FALL/WINTER 2023

SCOPE

Sunny Symposia:

Explore Knowledge and Coastal Charms of the 2024 Annual Clinical Assembly in Myrtle Beach

AMERICAN OSTEOPATHIC COLLEGES OF OPHTHALMOLOGY AND OTOLARYNGOLOGY–HEAD AND NECK SURGERY

contents

What's New

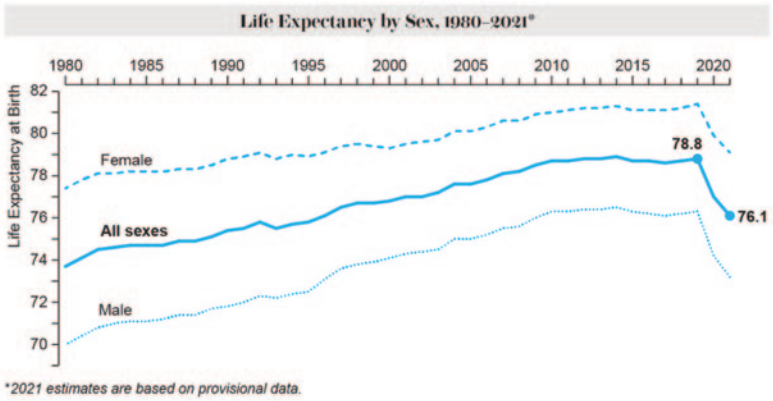
In Medicine and Healthcare...One is news of hope

By Harjot Singh, MD

Big changes are afoot.

They were already in motion and have accelerated since the pandemic, just like a storm uproots a tree and uncovers the roots. A quick message first– respond to my special request to you at the end of this article. This will help AOCOO-HNS serve your needs better.

Of course, AI is hot, and Dragon and Microsoft have launched AI assisted note-taking for physicians. Digital care and investments pouring into tech in healthcare seems to be slowing down with layoffs. Value based care is still trying to find an outlet to plug itself into despite clear financial incentives built into it.



Credit: MGMA, August 2022

Image: Scientific American, October 2022
Credit: Amanda Montañez; Source: Centers for Disease Control and Prevention

At the same time, there are changes in the landscape that are not considered "breaking" news. Let's look at the top three undercurrents that have more powerful undertow than what's in the news. If you read carefully, you can see that the sustainability of our profession is in question, and yet there is hope. All three are foundational in your ability to perform as a competent professional physician.

1. Prior to 2020, there had been several surveys showing that 50% physicians expressed intention to leave the profession in the next 5 years. I read the results of a survey like this for the first time around 2015, and by 2020, half of the doctors had not left. I used to wonder what this "intention" meant. Well, wonder no more! In 2021, according to the AMA, 117,000 physicians left - that's 15% of doctors in the US. In 2021, 33% of practices saw a doctor leave the profession, the number was 40% in 2022. More recent surveys show that 20% of the residual physicians report a wish to leave the profession in the next 2 years. Workforce problems are recognized by hospital administrators as the number one problem they are facing now, Yet, according to MGMA, less than 14% of administrators have any strategic plan to tackle this.

2. Life Expectancy in the US has been falling since 2016, 26 years of gains wiped out in the last 7. It fell everywhere during the pandemic. Other countries are recovering after the pandemic, but we continue to slide down. World Bank reports, in 2022, the US stands at

