119 (92.2 percent) patients. VCE findings revealed a normal study in 73 (56 percent) of patients. A change in patient diagnosis post VCE was observed in 36 patients (27.9 percent), and a change in therapy was seen in 87 patients (67.4 percent), with an improvement of symptoms was observed in 40 patients (31.1 percent). A statistical difference was observed in proportion of normal findings between TI inspection and VCE.

Introduction/Literature Review

Chronic diarrhea is a very common symptom of many gastrointestinal maladies and its work-up has a large economic impact on developed nations. Recent data show that chronic diarrhea costs the developed world \$350,000,000 (USD) from missed workdays alone. It is defined as three or more loose or watery stools daily that last for greater than four weeks. In resource rich countries, the most common causes of chronic diarrhea consist of inflammatory bowel disease, irritable bowel syndrome, malabsorption syndromes and chronic infections.^{1,4}

No etiology is more elusive than that of small bowel etiologies. This is partially due to the difficulty of evaluating the small bowel. Current methods of evaluation consist of push,

intraoperative, balloon enteroscopy and imaging modalities such as enterography, radionuclide scanning and video capsule endoscopy (VCE). The last method, capsule endoscopy has emerged as a very effective tool in evaluation of small bowel diseases and although its most common indication is for obscure GI, its use in the evaluation of chronic diarrhea is more frequently being utilized. This increase in utilization is in part due to the fact that it is a passive and noninvasive study that provides a great deal of diagnostic information.^{4,5}

VCE enables the physician to evaluate the entire small bowel mucosa. It can assist in the diagnosis of small bowel diseases such as Crohn's, NSAID-induced small bowel injury, celiac disease and small bowel tumors. In the case of chronic diarrhea, VCE is used to identify inflammatory bowel diseases mainly that of Crohn's disease.⁶⁻¹⁰ Many studies have evaluated the efficacy of VCE vs. push enteroscopy, and barium studies for the indication of obscure GI bleeding but there are limited studies which evaluate terminal ileum (TI) visualization vs. VCE for the work-up of chronic diarrhea.^{1,2}

The purpose of this study is to determine the diagnostic efficacy of VCE in comparison to TI intubation performed during a routine colonoscopy. We are also determining if the results of the VCE alter management and if management has any impact on patient symptoms. The information that this study could yield may further support the use of VCE in the work-up of chronic diarrhea despite TI visualization and possibly broadening its use.

Methods

The study is a retrospective chart review of 129 patients who underwent video capsule study at North Eastern Ohio Gastroenterology Associates between 2012-2017 for the evalu-

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ation of chronic diarrhea. Inclusion criteria consists of patients between the ages of 17 and 85. All patients enrolled had subsequently undergone and yielded a negative result for evaluation of malabsorption syndromes (i.e., celiac disease) and chronic infection. They then underwent a colonoscopy with terminal ileum (TI) visualization and colonic and ileal biopsy within a 6-month window prior to the video capsule endoscopy (VCE). Charts were reviewed and data collection of patient's age, sex, terminal ileum examination results, terminal ileum biopsy results, therapy post terminal ileum intubation and symptom improvement post initiation of therapy after colonoscopy. This data was compared to the patient's VCE results, the therapy given post VCE and symptom improvement after the initiation of therapy. All the VCEs were interpreted by a gastroenterology fellow and a single board-certified gastroenterologist while colonoscopies were

performed by one of four board-certified gastroenterologists within the North Eastern Ohio Gastroenterology Associates.

Statistical Analysis

Descriptive statistics were used to report the demographics and clinical characteristics of the patients (i.e., age, sex, etc...). To determine if there were differences in diagnoses between VCE and TI intubation, the McNemar test was used. Specifically, we tested the hypothesis of no difference in normal findings between the

two procedures. In addition, Cohen's kappa was calculated to determine level of agreement between the two procedures. If there was a very good strength of agreement between the two procedures, then both procedures diagnosed patients in similar manner. Finally, we also compare both procedures via their relationship with biopsy results. This analysis provided diagnostic accuracy information for both tests; they were compared on sensitivity, specificity, false positive, false negative rates, positive predictive value and negative predictive value.

