NEW YORK SOCIETY FOR GASTROENTEROLOGY & ENDOSCOPY
48th Annual
NEW YORK COURSE
December 12-13, 2024 • New York, NY

NYSGE
New York Society for Gastroenterology and Endoscopy

Anesthesia in Endoscopy

What's Old….What's New

Guy Salomon MD
System Director for Endoscopy Anesthesia
Mount Sinai Health System
New York, New York

Nothing to Disclose !

I have an Agenda…..

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Patient Safety…!!!

Patient Safety Culture

Culture - "The way we do things around here"

Just Culture:

- Shared commitment to provide the safest care possible. (Vision)
- Shared commitment to learn from adverse events
- Shared commitment to continue to improve

*Staff need to feel safe to report and learn from incidents

Today's Plan

(What's Reasonable…What's Safe ?)

- Who is High-Risk ??
- What's Old
  - Monitors
  - Oxygen ?
  - Medications
  - Topical Anesthesia ?
- What's New ?
  - Meds….(GLP-1….Remi-Midazolam)
  - Topical Atomizer
  - Supplemental Oxygen by POM Mask….High Flow Nasal Cannula

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BMC Anesthesiol. 2020 Aug 10;20(1):195. doi: 10.1186/s12871-020-01103-w.

Deep sedation using propofol target-controlled infusion for gastrointestinal endoscopic procedures: a retrospective cohort study

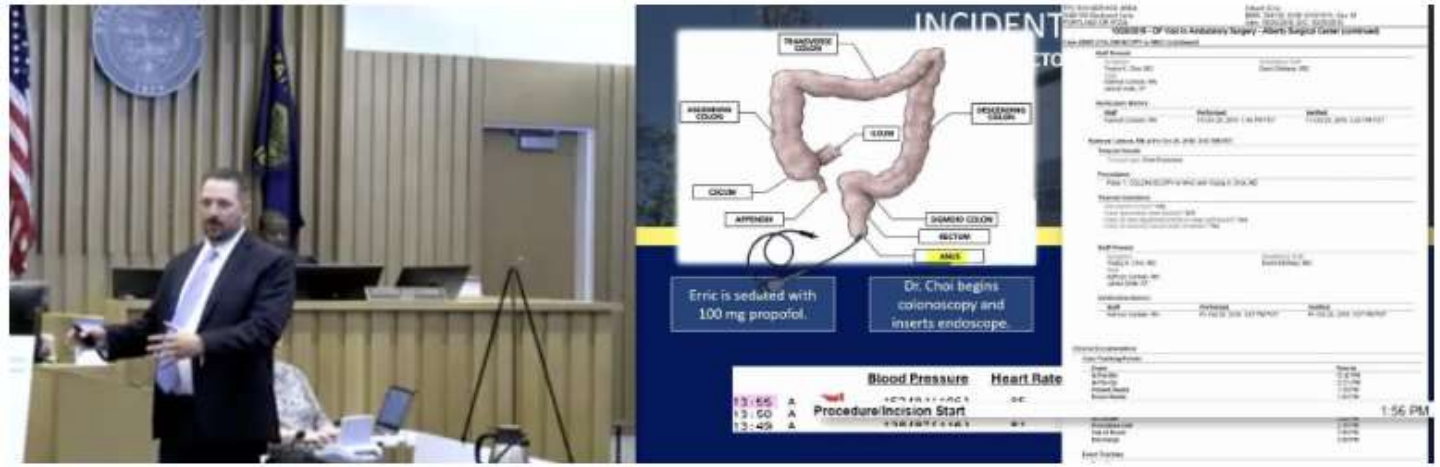
María E García Guzzo [1], María S Fernandez [2], Delfina Sanchez Novas [2], Sandra S Salgado [2], Sergio A Terrasa [3], Gonzalo Domenech [2], Carlos A Teijido [2]

- The most frequently encountered adverse event was oxygen desaturation < 95% with an incidence of 22.35%.