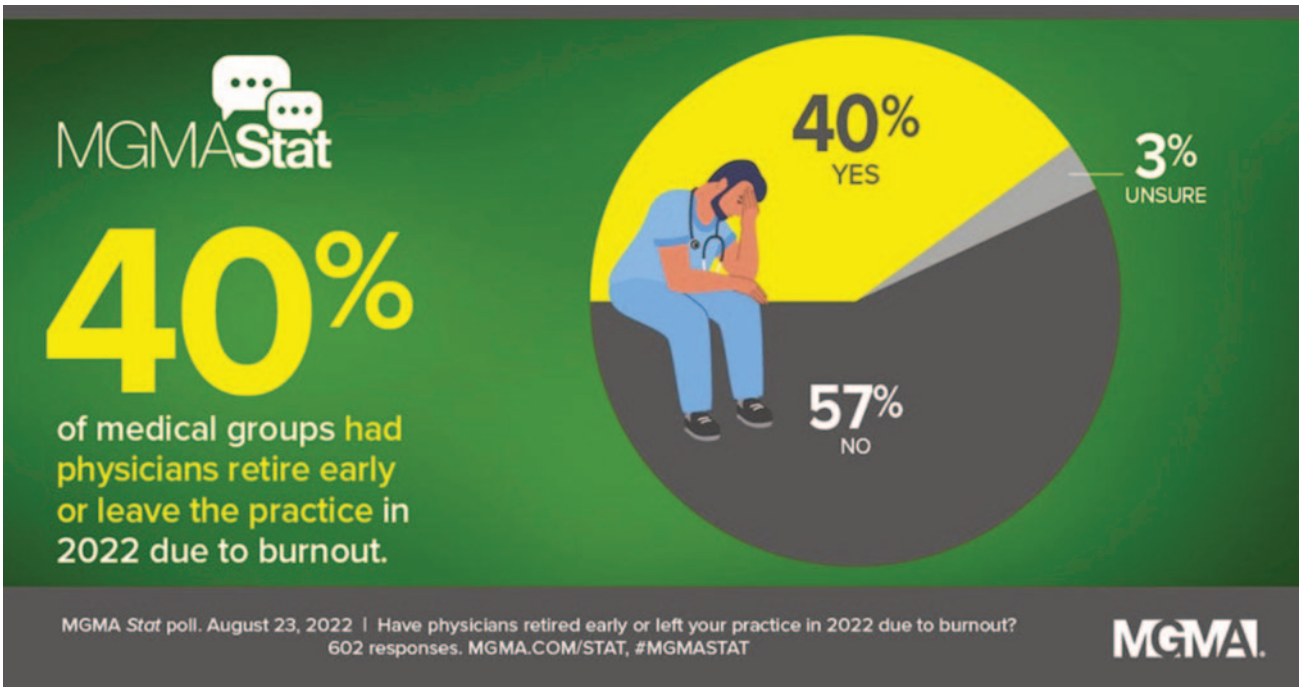


Image: Scientific American, October 2022 Credit: Amanda Montañez; Source: Centers for Disease Control and Prevention

number 64 in the world. We're trailing Albania, Algeria, and Sri Lanka.

Many causes are discussed, but the role of the opioid crisis and how doctors felt forced to follow "pain treatment guidelines" is debated. The business practices of the companies that manufactured opioids are under scrutiny.

3. Now for the good news! Top three trusted professionals in the US are still in healthcare. According to 2023 Gallup data, Nurses are at the top at 79% of people still believing that they are honest and act ethically. Medical Doctors at 62% and Pharmacists at 58% are number two and three respectively. Compare this to trust in the medical system at 34% and HMO's at 19%. People still trust their individual doctor! This is an opportunity to make a difference in the patient's life and in the world, one patient at a time.

Now my request to you is this – please read these questions and write to us.

I. What should a doctor do when doctors keep on leaving? What do you wish AOCOO-HNS should do?

II. Does an individual doctor have any professional duty to improve life expectancy? Could an individual doctor have done anything to minimize the impact of the opioid crisis? Could the physician associations have done anything differently to protect the patient and the doctor? Can AOCOO-HNS do anything differently for you moving forward if another such issue looms on the horizon? Do you see an issue like this happening right now?

III. Will your actions based on the patient's trust be a factor in the future life expectancy of your patients? What support do you need to make sure you serve a patient to earn their utmost trust? How can AOCOO-HNS help you in this noble endeavor?

These are not rhetorical questions. Think of what AOCOO-HNS should do and write to us. Your sharing of problems, your unique needs, and ideas is the only way AOCOO-HNS can serve you better. Benjamin Franklin's comment at the time of the signing of the Declaration of Independence is timely today, "We must all hang together, or most assuredly, we shall all hang separately." □

In the Heart of Africa

By Anuja Dharap, DO

Every year, in the heart of Africa, a group of hardworking and compassionate medical professionals set out to carry on Dr. Madgy's legacy. The relationship that Dr. Madgy and Dr. Mulwafu started many years ago, continues to live on through these trips. I had no idea what to expect when I decided to join this incredible group for my first time in Malawi this November. But, what I can tell you is that I came back a very changed person.