Results

One hundred twenty-nine patients were included in the study of which 65 percent were females. Average age was 44 years with minimum age of 17 years and maximum age of 85 years. Ninety-two patients (71 percent) yielded a normal result with TI intubation, biopsies on TI intubation yielded normal results with 119 patients (92.2 percent), and VCE findings revealed a normal study in 73 patients (56 percent). Post VCE, a change in patient diagnosis was observed in 36 patients (27.9 percent), a change in therapy was seen in 87 patients (67.4 percent), and an improvement of symptoms was observed in 40 patients (31.1 percent).

McNemar test showed that there was a statistically significant difference in proportion of normal findings between the two tests, TII=71.3 percent, VCE =56.6 percent, $p=0.008$. Coefficient kappa was 0.023, which may be considered poor agreement between VCE and TII on diagnosis findings.

Overall, results from Table 2 showed that the TII was more accurate than the VCE in diagnostic findings when compared to biopsy results. Diagnostic findings from TII also aligned more closely with biopsy findings, especially in terms of normal findings, than VCE did.

Colonoscopy with TI examination results consisted of either normal mucosa or TI inflammation/erythema with ulcerations. VCE results consisted of normal mucosa, TI inflammation/erythema with ulcerations, fast transit time, submucosal lesions, duodenitis, jejunitis, ileitis, villous blunting, small bowel mass or ileal structuring. Therapy post TI and VCE consisted of solo or combination of the below therapies, laxative, bile acid sequesterant, antibiotics, mesalamine, anti-spasmodic, bulking agent, Anti-TNF, anti-motility agent, medical food, tricyclic antidepressant, systemic/localized steroid, dietary changes and surgery.

Discussion

The study found that approximately 65 percent of patients enrolled were female. The average patient age was 44 years. This is not surprising given that chronic diarrhea more

Table 1: Patient Characteristics

Patient Characteristics	Statistics, N=129
Female, n (%)	84 (65.1)
Age, median (min, max)	44 (17,85)
Normal Biopsy results, n (%)	119 (92.2)
Normal TII result from colonoscopy, n (%)	92 (71.3)
Normal VCE findings, n (%)	73 (56.6)
Change in diagnosis, n (%)	36 (27.9)
Overall therapy change, n (%)	87 (67.4)
Therapy post VCE study	
No therapy to some therapy, n (%)	33 (25.6)
Some therapy to no therapy, n (%)	35 (27.1)
Remained on same therapy, n (%)	4 (3.1)
Different therapy post VCE, n (%)	20 (15.5)
No therapy over two procedures, n (%)	38 (29.5)
Improvement in symptoms with therapy change, n (%)	40 (31.0)

Table 2: Comparison of TII and VCE to Biopsy results

TII Results	Biopsy Results		Total
	Normal	Abnormal	
Normal	90 (spe=71.3%)	2 (fnr=20.0%)	92
Abnormal	29 (fpr=24.4%)	8 (sen=80.0%)	37
Total	119	10	129
VCE Results	Biopsy Results		Total
	Normal	Abnormal	
Normal	68 (spe=57.1%)	5 (fnr=50.0%)	73
Abnormal	51 (fpr=42.9%)	5 (sen=50.0%)	56
Total	119	10	129

TII=, VCE=, sen=sensitivity, spe=specificity, fpr=false positive rate, fnr=false negative rate

Table 3: Diagnostic accuracy results for TII and VCE

Accuracy Statistics	TII	VCE
Sensitivity	80.0%	50.0%
Specificity	71.3%	57.1%
False positive rate	24.4%	42.9%
False negative rate	20.0%	50.0%
Positive predictive value	21.6%	8.9%
Negative predictive value	97.8%	93.2%
Coefficient kappa	0.249, $p<0.001$	0.023, $p=0.66$

frequently impacts those of the female sex and age of incidence for Crohn's disease is approximately 30.

Of the 129 patients enrolled, TI intubation revealed an abnormal exam in 37 patients where as VCE revealed 56 abnormal exams. Statistical significance was observed between the proportion of TI intubation and VCE results. These visual diagnostic results of TI inspection and VCE were compared with the biopsies taken on TI intubation, and naturally TI results were found to be more accurate than VCE. This is logical given the TI inspection location and biopsies location were identical. Where the VCE examines the entire small bowel and not just the terminal ileum.

