DEPARTMENT OF ANESTHESIA AND PERIOPERATIVE MEDICINE

SLEEPY TIMES

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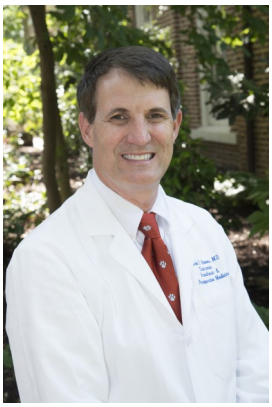
Inside This Issue:

MESSAGE FROM THE CHAIRMAN: RESEARCH INNOVATION AND TRANSLATIONAL RESEARCH INITIATIVES PART 2



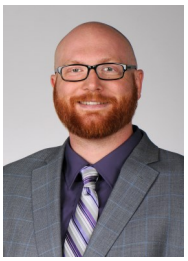
-SCOTT T. REEVES, MD, MBA

In August, I had the opportunity to give the annual State of the Department address. A significant portion of it highlighted the substantial increase the department has experienced in clinical and basic science research. If you missed the address, take a moment to review it via the following link:

August 8, 2023—State of the Department Grand Rounds

In the September edition of Sleepy Times, I would like to highlight the work occurring in translational research within the department.

TRANSLATIONAL TEAM SCIENCE AWARD BESTOWED TO MUSC DEPARTMENT OF ANESTHESIOLOGY AND PERIOPERATIVE MEDICINE



Mike Scofield, PhD and Sylvia Wilson, MD

The alleviation of pain is a common goal in the medical profession. However, the abuse and misuse of opioids can lead to opioid use disorder (OUD), a chronic relapsing condition typified by long-lasting relapse vulnerability despite substantial bouts of abstinence. OUD is particularly dangerous, as the dynamic aspects of opioid tolerance combined with this long-lasting susceptibility to relapse can make a period of opioid seeking and taking fatal. OUD affects approximately 16 million people globally and causes approximately 120,000 deaths per year. Recent evidence indicates that ~ 90% of individuals with OUD have their first experience with opioids in a medical setting. While drugs like methadone can combat withdrawal symptoms, and drugs like naloxone can save lives in the event of an overdose, effective therapies to suppress drug craving do not yet exist. This makes methods for reduction of intraoperative and postoperative opioid consumption critical for suppression of abuse potential and subsequent vulnerability for development of OUD.

In parallel, basic research aimed at elucidating the cells and systems responsible for opioid craving have also emerged as vital areas of research for combating the opioid epidemic.

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Scientifically, a body of work now demonstrates that relapse vulnerability is driven mechanistically by the extent and duration of drug exposure, yet precisely how drug craving and the associated vulnerability to relapse is encoded in the brain remains poorly understood. Drug craving and drug seeking are most often engaged by exposure to drug-conditioned cues, such as contexts or environments where drug exposure occurs. These cues drive activation of central nodes within the brain's reward circuitry to precipitate drug seeking and taking. Preclinical research using models of cue-induced drug seeking in rodents have been making recent strides in developing our understanding the neural correlates of drug craving and may drive development of novel therapeutic strategies. Specifically, recent findings now demonstrates that a cell type in the brain called astrocytes house many crucial drug-induced adaptations in their structure and function which are directly linked to the relapse vulnerability that characterizes OUD. Additionally, pharmacological agents that target astrocytes may be used to reverse these drug-induced disruptions and provide suppression of opioid intake and protection from relapse vulnerability, in both the clinical and preclinical setting.

Drs. Mike Scofield, Sylvia Wilson, Katie Bridges, and Bethany Wolf were recently awarded a Translational Team Science Award to expand our study of astrocytes, opioid intake, and relapse vulnerability. The grant is an MUSC driven effort to provide 2 years of funding needed to pair clinical and preclinical investigators to drive forward translational research efforts, production of manuscripts, and submission of extramural grant applications. Our proposal is specifically designed to address suppression of clinical opioid administration where possible, to gain a better mechanistic understanding of how opioids produce enduring changes in the brain, and how to reverse these adaptations. To complete these goals, we will use a glial modulator drug called N-acetylcysteine (NAC), both as an adjunct treatment to surgical procedures to reduce opioid intake, and as a tool to better understand the mechanistic underpinnings of drug craving. NAC is an antioxidant and anti-inflammatory drug that is best known clinically as a treatment for hepatotoxicity resulting from acetaminophen overdose. While NAC also has documented anti-inflammatory and anti-nociceptive effects, in the field of addiction research, NAC is also known for its ability to reverse drug-induced disruption of astrocyte-meditated regulation of neurotransmitter glutamate. Our TTS application was made possible by an exciting array of preclinical and clinical preliminary data supported by the Department of Anesthesia and Perioperative Medicine.