From the first day to the last, Dr. Mulwafu, the residents from the University of Malawi College of Medicine, and the support staff at the hospital welcomed us with open arms and were there at all hours to answer any questions. We operated every single day and operated on extensive pathologies of the ears, nose and throat. Some of the most challenging cases were tumors that had grown to the size of a large grapefruit in the thyroid or parotid glands. Without the availability of nerve monitoring, the reliance on personal knowledge of anatomy was key and really built my confidence over my time there.

One of the hardest cases during my time there was a deep lobe parotid tumor in a young lady which had displaced the nerve laterally. Relying on our landmarks and creating a broad front really helped us in eventually identifying the nerve and dissecting it free from the tumor. There were many points during that case where it seemed as though the nerve had been violated by the tumor, however, staying right on top of the nerve always led us to revealing its true course, sometimes deep and sometimes lateral to the tumor. We were able to successfully remove the tumor and this young lady had good facial nerve function post-operatively. I will never forget that case as it taught me so much about not only relying on my knowledge of anatomy but also the fundamentals of tissue handling and dissecting around nerves.

Not only do the complex pathologies present challenges in the operating room, but the lack of basic supplies are a big hurdle as well. The lack of surgical instruments really taught me how to improvise and be flexible during these complex cases. This is a skill that can only be developed when you truly have no other option and it would not be something that I would have been exposed to outside of this experience. From overhead lights to water for scrubbing prior to a sterile case, the lack of basics in the OR is truly

eye-opening. The staff make do with the available supplies and we also learn from them how to adapt and overcome.

I have always considered it a privilege to practice medicine and help patients during their most vulnerable times. This experience really gave new meaning to that vulnerability. Some of our patients were unable to read or write and with many of these pathologies occurring at such a young age, oftentimes we were explaining the risks of nerve injury and permanent facial paralysis to an 18 year old signing consent with a thumbprint. In speaking with these patients, I learned that many of them traveled from hours away by bus or by foot to come and wait in the wards in hopes that they would be added to the schedule while we were present. With this in mind it was easy for us to think, 'well why don't we just operate into the night every day?'. Operating into the night is not unheard of at home, however it is not that easy in Malawi. A large majority of the support staff in the operating room walk to work. With the increasing number of robbers on the streets it becomes dangerous for them to work past 5pm, with the sun setting at 5:30pm. A majority of surgeries that were performed were on head and neck pathologies however we did see a significant number of sinus pathologies during this trip. Using the sinus equipment brought over by the Madgy Foundation in years past, we helped train the local residents in sinus surgery using endoscopes and microdebriders.

By the end of our trip it was fulfilling to see the residents have increased confidence in their sinonasal anatomy while clearing extensive polyp disease from a patient's nasal cavity. My program at home in Michigan values resident to resident teaching and it was wonderful to have the opportunity to continue to teach while in Malawi.

This trip truly has changed me for the better and I am so grateful to have had this opportunity and hope to be a part of this mission again in the future. □

Sunny Symposia:

Exploring Knowledge and Coastal Charms of the 2024 Annual Clinical Assembly in Myrtle Beach

By Zach Weiss

Myrtle Beach, the beautiful vacation destination nestled along the sun-kissed shores of South Carolina, is a coastal paradise that beckons visitors year-round with its pristine beaches, vibrant entertainment, and Southern hospitality. While the allure of Myrtle Beach is timeless, there's something magical about experiencing this coastal haven during the late spring. The 2024 Annual Clinical Assembly, scheduled for May 1st, comes when spring is transitioning into the warmth of summer; this time of year unveils a perfect symphony of weather, events, and tranquility that make a visit to Myrtle Beach an unforgettable experience.

The Weather: A Perfect Balance

The beginning of May heralds the arrival of warmer temperatures in Myrtle Beach, making it an ideal time for those seeking a sun-soaked escape. The weather strikes a perfect balance between the crisp freshness of spring and the beginnings of the warmth

of the impending summer. With average temperatures ranging from the mid-60s to the 70s Fahrenheit, visitors can revel in the gentle caress of the ocean breeze while basking in the comforting embrace of the Carolina sun.

The beaches come alive during this time, offering a serene escape for sunbathers, beachcombers, and water enthusiasts alike. The Hilton Myrtle Beach Resort, which is situated right along the beachfront, will give attendees open access to the beaches and Atlantic Ocean. With its inviting waters and soft sandy beaches, this location is a perfect place for a relaxing getaway. The moderate temperatures make late spring an opportune time for a leisurely stroll along the sandy shores, collecting seashells and relishing the sound of waves kissing the coastline.