VCE resulted in a change in patient diagnosis in 36 of the 129 patients, therapy was altered in 87 patients (67.4 percent). Of those patients, 12 were started on mesalamine, four on systemic steroids, four on an anti-TNF, eight halted NSAID therapy, and the remainder were prescribed an antibiotic, anti-motility agent, bulking agent, a bile acid sequesterant, a medical food or a laxative. Improvement of patient symptoms occurred in 40 patients (31.1 percent) after the change in therapy.

In summary this study demonstrates the utility of VCE in the evaluation of chronic diarrhea, especially if Crohn's is suspected. The diagnosis of Crohn's is multifaceted and based on clinical signs/symptoms, laboratory tests, endoscopy and imaging. There is no current gold standard for evaluation of patients with chronic diarrhea with suspected diagnosis of Crohn's, however colonoscopy with ileal intubation and biopsies is the current first-line procedure for its evaluation. Despite abnormal or unremarkable findings with ileocolonoscopy with or without biopsies, it is important to fully examine the small bowel given that Crohn's is a skip lesion disease. VCE can assist in diagnosis, staging and treatment of the disease. It is important to remember that ileal biopsies are more confirmatory than diagnostic and microscopic granulomatous changes are only observed in approximately 30 percent of Crohn's cases. Even early in the disease, histology of mucosal lesions with the exception of aphthous ulcers do not yield critical diagnostic information.¹³ The results of this study are supportive of the diagnostic utility of VCE. This was observed by the increase in abnormal VCE study results, alterations in patient therapy and improvement of patient symptoms.

References

1. Fry LC, Carey EJ, Shiff AD, et al: The yield of capsule endoscopy in patients with abdominal pain or diarrhea. *Endoscopy* 2006;38(5):498-502.
2. Gay G, Delvaux M, Rey JF: The role of video capsule endoscopy in the diagnosis of digestive diseases: a review of current possibilities. *Endoscopy* 2004;36(10):913-20.
3. Harra AK, Leighton JA, Heigh RI, et al: Crohn disease of the small bowel: preliminary comparison among CT enterography, capsule endoscopy, small-bowel follow-through, and ileoscopy. *Radiology* 2006;238(1):128-34.
4. Bonis PA, Lamont JT: Approach to the adult with chronic diarrhea in resource-rich settings. *UpToDate*; June 5, 2017. Accessed September 16, 2017.
5. Cave D: Wireless video capsule endoscopy. *UpToDate*; May 30, 2017. Accessed September 16, 2017.
6. Petroniene R, Dubcenco E, Baker JP, et al: Given capsule endoscopy in celiac disease: evaluation of diagnostic accuracy and interobserver agreement. *Am J Gastroenterol* 2005;100(3):685-94.
7. Culliford A, Daly J, Diamond B, et al: The value of wireless capsule endoscopy in patients with complicated celiac disease. *Gastrointest Endosc* 2005;62(1):55-61.
8. Cellier C, Green PH, Collin P, et al: ICCE consensus for celiac disease. *Endoscopy* 2005; 37(10):1055-9.
9. Cobrin GM, Pittman RH, Lewis BS: Increased diagnostic yield of small bowel tumors with capsule endoscopy. *Cancer* 2006;107(1):22-7.
10. Gastineau S, Viala J, Caldari D, et al: Contribution of capsule endoscopy to Peutz-Jeghers syndrome management in children. *Dig Liver Dis* 2012;44(10):839-43.
11. Maconi G, Bolzoni E, Giussani A, et al: Accuracy and cost of diagnostic strategies for patients with suspected Crohn's disease. *J Crohns Colitis* 2014;8(12):1684-92.
12. Magro F, Langner C, Driessen A, et al: European consensus on the histopathology of inflammatory bowel disease. *J Crohn Colitis* 2013;7(10):827-51.
13. Geboes K. Histopathology of Crohn's disease and ulcerative colitis. In: Satsangi J, Sutherland L (eds). *Inflammatory Bowel Disease*, 4th edn. London: Harcourt, 2003.