Dr. Sylvia Wilson will lead the clinical portion of our project in collaboration with Dr. Katie Bridges and Haley Nitchie. In a prior randomized clinical pilot trial in elective posterior spine surgeries at MUSC, patients randomized to intraoperative NAC (150 mg/kg) consumed 16%-20% less postoperative opioids at all observed time points compared to patients that received placebo, with no adverse events. Additionally, NAC patients had a 59% longer median time to first opioid rescue dose in PACU relative to placebo patients. In addition to consuming less opioids, NAC patients reported a small decrease in numeric pain scores (1.1 out of 10). While these results were promising, this pilot study was designed primarily to track feasibility, examine dosing, and to confirm medication safety. However, the positive nature of our results prompted the design of a larger study. Our new study will similarly involve administering intraoperative NAC or placebo to patients and examine the impact on postoerpative opioid consumption and pain. It will differ as our patient population will focus on robotic and laparoscopic hysterectomies, providing a more uniform surgical operation in a single gender. Dr. Whitney Graybill has enthusiastically agreed to support this clinical project and serve as a liaison and representative from the surgical perspective.

Dr. Mike Scofield will lead the preclinical efforts. In his lab, they have previously observed and characterized aspects of opioid-induced astrocyte dysfunction across various brain regions within the addiction and relapse neurocircuitry. They have noted that NAC treatment prevents opioid seeking in rodents, and that it does so in part through a structural and functional reorganization of both astrocyte and neuronal morphology within the prefrontal cortex.

TRANSLATIONAL TEAM SCIENCE AWARD BESTOWED TO MUSC DEPARTMENT OF ANESTHESIOLOGY AND PERIOPERATIVE MEDICINE

While research has established that astrocytes are crucial mediators of relapse biology, novel methods for the isolation and purification of genetic information from these cells have recently emerged. These new strategies allow for a comprehensive analysis of gene expression profiles within astrocytes, which when applied to our TTS project will allow for a granular mechanistic insight into precisely how opioid exposure engages adaptations in astrocyte function and for a similar analysis of how astrocyte modulator drugs like NAC can act to reverse or compensate for these drug-induced changes in astrocytes.

In summary, this project aims to translate and advance our understanding of the molecular basis of relapse vulnerability gleaned from animal models of addiction and relapse to the clinical setting in the form of astrocyte-specific adjunct therapeutics. Clinically, our current focus is formal IRB approval and clinical trial registration. Once accomplished, dissemination of information and protocol education to both anesthesia providers and gynecological surgeons will follow prior to study initiation. Concurrently, preclinical studies will examine astrocyte gene expression and hopefully reveal novel links between astrocytes and relapse biology. Future steps may then include the examination of additional compounds and astrocyte-targeting medications to continue in our clinical efforts to reduce opioid consumption and improve patient safety.

CULTURAL AWARENESS CORNER: AAMC JUNIOR FACULTY LEADERSHIP DEVELOPMENT SEMINAR SAVANNAH HURT, MD

In July, had the opportunity to travel to Boston for the AAMC Early Career Women's Leadership Conference where I spent four days with 168 other early career female physicians representing almost every imaginable specialty and from all reaches of the country. As academic anesthesiologists at a busy tertiary care center, we rarely have the opportunity to dig into our own professional development and career goals, so I am incredibly grateful to have been able to attend this unique event. The conference featured highly interactive seminars such as leadership strategies for managing gender dynamics, leveraging your personality type, negotiation techniques, promotion workshops, and even a look into finances in the world of academics. It was a truly humbling and simultaneously empowering experience to network with and learn from so many brilliant physicians, mothers, and overall powerhouse humans. I look forward to utilizing this new knowledge in my current role and using it as a springboard for continued growth. Honestly, however, I am most excited to continue to connect with all of the amazing women that I know will be pioneers in furthering their specialties and changing the face and culture of medicine.

WELCOME TO THE DEPARTMENT

Matt Hulse is excited to join the faculty as the new Division Chief of Critical Care Medicine and Medical Director of the CVICU. Aside from a couple of years in Paris, Matt grew up in northern Virginia, where he attended Virginia Tech as an undergrad, followed by VCU School of Medicine for medical school. He braved inner-city Baltimore to train at Johns Hopkins Hospital for anesthesia residency followed by Vanderbilt University for his critical care medicine fellowship. Prior to MUSC, he worked at UVA for the past 6 years splitting his time between the OR's and the CVICU where he served as medical director.

Outside of the hospital, Matt shows his masochistic tendencies and can be found training for trail ultras, at the local CrossFit gym, or struggling to do home improvement projects at his house in Hampton Park. He negates this healthy lifestyle with an eager desire to eat and drink his way through the amazing restaurants, breweries, and wine bars in the Lowcountry. At home, he is kept sane by his better half, Sarah, and his two old hound dogs, Lily and Bramble. Matt is thrilled to be a part of the MUSC anesthesia family and to meet everyone soon!