Floral Splendor: Blooms and Gardens

Spring has sprung, and this is the time of year when all of the native plant life is alive in and around Myrtle Beach. This brings forth a riot of colors as flowers burst into bloom, carpeting Myrtle Beach with vibrant hues. Native vegetation, such as azaleas and dogwoods, paint the landscape with hues of pink, white, and purple, adding a touch of elegance to the coastal scenery. Palmetto trees, a symbol of South Carolina, stand proudly against the blue sky, their feathery fronds swaying gently in the ocean breeze. The coastal ecosystem thrives during spring, creating a picturesque tapestry that complements the serene beauty of Myrtle Beach.

Culinary Delights: Mayfare for the Palate

Myrtle Beach not only offers a feast for the eyes but also tantalizes the taste buds with a diverse culinary scene. The city's restaurants, many of which boast oceanfront views, showcase the freshest seafood, regional delicacies, and innovative cuisine. From casual beachside cafes to upscale dining establishments, Myrtle Beach caters to a spectrum of culinary preferences. Whether savoring the richness of Southern comfort food or indulging in innovative seafood creations, May in Myrtle Beach is a

culinary adventure that leaves taste buds tingling with delight.

Seaside Splendor: The Hilton Myrtle Beach Resort

As one of the premier beachfront destinations on the Grand Strand, The Hilton Myrtle Beach Resort stands as an embodiment of luxury and coastal elegance. Located along the pristine shores of Myrtle Beach, this upscale resort offers guests a perfect blend of modern amenities and Southern charm. The architecture, with its contemporary design, seamlessly integrates with the coastal landscape, providing stunning panoramic views of the Atlantic Ocean.

The Hilton Myrtle Beach Resort boasts a range of accommodations to suit various preferences, from spacious rooms to luxurious suites, all meticulously designed to ensure comfort and style. Each room is tastefully decorated, reflecting a coastal aesthetic that enhances the overall ambiance of the resort. The private balconies, available in many rooms, provide an intimate setting for guests to savor the breathtaking sunrise or unwind to the soothing sounds of the ocean.

One of the standout features of The Hilton Myrtle Beach Resort is its world-class amenities. Guests can indulge in a relaxing day at the expansive oceanfront pool complex, complete with cabanas and a lazy river, creating an oasis of tranquility. The resort also offers direct access to the pristine beach, inviting

guests to sink their toes into the warm sand or take a refreshing dip in the Atlantic waters.

Culinary enthusiasts will find their cravings satisfied at the resort's diverse dining options. From gourmet seafood at the oceanfront restaurant to casual bites at the poolside bar, The Hilton Myrtle Beach Resort ensures an eating experience that complements the coastal experience. The culinary offerings showcase a fusion of local flavors and international cuisine, curated to tantalize the taste buds of even the most discerning guests.

For those seeking relaxation and rejuvenation, the resort's spa facilities provide an array of pampering treatments. From soothing massages to rejuvenating facials, the spa offers a retreat for guests looking to unwind and revitalize amidst the serene coastal setting.

Beyond the luxurious accommodations and amenities, The Hilton Myrtle Beach Resort is also an ideal venue for the 2024 Annual Clinical Assembly. With state-of-the-art meeting spaces and attentive event planning services, the resort will cater to the AOCOO-HNS, ensuring attendees a seamless and memorable experience.

Conclusion

In conclusion, a visit to Myrtle Beach for the 2024 Annual Clinical Assembly will be a multifaceted experience that engages the senses and rejuvenates the soul. From the temperate weather and blooming flora to the delectable cuisine and dynamic entertainment scene, Myrtle Beach in May offers a perfect blend of relaxation and excitement. Whether seeking a tranquil seaside retreat, a culinary adventure, or a cultural escapade, Myrtle Beach stands as a beacon of Southern charm, welcoming visitors to create cherished memories against the backdrop of its sun-kissed shores. ☐

Lucky Stars

By Donald Morris, DO

For those of you who may not know me, you should count your lucky stars. Just joking. I am Don Morris, DO. I am a practicing general ophthalmologist in Pittsburgh, PA. I have been in practice for 25 years and had way more hair when I started.