Medical Update

A Cadaveric Feasibility Study of Partial Joint Resurfacing for First Carpometacarpal Arthritis

by Matthew L.
Hintz, DO, MS

Abstract

Background

Osteoarthritis of the first carpometacarpal joint is a common diagnosis in orthopaedic surgery. Traditionally, osteoarthritis of the first carpometacarpal joint has been managed progressively from nonsurgical options to operative treatment. Previously described surgical options include: trapeziectomy with or without ligament reconstruction and soft tissue interposition, silicone based implants, total joint arthroplasty, and arthrodesis. This research employed a cadaveric feasibility study for the potential application of organic polymer-based partial joint resurfacing for the management of first carpometacarpal joint arthritis.

Methods

Ten first carpometacarpal joint specimens were dissected and the joints exposed. Articular surface dimensions were measured on each specimen, and a 6mm cylindrical implant was introduced to the proximal articular surface of each first metacarpal with a prominence of approximately 2mm. Articular range of motion was evaluated before and after device implantation. The articular measurements, and approximate ratio of implant to articular surface dimensions, were also calculated with associated standard deviations.

Results

The mean articular surface area of the proximal first metacarpal specimens examined was 251.25mm² +/- 81.59mm². The mean ratio of the 6mm diameter articular implant compared to the articular surface of the 10 specimens was 0.12 +/- 0.3. The articular range of motion was examined before and after implant application. However, given the preserved state of the specimens, this could not be reliably measured.

Conclusions

Utilizing a previously described approach to the first carpometacarpal joint, it is feasible that partial joint resurfacing implants can be used within the proximal first metacarpal articular surface to manage osteoarthritis of the first carpometacarpal joint. This procedure is

analogous to current surgical treatment options for first tarsometatarsal osteoarthritis. The next step would be to determine the optimal diameter implant in order to maximize the surface area, while decreasing the risk of fracture, and adapting the current foot and ankle designs to address the first carpometacarpal joint for the pursuit of human trials.

Keywords: First carpometacarpal joint, basilar thumb joint, arthritis, hemiarthroplasty

Background

Arthritis of the first carpometacarpal joint, or basilar thumb arthritis, is a common source of arthritic pain in the hand, second in frequency only to arthritis of the distal interphalangeal joints. Classically, advanced degenerative stages of first carpometacarpal arthritis are associated with metacarpal adduction and extension of the first metacarpophalangeal joint, leading to a decrease in grip strength and difficulty grasping large objects.¹ Multiple theories exist as to the primary deformity driving the degenerative cascade including ligamentous failure at the first carpometacarpal joint, versus the theory of first metacarpophalangeal joint hypermobility leading to extension deformity.¹

Over the years, there have been many surgical approaches to treating osteoarthritis of the first carpometacarpal joint formed by the trapezium and the base of the first metacarpal bone. In 1948, W. H. Gervis proposed excision of the trapezium as a surgical treatment option for first carpometacarpal osteoarthritis for which he reported good results in regard to pain and function.² Multiple variations of the procedure were subsequently developed, including tendon interposition, silicone implants, and creation of a sling or tendon reconstruction spanning the first and second metacarpal bases. This was in response to the significant concern with the trapeziectomy procedure of shortening the first ray of the hand, leading to potential instability, subluxation, or pain.² In 2004, Davis et al. compared the one year post-operative pain, strength, and complications between 183 thumbs on which either simple trapeziectomy, trapezi-

ectomy with palmaris longus interposition, or trapeziectomy with ligament reconstruction and tendon interposition utilizing the flexor carpi radialis tendon, and found no clinical differences.² Field found similar results in 2007, comparing simple trapeziectomy without temporary kirschner wire support versus trapeziectomy with ligament reconstruction and tendon interposition, noting no difference in palmar abduction, first webspace span, grip strength, pinch strength, or patient satisfaction at follow up.³

In 2005, Krieger-Au compared trapeziectomy with ligament reconstruction and tendon interposition to trapeziectomy just with ligament reconstruction and found no detectable changes between grip and pinch strength between the two cohorts, supporting the conclusion that tendon interposition is not required for satisfactory outcomes.⁴