Matt Hulse, MD

John Foster, MD

I am originally from Southwest Florida, where my family still lives. I attended Washington University in St. Louis as an undergraduate, then returned to Florida for medical school at the University of Florida. I then completed my anesthesiology residency at the University of Alabama at Birmingham and my cardiothoracic and critical care anesthesiology fellowships at MUSC. My wife and her family are from Charleston, so we moved here in 2021 to be closer to family and to enjoy everything Charleston and MUSC have to offer. I enjoy fishing, spending time with family, and relaxing with my dogs, Cooper and Ben. I look forward to establishing myself in Charleston and to many more years at MUSC.

WELCOME TO THE DEPARTMENT

I have been a critical care doctor for greater than 35 years, so I am the "old" new guy to join the critical care team. I am kind of a different critical care doc in that I am internist that did not work in a MICU until last year. Prior to that, I have always worked in Surgical based ICUs starting with Trauma, then surgical, then neuro, then CV surgery. My first 25 years were spent at the Washington Hospital Center in DC, where I wore many hats, Medical director MedSTAR trauma unit, Medical director CV ICU, VP MedSTAR research.

After that, I spent the next 12 years at the University of Maryland Medical Center (UMMC)as the Chief Critical Care, director cardiac surgery/ transplant ICU and Director of ECMO program. I retired from UMMC in 2021 and moved to Bluffton SC. About a month after being retired, I was asked to help taking care of COVID patients at Hilton Head Hospital. How could I refuse? Then the pandemic went away and so did my job. I could not take being retired. One can only exercise so much, and that is how I ended up at MUSC.

I am really excited about being back in academics and rounding on sick CV surgery patients. My first week on the unit was a blast. My favorite patient is the ECMO patient. I will only be working 7 days a month, but I want people to know that I am always available, and I am really looking forward to sharing my experiences and gaining new ones.

On the personal side, I finally married Tina after spending the last 15 years with her. I have a 26-year-old son who does want anything to do with medicine. (he is single and looking). I am a swimmer and runner. I enjoy traveling, but most of all I really like just hanging out with Tina and doing things together.

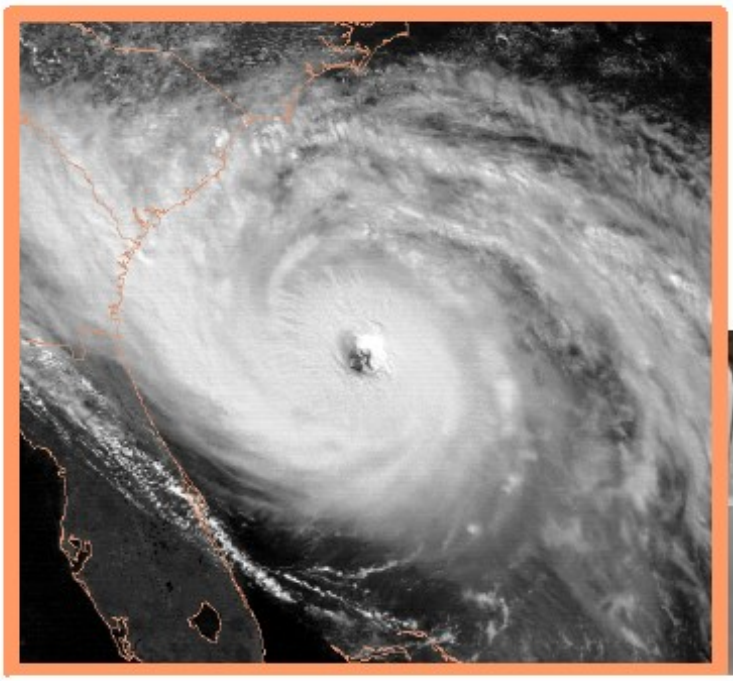
Dan Herr, MD

Megan Kemp, MD

Megan Kemp, MD is a pediatric cardiac anesthesiologist who is excited to join the Pediatric Anesthesia Department at MUSC Shawn Jenkins Children's Hospital. She completed her residency at the Medical College of Georgia, fellowship at Vanderbilt University, and additional training in pediatric cardiac anesthesia at Indiana University. Megan previously worked as anesthesia faculty for the Virginia Congenital Cardiac Collaborative at the University of Virginia and Children's Hospital of the King's Daughters. She chose to specialize in providing anesthesia for patients with congenital heart disease because it is a continuously evolving field with ongoing research and innovation. She values the relationships, rapport, and continuity of care with patients and families that is unique to the subspecialty. Outside of work, Megan enjoys spending time with her daughter, Olivia, her husband, Brad, and her two cockapoos, Bumble Bee and Gus. They are especially looking forward to exploring Charleston and spending time at the beach.