I can claim three brushes with greatness in my life. Number one: I met the current president 39 years ago when he was a Senator and was speaking at a conference that I was at. I asked him to get a pizza with me and some friends. Unfortunately, he couldn't, but he did find out who I was and sent me a lovely postcard.

Number two: I got my hair cut with Mike Ditka sitting in the chair next to me. It was the worst haircut of my life, as no one paid any attention to me.

Number 3: I got to meet Rosa Parks in person. What a lovely woman, and who knew she was living in Detroit? Certainly not me!

I have spent much of my non-working time being a hockey dad and a softball dad, attending choir and band concerts and plays. I also worked for our Colleges by spending many years as program chair, education chair, and many positions on the board of governors, culminating in being president of our colleges. That was a true highlight of my life.

I am also involved in the Council of the American Academy of Ophthalmology and am on the Board of Governors of the

Pennsylvania Academy of Ophthalmology. I am currently president-elect.

I enjoy cooking and baking. This is likely because I enjoy eating. Some of my most fantastic cooking and baking triumphs are beer-basted turkey, chocolate chip cookie cakes, white spelt chocolate babka, and homemade pizza. One of my worst cooking decisions was beer mashed potatoes made for one fateful Thanksgiving better known as Beersgiving many years ago.

The accomplishments I am the most proud of in my life are being a father and husband. We have two daughters and a son, and I am so proud of the wonderful people they have become. Seeing them grow and come into their own is truly the greatest accomplishment of my life. □

Get to Know You

By Leonid Skorin, Jr., DO

The Skorins presenting on Ukraine at one of the service clubs in Southern Minnesota.

Patient being draped for cataract surgery. Note the reusable cloth cover with hole cut in it and rectangular cardboard "milk" container used to vent air to the patient. Supplemental oxygen and anesthesiologist were not available.

Dr. Skorin performing cataract surgery in Poltava with Ukrainian ophthalmologists observing.

I completed my ophthalmology residency in July, 1991. One month later, Ukraine threw off its Russian communist shackles and declared independence. Unfortunately, Ukraine continues to struggle against Russian oppression to this day.

I had a chance to help by doing multiple medical/surgical mission trips to Ukraine during the 1990's. My initial trips in the early 1990's exposed me to the destructive nature of communism, to society in general and health care in particular. At that time, Ukrainian ophthalmologists were still doing intracapsular cataract extractions and using iris-fixed intraocular lens implants. There was a severe shortage of surgical instruments and both oral and topical medications. The surgical facilities were antiquated from decades of negligence and indifference by the Soviet government. Although I always brought boxes of medical and surgical supplies whenever I performed surgery in Ukraine,

Dr. Skorin scrubs before surgery in Poltava, Ukraine. Rinsing hands and arms in bleach. You know when you are done scrubbing when the egg timer on the window sill empties.

Following cataract surgery, a patient is placed in a hallway for a blood pressure check. On the right are washed surgical cloths being draped to air dry.

The Skorins with a Ukrainian military officer after he received a American prosthetic leg. Photo taken at the Ukrainian American Cultural Center in Minneapolis, Minnesota.

there were continuous impediments such as electricity blackouts and water stoppages. My surgical experiences in Ukraine taught me the meaning of flexibility in the surgical suite.

I no longer had to do these mission trips starting the early 2000's. Ukrainian ophthalmology progressed quickly over the decade. By then, Ukrainian ophthalmologists had access to and were attaining competence in phacoemulsification, including PRK, LASIK and other lasers. My last "medical" trip was in 2011 when I went to certify their glaucoma specialists in the use of Trabectome.

Today, after Russia's illegal and immoral invasion of Ukraine, my wife, Kathy, and I have been giving presentations on our previous trips to Ukraine and updates on the war to numerous service clubs and church groups throughout Southern Minnesota. □

India: A Journey Begins

By Kristina Manion, DO

A couple of years ago, I had a desire to start a child sponsorship program in India through my company, Shining Salt. The idea, however, seemed daunting and nearly impossible. Fast forward to the present, and I'm thrilled to announce that I've started a non-profit organization, the Shining Salt Foundation, dedicated to serving rural women and children in India.

Why India?