Arthroplasty implants have also been developed in the past for first carpometacarpal joint arthritis. Silicone implants were some of the first designs for arthroplasty such as the Swanson endoprosthesis, which was a joint spanning design. Bezwada reported a 16 year follow up on 62 patients who underwent silicone arthroplasty, and found that while 84 percent of patients would undergo the procedure again, 26 percent of cases demonstrated subluxation or implant failure.⁵ MacDermid found similar results in 26 patients undergoing silicone arthroplasty with improved pain in 88 percent of cases, but with a high implant failure rate of 20 percent at 6.5 years.⁶ Preference for these designs has decreased for multiple reasons relating to complications, including fracture of the prosthesis in the joint spanning design, frequency of joint subluxation, and potential silicone synovitis. Polyvinyl alcohol hydrogel implants have been utilized for arthroplasty of the first metatarsophalangeal joint as an alternative to silicone in recent years. Daniels reported a five year follow up of 29 patients, in which this type of implant was utilized demonstrating no radiographic evidence of implant positional change, loosening, subsidence or wear.⁷ In a review by Baker on polyvinyl alcohol implants, there were no cases of synovitis or osteolysis in the studies reported.⁸

Total joint arthroplasty has also been employed as a surgical treatment option. Case studies performed by Lemoine and Badia reported complete pain relief in 60 percent and 96 percent of cases respectively, with only one revision in each series utilizing different implants.^{9,10} Finally, varying outcomes have been shown comparing arthrodesis as an alternative to arthroplasty, which may support arthroplasty as the more consistent long-term treatment option. However, no single arthroplasty procedure has yet to significantly outperform its counterparts.

This cadaveric feasibility study examined the potential application of a contemporary organic polymer-based partial joint resurfacing implant currently utilized in the first metatarsophalangeal joint for the management of first carpometacarpal joint arthritis.

The primary research question addressed looking at cadaver application and current clinical use data was whether or not this implant design for partial joint resurfacing can be applied to the first carpometacarpal joint. The working hypothesis was that partial joint resurfacing of the first metacarpal base would provide a treatment option with less subsidence and comparable range of motion compared to trapezium excision.

Methods

Utilizing the anatomy lab at the Lake Erie College of Osteopathic Medicine, the first carpometacarpal joints of the cadavers were dissected and assessed for study suitability. Ten specimens were identified to be in sufficient condition for evaluation. The first carpometacarpal joint was exposed and dimensions were identified on each specimen. Subsequently, a 6mm cylindrical implant was introduced to the proximal articular surface of each first metacarpal with a prominence of approximately 2mm. Articular range of motion was evaluated before and after device implantation. The articular measurements and approximate ratio of implant to articular surface dimensions were also calculated with associated standard deviations.

Results

The proximal first metacarpal articular surface of each specimen was measured to the nearest millimeter by marking the chondral surface with pins and measuring with a metric ruler in the dorsal-volar and radial-ulnar diameters. The mean diameter was used to calculate an approximate circular articular surface area. The approximate articular surface area was then compared to the 6-millimeter diameter of the trial implant to determine the ratio of implant to cartilage surface area and amount of bony area removed to facilitate the implant (See Table 1, Image 1 and 2).

Discussion

Based on our cadaveric analysis of the first carpometacarpal joint, the mean relative surface area of the proximal articular surface of the first metacarpal was found to be 251.3 square millimeters

Table 1

Specimen	Dorsal/Palmer Diameter (mm)	Radial/Ulnar Diameter (mm)	Average Diameter (mm)	Relative Articular Area Distal 1 st Metacarpal (mm ²)	Implant/ Articular Surface Ratio
1	17	15	16	201.1	0.14
2	17	16	16.5	213.8	0.13
3	19	18	18.5	268.8	0.11
4	18	17	17.5	240.5	0.12
5	16	16	16	201.1	0.14
6	24	22	23	415.5	0.07
7	23	21	22	380.1	0.07
8	16	16	16	201.1	0.14
9	15	16	16.5	213.8	0.13
10	14	16	15	176.7	0.16
Mean	17.90	17.30	17.70	251.25	0.12
Standard Deviation	3.28	2.36	2.71	81.59	0.03

Image 1



Image 2



determined by the 10 available specimens. Inserting a 6-millimeter diameter cylindrical implant into the proximal first metacarpal to simulate partial joint resurfacing resulted in removing approximately 12 percent of the articular surface area averaged over the 10 specimens. Therefore, the structural integrity of the first metacarpal should be well maintained in a bone of the upper extremity with limited weight bearing potential through activities of daily living.