DEPARTMENT HURRICANE PLAN UPDATED

Department of Anesthesia and Perioperative Medicine



Hazardous Weather Plan

The 2023 Weather Plan can be found on our Department Intranet here. Please review as we kick off Hurricane Season.

HEALTHCARE SIMULATION WEEK OPEN HOUSE

MUSC Healthcare Simulation Center Presents

Healthcare Simulation Week Open House

The MUSC Healthcare Simulation Center will be holding an open house guided tour of our new facility!

Please join us Monday, September 18, 2023. Drop-in anytime between 10:00 am to 2:00 pm.

Healthcare Simulation Week celebrates global professionals who use simulation to improve the safety, effectiveness, and efficiency of healthcare delivery.

- https://web.musc.edu/education/ce/simulation

Date: September 18, 2023

Time: Anytime between 10:00 am to 2:00 pm

Location: Colbert Library Building 2nd Floor
171 Ashley Avenue
Charleston, SC 29425

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CNN HEALTH ARTICLE FEATURING RENUKA GEORGE, MD

They took blockbuster drugs for weight loss and diabetes. Now their stomachs are paralyzed

By Brenda Goodman, CNN

Updated 3:27 PM EDT, Tue July 25, 2023

Joanie Knight has a message for anyone considering drugs like Ozempic or Wegovy, which have become popular for the dramatic weight loss they can help people achieve.

“I wish I never touched it. I wish I’d never heard of it in my life,” said Knight, 37, of Angie, Louisiana. “This medicine made my life hell. So much hell. It has cost me money. It cost me a lot of stress; it cost me days and nights and trips with my family. It’s cost me a lot, and it’s not worth it. The price is too high.”

Brenda Allen, 42, of Dallas feels the same way. Her doctor prescribed Wegovy for weight loss.

“And even now, being off the medication for almost a year, I’m still having a lot of problems,” Allen said. She said she was at urgent care recently after vomiting so much that she became dehydrated.

Courtesy Emily Wright

Emily Wright lost 80 pounds on Ozempic and now struggles with gastroparesis

Emily Wright, 38, a teacher in Toronto, started taking Ozempic in 2018. Over a year, she said, she lost 80 pounds, which she’s been able to keep off. But Wright said she now vomits so frequently that she had to take a leave of absence from her job.

“I’ve almost been off Ozempic for a year, but I’m still not back to my normal,” Wright said.

The diabetes drug Ozempic, and its sister drug for weight loss, Wegovy, utilize the same medication, semaglutide. These and other drugs in this family, which includes medications like tirzepatide and liraglutide, work by mimicking a hormone that’s naturally made by the body, GLP-1. One of the roles of GLP-1 is to slow the passage of food through the stomach, which helps people feel fuller longer.

If the stomach slows down too much, however, that can cause problems.

Knight and Wright have been diagnosed with severe gastroparesis, or stomach paralysis, which their doctors think may have resulted from or been exacerbated by the medication they were taking, Ozempic.

Wright said she has also been diagnosed with cyclic vomiting syndrome, which causes her to throw up multiple times a day.

Allen doesn’t have a diagnosis for her stomach problems but said they started only after she was encouraged by her doctor to take Wegovy to lose weight. She is managing her ongoing nausea and vomiting with a medication called Zofran and prescription probiotics while she waits for more tests in October — the first available appointments she could get with specialists.

Doctors say that more cases like these are coming to light as the popularity of the drugs soared. The US Food and Drug Administration said it has received reports of people on the drugs experiencing stomach paralysis that sometimes has not resolved by the time it’s reported.

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And last month, the American Society of Anesthesiologists warned that patients should stop these medications a week before surgery because they can increase the risk that people will regurgitate food during an operation, even if they've fasted as directed. Vomiting under anesthesia sometimes causes food and stomach acid to get into the lungs, which can cause pneumonia and other problems after surgery.

So far, extreme and unrelenting cases like these are believed to be rare, and they may be a result of the drug unmasking or worsening an existing "slow stomach." Doctors say people can have a silent condition called delayed gastric emptying and not know it. There's nothing on the drugs' labels that specifically cautions that gastroparesis may occur.

In response to CNN's request for comment, Novo Nordisk, maker of Ozempic and Wegovy, pointed out that drugs in this class have been used for 15 years to treat diabetes and for eight years to treat obesity, and they have been extensively studied in the real world and in clinical trials.