My love for rural healthcare began after a three-month stint in India during my college years, where I lived and volunteered. That experience had such a profound impact on me that I decided to go to medical school. In 2020, I founded Shining Salt as a means to support women artisans in India. I design leather handbags made by women from the Dalit community, the lowest caste in India. These women face significant persecution and hardships due to their caste status. Through a non-profit in India, they are provided with tailoring training, a sewing machine, and, most importantly, the dignity to support themselves.

The Shining Salt Foundation

The Shining Salt Foundation is an extension of our dedication to empowering women and children in India. Currently, we are collaborating with our colleagues in India to raise funds for constructing a 10-bed hospital and initiate a child sponsorship program. Education is the key to overcoming poverty. Thus, the child sponsorship program is my dream project, providing Dalit children with a competitive English education and room and board.

Join Us

We have a vision to transform lives and bring about positive change. Please visit ShiningSalt.org to learn more about our work and the impact we're making. □

A Day in the Life
at A.T. Still School of Osteopathic Medicine

By Shivam Chandra, OMS-II

Medical school extends beyond classrooms and clinics; it's a journey marked by real-world impact and scientific exploration. As a second-year student at A.T. Still School of Osteopathic Medicine in Arizona, my daily routine encompasses academics, community service, and research.

Each week involves time at the Near North Community Health Center in Chicago, where I work alongside primary care physicians. This exposure provides practical insights into patient care and the intricacies of medical practice. During this rotation, my peers and I identified a gap in pediatric mental health services. To address this, we initiated a project to conduct mental health workshops for 8th-grade students in Chicago's public schools. These workshops focus on disorders such as anger management and anxiety and incorporate essential topics like nutrition.

My summer was spent in research at the University of Illinois Chicago, specifically in the Ophthalmology Department. My work on retinal detachment was a notable feature at the American Academy of Ophthalmology conference, leading to valuable connections with experienced ophthalmologists.

These experiences highlight the critical role of mentorship in medical education. Coming from a program lacking a dedicated ophthalmology department, the guidance I receive from my ophthalmologist mentor is invaluable. It significantly shaped my path towards becoming a proficient medical professional, ready to serve and innovate.

This glimpse into my daily life mirrors the diverse and dynamic essence of medical training. It's a harmonious blend of learning, service, and discovery, forging us into future healthcare leaders. My opportunity last summer to work under an ophthalmologist, unaffiliated with my institution, greatly enhanced the conference's value for me. I urge practicing ophthalmologists to welcome osteopathic medical students into their clinics. Such engagements can forge connections and pave the way for a more diverse presence of osteopathic professionals in ophthalmology in the future. □

Diabetic Pharmaceutical Review for Ophthalmologists and Otolaryngologists

By Jarod Banks, BA, Leonid Skorin Jr, DO, OD, MS, and Gina DeFranco, DO

Recently, there have been a plethora of new medications and insulin formulations for the pharmaceutical treatment of type 1 and type 2 diabetes.

This article is intended as a reference document for ophthalmologists and otolaryngologists who do not routinely prescribe diabetes-related medications but encounter them daily in patients with diabetes. Recognition and awareness of specific diabetic medications can give practitioners insight into the patient's condition and the severity of their disease, as well as risks for ocular or otolaryngology complications.

The pharmacology, common dosages, and adverse effects—with an emphasis on any ocular and otolaryngologic side effects—of the newest FDA-approved medications for the treatment of diabetes will be reviewed, as well as updated formulations of both short and long-acting insulin.

Tirzepatide

Tirzepatide (Mounjaro) is a type 2 diabetes medication that was FDA-approved in 2022. It is a glucose-dependent insulinotropic polypeptide (GIP) receptor and glucagon-like peptide-1 (GLP-1) receptor agonist that increases glucose-dependent insulin secretion, decreases inappropriate glucagon secretion, and slows gastric emptying.[1] These side effects tend to promote weight loss. Because of this, tirzepatide has an off-label use for obesity treatment and assistance in weight management.[2]

Common dosages include 2.5 mg injected subcutaneously once weekly for 4 weeks, then increase to 5 mg once weekly; may increase in weekly dosage with a maximum of 15 mg/week.[3]