Silicone or joint spanning implants have been trialed in the past with less than ideal outcomes.^{5,6} There has been some benefit from the position of total joint arthroplasty to date, however partial joint resurfacing can provide an alternative with limited bone loss and the potential for future fusion if clinically indicated. Given new implant materials, such as polyvinyl alcohol, have been shown to provide years of durable use with minimal tissue reaction, this treatment option can theoretically be repurposed from the tools of foot and ankle surgery to the hand for surgical management of first carpometacarpal arthritis.^{7,8}

Limitations of this study primarily include the viability of the cadaver specimens given the nature of the project. Ten specimens were ultimately found suitable for evaluation as the others were being utilized for other research endeavors, or were not in fitting condition given their previous use for medical student dissection. Secondly, the cadavers were primarily functioning as gross anatomy teaching models at the affiliated medical school and not fresh specimens which proved to be a limiting factor in any reliable range of motion comparison experiments between native joint, partially resurfaced, or soft tissue interposed models.

Conclusions

There have been numerous surgical treatment options developed over the years for first carpometacarpal joint osteoarthritis, each presenting its own advantages and disadvantages. However, none of these treatment options has proven to significantly outshine its counterparts as the ideal treatment method. Partial joint resurfacing has proven to be a successful option in the treatment of first

metatarsophalangeal joint arthritis and can be feasibly adapted to the management of first carpometacarpal joint arthritis. Moving forward, the next step would be determining the ideal implant size and adapting the current foot and ankle designs to address the first carpometacarpal joint for the pursuit of human trials.

References

1. Armbruster E, Tan V: Carpometacarpal joint disease: addressing the metacarpophalangeal joint deformity. *Hand Clinics*, 2008;24(3):295-9.
2. Davis T, Brady O, Dias J: Excision of the trapezium for osteoarthritis of the trapeziometacarpal joint: a study of the benefit of ligament reconstruction or tendon interposition. *J Hand Surg Am* 2004;29(6):1069-77.
3. Field J, Buchanan D: To suspend or not to suspend: a randomised single blind trial of simple trapeziectomy versus trapeziectomy and flexor carpi radialis suspension. *J Hand Surg Eur* 2007;32(4):462-6.
4. Haase S, Chung K: An Evidence-Based Approach to Treating Thumb Carpometacarpal Joint Arthritis. *Plast Reconstr Surg* 2011;127(2):918-25.
5. Bezwada H, Sauer S, Hankins S, Webber J. Long-term results of trapeziometacarpal silicone arthroplasty. *J Hand Surg Am* 2002; 27(3):409-17.
6. MacDermid J, Roth J, Rampersaud Y, Bain G. Trapezial arthroplasty with silicone rubber implantation for advanced osteoarthritis of the trapeziometacarpal joint of the thumb. *Can J Surg*. 2003;46(2):103-110.
7. Daniels T, Alastair S, Younger M, Penner M, et al: Midterm outcomes of polyvinyl alcohol hydrogel hemiarthroplasty of the first metatarsophalangeal joint in advanced hallux rigidus. *Foot Ankle Int* 2017;38(3),243-7.
8. Baker M, Walsh S, Schwartz Z, Boyan B: A review of polyvinyl alcohol and its uses in cartilage and orthopedic applications. *J Biomed Mater Res Part B Appl Biomater* 2012; 100(5):1451-7.
9. Lemoine S, Wavreille G, Alnot J, et al: Second generation GUEPAR total arthroplasty of the thumb basal joint: 50 months follow-up in 84 cases. *Orthop Traumatol Surg Res* 2009; 95(1):63-9.
10. Badia A, Sambandam S: Total joint arthroplasty in the treatment of advanced stages of thumb carpometacarpal joint osteoarthritis. *J Hand Surg Am* 2006;31(10):1605-14.

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FROM THE EDITOR'S DESK (continued from page 4)

The imagery tends to cloud the meaning. By now you know what it means. It is what it is.

At this point it seems as though we will have yet another way of calculating time (BCE/CE or BC/AD and now Before COVID and After COVID). What will the new normal look like when this is all over? Will our lives go back to what they were? Will we have our same recreational activities and travel? What will happen to treating patients? Many have had to change to telemedicine. Our patients have to get used to the changes as well.