"Gastrointestinal (GI) events are well-known side effects of the GLP-1 class. For semaglutide, the majority of GI side effects are mild to moderate in severity and of short duration. GLP-1's are known to cause a delay in gastric emptying, as noted in the label of each of our GLP-1 RA medications. Symptoms of delayed gastric emptying, nausea and vomiting are listed as side effects," the statement said.

Gastroparesis can have many causes, including diabetes, which is a reason many people are on these drugs in the first place. Women are known to be at higher risk for the condition, too. In more than half of cases of gastroparesis, doctors are unable to find a cause.

"They may just be really unlucky," said Dr. Michael Camilleri, a gastroenterologist at the Mayo Clinic, said of the people who shared their cases with CNN.

On the other hand, this is how the drugs work, although not many doctors or patients understand this or the problems that may follow, he said.

Camilleri received a grant from the National Institutes of Health to study how one of the first GLP-1 agonists, a drug called liraglutide, affects stomach function.

He recruited 40 obese adults and randomly assigned them to take increasing doses of liraglutide or a placebo, which had no active ingredients.

After five weeks, he had people in the study eat a meal laced with a radioactive tracer so he could see how long food stayed in their stomachs. People taking liraglutide had dramatically slowed digestion compared with those on the placebo; it took about 70 minutes for half the food they ate to leave their stomachs, compared with just four minutes in the placebo group. And that was just the average delay: In some patients on liraglutide, the time it took for half the meal to leave their stomachs was 151 minutes, or more than two and a half hours.

Camilleri said the group taking liraglutide lost weight, and the bigger the delay in food leaving the stomach, the more weight people seemed to lose.

Fortunately, people in the study seemed to adjust to the medication over time. After 16 weeks, people in the group taking liraglutide were clearing about half the food they ate from their stomachs in about 30 minutes, as opposed to seven minutes in the placebo group. Symptoms of nausea and vomiting seemed to ease, too.

"Unfortunately, there have not been these types of robust studies, and so the whole idea that this class of medications actually delays gastric emptying is not as well recognized," Camilleri said.

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"It is conceivable that some patients may have borderline slow gastric emptying and starting one of the GLP-1 agonists may precipitate a full-blown gastroparesis."

'How am I throwing up this much?'

Joanie Knight remembers exactly what she ate on her birthday in 2021. She ordered chicken fajitas at one of her favorite restaurants. She ate three skinny French fries and two or three pieces of chicken and then felt panic set in when she couldn't swallow the food.

"It felt like it was stuck in my throat," said Knight, who had been taking Ozempic for two years at that point and was already eating very little every day as a result. Her birthday dinner triggered a bout of violent vomiting.

"I thought, 'I hadn't eaten. How am I throwing up this much?' " she said.

She went to see a gastroenterologist, a doctor who specializes in stomach problems. They put a tube with a camera down her throat and into her stomach to see what the issue might be.

"They said, 'your stomach is full of food,' " she said.

Normally, less than 10% of the food will be left in the stomach four hours after a meal. When that climbs to between 10% and 15%, it's considered mild gastroparesis. Moderate gastroparesis is when 15% to 35% of food is left. Severe gastroparesis is anything over 35% after four hours.

A gastric emptying study — a test that measures how food moves through the stomach — put Knight in the severe category. She said she stayed nauseated all the time, no matter how little she ate, and took a prescription anti-nausea medication "like it was candy."

Still, doctors didn't connect her stomach problems to the Ozempic she was taking. Although the prescription information for the drug warns of nausea and vomiting, it mentions only that the drug causes a delay in stomach emptying as a warning that it might affect the absorption of other medications. It was almost four more months until a specialist took her off the medication.

Emily Wright, the teacher from Toronto, said Ozempic helped her shed about 80 pounds in one year, and she continued to take it to help manage her blood sugar, but she always felt sick. She said she vomited every day but kind of got used to it: She would wake up and throw up, and then her day would get better.

In clinical trials, nearly half of people, 44%, who took Wegovy reported nausea, and almost 1 in 4 reported vomiting; both are common symptoms of gastroparesis.
In the clinical trials for Ozempic, which is the same medication as Wegovy but given at a lower dose, 1 in 5 people reported nausea and 1 in 10 reported vomiting.

In September 2020, Wright had to be hospitalized for dehydration related to the vomiting, and that prompted her to push her doctors for more answers. A gastric-emptying study showed that she had gastroparesis. Her doctors put her on two more medications to try to help her manage her symptoms but didn't take her off the Ozempic because they didn't suspect it was contributing.

Diabetes can also cause gastroparesis, but that typically happens only in people who have had the disease for at least a decade and have chronically high blood sugars that have damaged the nerves that control the stomach.

Both Knight and Wright say their doctors dismissed that possibility in their cases. "Everybody said there's no way it's diabetes," said Wright, who had been diagnosed with diabetes for only five years when she developed gastroparesis.