The main ocular side effect of tirzepatide is an increased risk of exacerbating existing diabetic retinopathy. The mechanism is unknown, but often, diabetic retinopathy is worsened with rapid improvement in hyperglycemia as well as previous long-term poor glycemic control. The onset of this side effect is varied. The most important risk factors predisposing to early worsening of diabetic retinopathy are an elevated hemoglobin A1C level at the time of initial screening and reduction of the glucose level during the first 6 months after treatment.[4]

Otolaryngologic side effects are less common for tirzepatide. Possible side effects include nasopharyngitis and upper respiratory infection, where the mechanism of action is unclear, and swelling and itching of the tongue and throat due to a hypersensitive reaction.[5,6]

Other common side effects in order of likelihood include increased serum amylase and/or lipase, nausea, diarrhea, constipation, vomiting, and abdominal pain. Some significant adverse reactions include pancreatitis, gallbladder and biliary tract disease, different hypersensitivity reactions, sinus tachycardia, acute kidney injury, and a boxed warning for medullary thyroid carcinoma.[6-9]

Semaglutide

Semaglutide (Ozempic, Rybelsus) is a type 2 diabetes medication that was FDA-approved in 2017. Ozempic is administered subcutaneously and Rybelsus is taken orally. Semaglutide is a selective glucagon-like peptide-1 (GLP-1) receptor agonist. It was originally used for the treatment of type 2 diabetes. It now has a new indication for the treatment of obesity because of its on-label and off-label effects. This medication increases insulin secretion, decreases glucagon secretion, and slows gastric emptying. It also acts in the areas of the brain involved in the regulation of appetite and caloric intake, making it useful for weight management.[10]

Common dosages for Ozempic include 0.25 mg injected subcutaneously once weekly for 4 weeks then increasing to 0.5 mg once weekly. May increase to 1 mg once weekly after 4 weeks on the 0.5 mg.

Common dosages for Rybelsus include 3 mg tablet taken daily for 30 days; increase to 7 mg tablet daily, may increase to 14 mg tablet daily after having taken a 7 mg tablet for 30 days.

Like tirzepatide, the main ocular side effect of semaglutide is the exacerbation of diabetic retinopathy. This was mainly seen in patients with preexisting retinopathy and was attributed to the rapid reduction of hemoglobin A1C. It is noted that this was only seen in subcutaneous semaglutide and not the oral version. Complications include vitreous hemorrhage, the onset of diabetes-related blindness, and the need for treatment with an intravitreal agent or retinal photocoagulation.[11] The onset of this is variable and the mechanism is unknown.

The otolaryngologic side effects are less common but may include swelling and itching of the throat that could result in difficulty swallowing. This is likely due to a hypersensitivity reaction.[12] Nasopharyngitis is also a possible side effect.[13]

Other common side effects in order of likelihood include abdominal pain, constipation, headache, fatigue, and dyspepsia. Some significant adverse reactions include acute kidney injury, gallbladder and biliary tract disease, hypersensitivity reactions, pancreatitis, and a boxed warning for medullary thyroid carcinoma.[13,14]

Ertugliflozin

Ertugliflozin (Steglatro) is a type 2 diabetes medication that was FDA-approved in 2017. Ertugliflozin is a sodium-glucose cotransporter 2 (SGLT2) inhibitor. Inhibition of SGLT2 in the kidney causes a reduction of glucose reabsorption into the bloodstream and the lowering of blood glucose levels. It also has been associated with a reduced risk of heart failure.[15]

Common dosages include 5 mg tablet taken daily; may increase to 15 mg tablet taken daily after initial 4-12 weeks.

Blurred vision and nasopharyngitis are the main ocular and otolaryngologic side effects of ertugliflozin respectively.[16,17] The mechanisms for these are not well understood. Other common side effects include normoglycemic diabetic ketoacidosis, genitourinary tract infection, vaginal fungal infection, and acute kidney injury.[16,18,19]

Teplizumab

Teplizumab (Tzield) is a type 1 diabetes medication that was FDA-approved in 2022. Teplizumab is an anti-CD3 monoclonal antibody that slows the loss of pancreatic beta-cells from autoreactive T-cells. It is administered as a single 14-day course of daily intravenous infusions. It has been used on individuals at high risk for type 1 diabetes and has been seen to delay the onset of stage 3 (symptomatic) type 1 diabetes by an average of 2 years.[20]