I don't have the answers. Believe me, if I did, I would make the rounds on Sunday mornings and the prime-time cable news shows (all networks) and state them loudly. This situation is fluid. What we know today may be wrong tomorrow and then correct two days later. As such, our next issue which will

arrive in short time, will concern COVID-19 and how it has impacted you. What have you had to do different? How have you adapted to help your patients? How are you explaining all of this to your patients as they listen to the news and read the internet? I hope that as many of you are able to contribute to this next issue as possible. I think sharing experiences and encounters and handling situations will be a benefit for all. Your experience may be able to help one of your colleagues.

I hope that all of you and your families are staying safe and healthy. Remember, *From a Fish you can't make a chicken, but From a chicken you can make a fish!* Yes, that was one of his also and takes a lot more thought. Maybe one day I will explain that to those of you who don't already know it.

LECOM DEAN (continued from page 6)

more effectively the complexities associated with the care of the elderly.

Ever striving for quality of life and excellently training its medical students and new

physicians to deal with the issues of advanced age, we have proven that the next generation of senior living care starts and ends with LECOM Health.

STUDENT'S VOICE (continued from page 8)

spiritual guidance to family education and support groups, doctors can ease the sting of death by recognizing that the conversation about it does not have to end within the walls of the hospital room. Unfortunately, individual and personal feelings further complicate the matter when handling the issue of ineffective care or treatment that may do more harm than good. Medical advances will certainly allow us, as future physicians, to prolong or accelerate the dying phase of life with greater efficiency and more technologically sound methods. Nonetheless, the thought, discussion and conclusions drawn about this truth as it relates to individual patients and their social circle may not always coincide. Reconciliation by outside parties, such as ethical committees, or further dialogue may be warranted.

Regardless of the unique course by which patient lives end or the discomfort in managing this event, we must not shy away from the talk of death and dying. By initiating an ongoing conversation among patients, families and friends, physicians allow this natural process of life to be accepted with knowledge, support and grace. Thus, we can find freedom in the discussion of death and hopefully enable society to appreciate "good death," that illuminates the beauty of life.

References

1. Gawande A. (2014). *Being Mortal*. Metropolitan Books/Henry Holt and Company.
2. Oates JR, Maani CV. (2019). *Death and Dying*. Retrieved from: <https://www.ncbi.nlm.nih.gov/books/NBK536978/>.

PCOM DEAN *(continued from page 7)*

if you were seriously ill"). Perhaps if we begin to apply the principles of these conversations to discussions about prevention of medical conditions and disease states before patients become senior citizens, we will have adjusted to the idea of crucial conversations and feel more at ease when the time approaches for facing end-of-life decisions.

The U.S. is experiencing not only a "silver tsunami" of the population over age 65, but also an epidemic of obesity and its attendant comorbidities: asthma, cardiovascular disease, renal disease, osteoarthritis and certain cancers.² The World Heart Federation lists diabetes, obesity, high blood pressure, lack of physical activity, high cholesterol and triglyceride levels, and smoking as leading causes of cardiovascular disease, which remains the leading cause of death and disability in the U.S.

Many of these diseases can be prevented by lifestyle modifications including weight loss, diet, exercise and not smoking. A 2012 article in the *New England Journal of Medicine* studied the lifetime risks of cardiovascular disease among more than 250,000 men and women, both white and African-American. The study found that risk of cardiovascular disease was far lower at age 80 among those without risk factors, and introduced a new concept: Primordial Prevention, or, preventing the development of risk factors, rather than treating existing ones.³

As part of the Welcome to Medicare and Annual Wellness, physicians and patients are encouraged to have proactive, Advanced

Care Planning conversations. These kinds of comprehensive, preventive health conversations should be happening at earlier times in one's life — "Welcome to Adulthood" wellness visits, or aging wellness visits at 35, 45, 55 and so on. Patients, health insurers and physicians all stand to benefit from a coordinated effort to talk about healthy lifestyles when there is still time for real impact.

We can start a nationwide conversation project about healthy lifestyle behaviors. Instead of "Death Cafes" and "Departure Lounges," let's develop "Life Choice Cafes," and "Quality of Life Runways."