CNN HEALTH ARTICLE FEATURING RENUKA GEORGE, MD

In September 2022, her vomiting got much worse. Standing in front of her classroom, Wright said, she began having burps that smelled so strongly of sulfur and rotten eggs that the kids began to comment on it. “What is that? Where is it coming from?” they asked.

Then, instead of just vomiting the food she’d recently eaten, Wright noticed that she was throwing up food she’d eaten three or four days prior. Another gastric emptying test showed her condition had deteriorated.

“Then the GI doctor said, ‘Well, I’ve been seeing a lot of clients coming in with full stomachs on endoscopy who are on Ozempic. So let’s try taking you off the Ozempic,’ ” Wright said.

Both Knight and Wright said they got some relief after coming off the medication, but their problems continued.

Now, Wright said, instead of throwing up a meal she ate several days ago, she mostly vomits food she has eaten recently.

For people with gastroparesis — from any cause — these stories are the norm. It takes a steep mental and physical toll on people who live with it.

Knight eventually had stomach bypass surgery. It’s similar to the technique used for weight loss, but it can also be a treatment for severe cases of gastroparesis. She said it has allowed her to eat some of her favorite foods again, like a few bites of pizza or chicken.

“Previously, I was on an extreme amount of vitamins because I wasn’t eating. Now I can eat enough that I’m not malnourished,” Knight said.

Wright said she’s just hoping her condition will improve with medications and time.

“We don’t know when we’re gonna get better. I think that’s the hardest part,” she said. “Like if you could give me like a year or two years, I would have something to hope for.”

Weighing benefits and risks

Drug regulators say they have received reports of stomach paralysis among patients taking GLP-1 agonist drugs.

“The FDA has received reports of gastroparesis with semaglutide and liraglutide, some of which documented the adverse event as not recovered after discontinuation of the respective product at the time of the report,” the agency said in a statement to CNN.

The reports have been submitted through the agency’s publicly accessible adverse events tracking system, and the FDA said there’s not always enough information in those reports to properly evaluate them.

The FDA said it has been unable to determine whether the medications were the cause or if the gastroparesis may have been caused by a different issue.

“Gastroparesis can be a complication of diabetes that is related to long-standing or poorly controlled disease, further complicating the ability to determine what role the drugs played in the reported events,” the agency said.

Asked whether doctors and patients should be warned about the risk for people who are know to have slow digestion to begin with, the FDA said the benefits of the medication may still outweigh its risks, even for this group.

CNN HEALTH ARTICLE FEATURING RENUKA GEORGE, MD

"Regulations pertaining to drug labeling state that a drug should be contraindicated only in those clinical situations for which the risk from use clearly outweighs any possible therapeutic benefit. Only known hazards, and not theoretical possibilities, can be the basis for a contraindication," the agency said.

The FDA said people with gastroparesis weren't excluded from clinical trials of these medications, and the benefits for diabetes and weight management "may outweigh the risks in some patients with gastroparesis or delayed gastric emptying."

Doctors who are experts in treating gastroparesis say they're hearing more stories like these as greater numbers of people try the drugs.

"Gastroparesis or delayed gastric emptying from the GLP-1 agonists definitely does happen," said Dr. Linda Nguyen, who specializes in the treatment of this condition at Stanford University.

What seems to be unusual about cases like Wright's and Knight's, Nguyen said, is that they didn't improve after they stopped taking the medication.

"In my experience, when you stop the GLP-1 agonist, the gastric emptying improves, and it gets better," said Nguyen, who is also a spokesperson for the American Gastroenterological Association.

Concern for surgery

Anesthesiologists say there are real hazards involved with stomach paralysis on these medications, and doctors and patients need more information about the risks.

Dr. Renuka George, fellowship director of regional anesthesiology at the Medical University of South Carolina, recently tweeted a photo of the stomach contents suctioned from a patient who had fasted as directed but was taking a GLP-1 agonist for diabetes. The stomach, she said, was basically full, even though the person had followed all the surgical prep instructions to the letter.

George explained that this is a cautionary tale.

"This has become more, I guess, front and center for anesthesiologists, simply because aspiration is a big concern," she said.

George explained that the stomach and esophagus can handle the acidic digestive juices that mix with food. Lungs can't.

"Lung tissue is fragile and precious," George said. "If anything goes into the lungs, at best, it's a cough; at worst, you end up on a ventilator for an extended period of time."

She said that as more and more people take these medications, with little information about the stomach slowdown that comes with them, they may not know to tell their doctors.

"The big concern is if we have patients that aren't aware of this and don't tell their anesthesiologists because not everybody wants to advertise that they're on a weight loss drug, right?" she said. "So that becomes a problem because they're not fasted appropriately."