Type 1 diabetes has three progressive stages. Stage 1 is defined as having pancreatic beta-cell autoimmunity showing multiple islet autoantibodies, with normoglycemia, and is pre-symptomatic. Stage 2 is having multiple islet autoantibodies, with dysglycemia, and is pre-symptomatic. Stage 3 is the onset of clinical symptoms.[21]

The dosage for this medication follows a 14-day, once-daily intravenous infusion regimen and is as follows for adults:

Day 1: 65 mcg/m2 – Day 2: 125 mcg/m2 – Day 3: 250 mcg/m2 – Day 4: 500 mcg/m2

Days 5-14: 1030 mcg/m2

Teplizumab does not have any common ocular or otolaryngologic side effects. Common systemic adverse effects include hypersensitivity reaction, cytokine release syndrome, hematologic toxicity, and bacterial and viral infections.[22]

Concentrated Insulin Formulations

With the increasing incidence of obesity and insulin resistance, newer formulations with higher concentrations of insulin, and insulin analogs, are now available. For reference, traditional insulin concentration is 100 units/ml, or U-100. Formulations of U-200 (200 units/ml), U-300 (300 units/ml), and U-500 (500 units/ml) are used for treating severely insulin-resistant patients requiring >200 units of insulin daily with type 1 or type 2 diabetes.[23] For understanding, U-300 would have 1.5x the amount of insulin as U-200 while occupying the same volume.

Insulin lispro U-200 (Humalog U-200) is rapid-acting and useful for patients needing high prandial insulin doses. It was FDA approved for type 1 and type 2 diabetes in 2014.

Glargine U-300 (Toujeo) is long-acting and provides a basal insulin level for individuals with or without insulin resistance. It was FDA approved for type 1 and type 2 diabetes in 2015.

Regular insulin U-500 (Humulin R U-500) is intermittent-acting and has both prandial and basal properties and is used in severe cases of hyperglycemia. It was FDA approved for type 1 and type 2 diabetes in 2016.

There are no common ocular or otolaryngologic side effects for these insulin formulations. Common systemic adverse effects for these various insulin concentrations include hypoglycemia, injection site reaction, hypersensitivity reaction, rash, pruritus, lipodystrophy, and weight gain.[24-26]

This article reviews the pharmacology, common dosages, and adverse effects of the diabetes-related medications tirzepatide, semaglutide, ertugliflozin, and teplizumab. It has also briefly reviews new insulin concentrations that are currently being used. The overarching goal of this article is to help ophthalmologists and otolaryngologists recognize these medications and allow insight into the patient's condition and risk for any ocular or otolaryngologic complications.

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Breathing Easy:

My Journey with Nasal Breathing and the Impact of Septoplasty

By Arpan Patel, OMS-II

Breathing is something we often take for granted, but I've learned firsthand how it can have a profound impact on our lives. For years, I struggled with chronic congestion, noisy snoring, and restless sleep. Little did I know that a deviated septum was at the heart of these issues, hindering my ability to breathe through my nose.

Nasal breathing, when unobstructed, provides a host of benefits that can transform your life. It filters, humidifies, and warms the air as it enters your body, leading to better overall health. However, my deviated septum was making me a chronic mouth breather, robbing me of these advantages. I was not only suffering from disrupted sleep but also dealing with various health issues.

One of the most significant problems was my snoring. It wasn't just a nightly annoyance for my partner; it was a sign of ineffective breathing. The constant mouth breathing and snoring disrupted my sleep patterns, leaving me perpetually fatigued during the day. My energy levels were low, and I struggled to focus on daily tasks.

After years of dealing with these challenges, I decided to explore a solution: septoplasty. This surgical procedure aimed to correct the alignment of my nasal septum, providing a pathway to unobstructed nasal breathing. The results were life-changing.

Following my septoplasty, I experienced improved sleep, and my snoring became a distant memory. The benefits extended far beyond just peaceful nights. My daytime energy levels surged, and I found myself more focused, both at school and in my personal life. Breathing through my nose allowed me to take in more oxygen, enhancing my physical endurance. It felt like a new lease on life.

My journey with nasal breathing and the profound impact of septoplasty have not only transformed my personal life but also deeply influenced my career path. This experience has ignited my passion for otolaryngology. The incredible difference that a seemingly simple procedure can make in one's life has inspired me to pursue an ENT residency. I am determined to help others experience the transformative power of improved breathing and overall well-being, just as I have. □

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