Palliative care's job is to assist by clarifying and developing realistic goals of care in light of one's hopes, fears and desires. The goal is to give people time and space to focus on what matters most, and adjust what care looks like to meet a person's unique needs. These concepts could be repurposed to become part of that "primordial prevention:" focusing on ways in which people could modify their behaviors and lifestyles to actually avoid serious, life-threatening diseases.

What are we waiting for?

References

1. Druwe P, Benoit DD, et al. *J Am Geriatr Soc.* 2020;68:39-45.
2. NCHS, National Health and Nutrition Examination Survey, 2011-2014, 2015-2016.
3. Berry JD, Dyer A, et al. *NEJM.* 2012; 366(4):321-9.

OUT OF MY MIND *(continued from page 9)*

foreign trained MDs, foreign born and foreign trained MDs and lastly, foreign born and trained non-doctoral level physicians with the undergraduate MBBS degree. Remember all MDs and those with a MBBS degree will take USMLE Step One, reported only as pass or fail. DOs will continue to be numerically ranked.

Fair, right?

POMA must be at the Vanguard of change. We must demand fairness in treatment. We

must be honestly vetted for medical and scientific research programs. We must compete for residency slots on an equal footing with the rest of the world's applicants.

Failure to act, is not acceptable.

I will attempt to interview the CEOs of the AOA and AMA concerning these matters. If successful, I will report in a future edition of the *JPOMA*.

We Want to Hear From YOU!

The next issue of *JPOMA* will focus on **COVID-19 and how it has impacted you**. What have you had to do different? How have you adapted to help your patients? How are you explaining all of this to your patients?

Put your thoughts on paper and send them to us! We value your input and respect your privacy. If you wish to remain anonymous, we are happy to remove any identifiers from your piece.

Submit entries or questions to Mark Abraham, DO, JD, JPOMA Editor via email to publ@poma.org ASAP!



What is POMPAC?

POMPAC is POMA's political action committee and the political voice of the osteopathic profession in Pennsylvania.

What does POMPAC do?

POMPAC takes in monetary donations from DOs across the state and contributes those funds to targeted state candidates for public office.

Why do we need POMPAC?

POMA has many friends in the state elected office holders that support DOs and the excellent patient care they provide. POMPAC provides monetary donations to assist targeted candidates with their election efforts.

How can I contribute to POMPAC?

Contributing to POMPAC is simple. There is an online option and a paper option to make regular contributions or a one-time contribution. Please note, contributions are not tax deductible.

Have questions?

Please contact asandusky@poma.org or call (717) 939-9318 x111.

CME Quiz

Name _____

AOA # _____

1. The diagnosis of Crohn's disease is solely predicated on gross and microscopic findings on endoscopy?

- a. True
- b. False

2. What is the current first-line procedure utilized for a patient with symptoms of chronic diarrhea secondary to suspected Crohns disease?

- a. Video Capsule Endoscopy
- b. Push Enteroscopy
- c. Esophagogastroduodenoscopy
- d. Colonoscopy
- e. Device assisted enteroscopy (ie double/single balloon)

3. Approximately what percentage of Crohns disease cases will have microscopic changes on terminal ileum biopsy? What mucosal changes would be most supportive of a diagnosis of Crohns?

- a. 50 percent, cryptitis
- b. 40 percent, lymphocytes and plasma cells in the lamina propria
- c. 60 percent, increased eosinophilia
- d. 30 percent, granulomatous changes
- e. 20 percent, metaplastic changes

4. Degenerative changes of the thumb carpometacarpal joint can lead to which change(s) of the hand?

- a. Adduction and extension of the 1st metacarpophalangeal joint
- b. Loss of grip strength
- c. Difficulty grasping large objects
- d. All of the above

5. Early joint spanning implants designed to treat 1st carpometacarpal arthritis that were associated with high failure rates due to joint subluxation, implant failure, and potential synovitis were made of what material?

- a. Cobalt-chromium
- b. Silicone
- c. Titanium
- d. Polyvinyl alcohol hydrogel

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; fax (717) 939-7255; e-mail cme@poma.org. Upon receipt and a passing scores of the quiz, we will forward 0.5 Category 2-B AOA CME credits to the AOA CME Department and record them in the POMA CME module.

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