The American Society of Anesthesiologists is advising doctors to have patients stop these medications for one week prior to surgery to prevent aspiration, but President Dr. Michael Champeau said they aren't sure what the right amount of time to fast or stop the drug would be.

CNN HEALTH ARTICLE FEATURING RENUKA GEORGE, MD

“When we issued this guidance, we issued it on very limited scientific evidence,” Champeau said. These kinds of studies — on the delay in stomach emptying — just haven’t been done, he said.

He said their experts felt that stopping it one week in advance, for people taking it weekly, would be reasonable in the near term.

George said she was aware of ongoing studies to try to learn more about this complication.

“There’s a lot of research underway. I have a feeling that we’re going to see a lot of publications in the next few years regarding this,” she said.

Until more is known, George said, people need to be open with all their doctors about taking any drugs.

Knight, the gastroparesis patient in Louisiana, said people need to carefully consider the risks.

“I accepted that the medicine was working for me. I had a major side effect from it that altered my life course. Now I feel like my best option is to try to warn people whenever I can,” she said.

Nguyen, the Stanford doctor, said patients need to pay attention to the side effects. If you vomit once or twice, that might be normal, but persistent vomiting is not.

“They should be evaluated. Consider reducing the dose or stopping the medication,” she said.

“If your vomiting is affecting your hydration or you are having to take other medications to treat the side effects of this medication, then I think it’s time to reconsider.”

MUSC CATALYST NEWS ARTICLE FEATURING RENUKA GEORGE, MD, CHRIS WOLLA, MD AND RYAN WILSON, MD

MUSC studies effects of popular diabetes and weight loss drugs on surgical patients

Helen Adams | August 07, 2023

The patient had done everything right – fasting and temporarily going off Ozempic, which she took for diabetes – but something was off. As anesthesiologist Renuka George, M.D., documented on X, formerly known as Twitter, the patient's stomach was full as the team at MUSC Health prepared to operate.

"The volume of stomach content was surprising given all the precautions the patient had taken," George said. "We emptied the stomach with an orogastric tube to be safe."

She posted about it as a cautionary tale for colleagues across the country, reminding them to be conservative and not take chances. George, fellowship director of Regional Anesthesia and Acute Pain Medicine at the Medical University of South Carolina, said a full stomach during surgery is dangerous.

"What happens with some of these drugs that we're seeing is that that food stays in your stomach," she said.

"It doesn't move forward and doesn't clear out as it normally does. And so that runs a risk of what we in anesthesia get concerned about, which is pulmonary aspiration where that food can come up through the esophagus and then go down the trachea into your lungs."

While George was surprised by the amount of food that remained in the patient's stomach, she and her colleagues at MUSC knew food retention was a possibility. Ozempic falls into a category of diabetes and weight drugs called GLP-1 agonists. They slow the passage of food through the body.

But how long do the effects last when someone temporarily stops taking them before surgery? Do doctors need to change their standard procedures, and if so, how? The American Society of Anesthesiology recently released guidance to help them.

"Aspiration is a big concern for anesthesiologists – enough that we're talking about GLP-1 at all our national conferences. Here at MUSC, our department is taking measures to make sure that everyone on the perioperative team is educated regarding GLP-1 agonists and the ASA guidance, offering gastric ultrasound training to attendings and residents and conducting research studies so that we can promote evidence-based care," George said.

MUSC is conducting two clinical trials focusing on the effects of GLP-1 agonists on surgical patients. "This is where I think MUSC is doing a fabulous job. We've, as far as I'm concerned, been out ahead of the game," George said.

Ultrasound study

Christopher Wolla, M.D., an anesthesiologist and assistant professor in the College of Medicine, is leading one of the studies."My research employs the use of point-of-care ultrasound, or bedside ultrasound, to evaluate gastric/stomach contents prior to surgery," he said.

"All patients coming for elective surgeries will have fasted, typically at least eight hours for solid foods and two hours for clear liquids, so they have an empty stomach in order to prevent aspiration of gastric contents into the lungs, which can have serious effects, including pneumonia or even staying on a ventilator after surgery."

Wolla said while there's anecdotal evidence, such as George's experience, along with a small number of case reports, there haven't been any randomized clinical trials looking at the effects of GLP-1 agonists on gastric emptying before surgery.

MUSC CATALYST NEWS ARTICLE FEATURING RENUKA GEORGE, MD, CHRIS WOLLA, MD AND RYAN WILSON, MD

"My study will enroll diabetic patients coming to MUSC for elective surgeries. We will then perform a bedside gastric ultrasound prior to surgery and measure the amount of food/fluid in the stomach comparing the amount between patients that take GLP-1 receptor agonists versus patients that do not take GLP-1 receptor agonists."

Wolla plans to start enrolling 250 patients in his trial this week.

Endoscopy study

Ryan Wilson, M.D., also an anesthesiologist and assistant professor, is coming at the effects of GLP-1 agonists on surgical patients from another angle: the upper endoscopy. It uses a flexible tube with a camera to let doctors see what's in the stomach.

"We know that GLP-1 receptor agonist medications slow the movement of food out of the stomach and forward in the GI tract, but we don't currently know how long this effect remains or how severe it will be in any one patient," he said.

"Our study will investigate the frequency with which patients who undergo upper endoscopy have retained stomach contents visualized by the camera during their study after appropriate fasting times. We will compare this statistic between patients on GLP-1 RA medications and the general population, with the hypothesis that retained stomach contents will be found more frequently in patients taking these medications, thereby presenting an increased risk of aspiration during anesthesia," he said.

Both studies will give doctors data on which to base their decisions, something that's currently lacking. "These GLP-1 RA medications, like Ozempic, have been discussed incredibly often in the public sphere within the past year, usually associated with their impressive weight loss effects, and more and more patients have started to take these medications," Wilson said.

"As an anesthesiologist, this is an example of our unique role in being a mediator between a patient's long-term health goals – good glycemic control in diabetes and continued weight loss efforts in obesity care – and their short-term perioperative safety. Accurately assessing risk-benefit decisions is something we do on a daily basis."

Patients' roles

George, the anesthesiologist who posted about her patient's full stomach on X, said patients have a role to play, too. "Be as upfront as possible with your anesthesiologist. I get it. Not many people want to advertise that they're on a weight loss supplement. But this is one of those situations that you want to be as honest as possible."

GRAND ROUNDS– SEPTEMBER 2023

"Subspecialty Meeting "

September 5, 2023
Medical University of South Carolina

"Obstetric Anesthesia Liability Concerns: Lessons Learnt from MUSC PSI's and National Closed Claims "

Latha Hebbar, MD, Professor

September 12, 2023

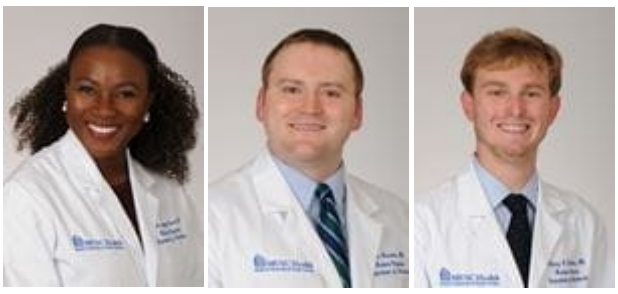
Dept. of Anesthesia & Perioperative Medicine
Medical University of South Carolina

"Unleashing the Power of Communication to Achieve Excellence in Obstetric Anesthesia "

Andrea Girnius MD, Associate Professor

September 18, 2023

Dept. of Anesthesiology
University of Cincinnati



"Close Calls on L&D, Parturient Safety Review "

Ornella Oluwole, MD, CA-3

Chris Reardon, MD, CA-3

Harry Tomlinson, MD, CA3

September 25, 2023

Dept. of Anesthesia & Perioperative Medicine
Medical University of South Carolina

Department of Anesthesia And Perioperative Medicine

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Check out our website

Future Events/Lectures

Intern Lecture Series

CA 1 Lecture Series

9/6—Neuromuscular Blocking Agents—Jenny Matos

9/13—Anticholinergic Drugs; Cholinesterase Inhibitors - Carey Brewbaker

9/20—Airway Management in the ICU—Jeff McMurray

9/27—Peripheral Nerve Blocks; Anesthesia for Orthopedic Surgery - William Barrett

CA 2/3 Lecture Series

Per Rotations

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I HUNG THE MOON

Please don't forget to nominate your co-workers for going 'Beyond the Call of Duty.' I Hung The Moon slips are available at the 3rd floor front desk and may

Lester Kitten, Courtney Matthews—Thank you for staying late to help finish cases on a very busy evening. Very much appreciated! - Jennifer Jones

Rachel Williams—Thank you for picking up a difficult to cover late shift! - Jennifer Jones

Anna Gilg—Thank you for picking up a difficult to cover shift! - Jennifer Jones

Leslie Clay, Lauren Chrzanowski, Brunson Kirven, Brennan Sweatt, Quay (Bud) Williford—Had several cases and all worked together and got everything done in a timely manner. Teamwork made the dream work. Thank you for all your hard work.—Kanika Parrish

Department Holiday Party
Saturday, December 9th, 2023
Carolina Yacht Club

ONE MUSC Strategic Plan

We Would Love to Hear From You!

If you have ideas or would like to contribute to *Sleepy Times,* the deadline for the October edition will be September 20, 2023.