- A strong dose-effect relationship was found between hypoxia and obesity; patients with body mass index ≥40 were nine times (odds ratio: 10.22, 95% confidence interval: 2.83 to 36.99) more likely to experience oxygen desaturation < 90% events.

$50M+ Malpractice Trial Over Death After Routine Colonoscopy Begins, Watch Online via CVN

Posted by *David Siegel* on Aug 1, 2024 11:39:11 AM



CVN screenshot of plaintiff attorney Sean Claggett delivering his opening statement

Portland, OR - An Oregon state court jury heard opening statements Wednesday in a medical malpractice lawsuit blaming a medical team at an outpatient surgery center for a man's death following a routine colonoscopy, and the full trial is being webcast and recorded gavel-to-gavel by Courtroom View Network.

Erric Gilbert's family sued the Portland Clinic and a team of medical providers after he went into respiratory arrest during the procedure in 2018. Their lawsuit accuses medical staff of failing to provide emergency resuscitation in time after his vital signs began to crash, however the clinic places the blame squarely on an anesthesiologist who has settled out of the case.

Attorney Sean Claggett of the Las Vegas-based Claggett & Sykes Law Firm told the Multnomah County jury he would seek roughly $7.7 million in economic damages and $50 million in non-economic damages for a series of decisions by the team as a whole that he characterized as falling badly below the standard of care.

Claggett described to jurors that Gilbert scheduled a colonoscopy in 2018 at the age of 43 to determine the cause of blood in his stool. Despite having high blood pressure, obstructive sleep apnea and a body mass index above the threshold that supposedly would have called for the procedure to be done in a hospital setting, Gilbert's procedure was scheduled at the Alberty Surgical Center, one of the Portland Clinic's outpatient locations.

Shortly after Dr. David Stellway administered the anesthesia, Claggett said Gilbert's blood pressure began to rise and his blood oxygen levels began to fall. Despite this, he claimed Dr. Young Choi, the gastroenterologist performing the colonoscopy, continued with the procedure even when Kathryn Carlson, the sedation nurse, noted signs of respiratory distress and lack of pinkness in Gilbert's skin.

Dr. Stellway began "bagging" Gilbert using an external respiration mask, but did not advise Dr. Choi to halt the procedure when asked if a pause would be helpful to focus on restoring Gilbert's airway. By this point Claggett noted Gilbert had been in respiratory arrest for almost eight minutes. Dr. Choi continued and concluded the procedure, but according to Claggett Gilbert's vitals worsened further.

Claggett described that eventually a surgical technician in the room, Janice Dulle, not Dr. Choi or Nurse Carlson, realized the severity of Gilbert's condition and hit the "code" button on the wall, summoning a nearby EMS team, which found Gilbert at that point in full cardiac arrest.

"They arrive and find the staff in chaos and no CPR being given, even after the code," Claggett said, claiming adequate CPR only began 22 minutes after Gilbert stopped breathing. He was transported to a local hospital, declared brain dead, and died shortly afterward.

Claggett told jurors the defense would attempt to place all the blame on Dr. Stellway, who was brought before a state medical board due to the incident and subsequently surrendered his medical license, but Claggett insisted all of the staff in the room were aware of Gilbert's distress and had an obligation to begin emergency procedures.

“Dr. Choi, Nurse Carlson and Surgical Tech Dulle sat by and watched and let Ericc Gilbert die,” he concluded.

Representing the clinic, attorney Jennifer Oetter of Lewis Brisbois aggressively defended the actions of the three providers and placed the blame squarely on Dr. Stellway for supposedly failing to alert the rest of the team to the severity of Gilbert’s distress.

“They all did their jobs appropriately,” she emphasized.

Oetter detailed what she characterized as a comprehensive pre-surgical screening that took into consideration Gilbert’s medical history, including a BMI that she said was only slightly above the level that could require use of a hospital facility. In concert with the rest of Gilbert’s examination, she said testimony at trial would show the decision to use an outpatient facility met the standard of care.

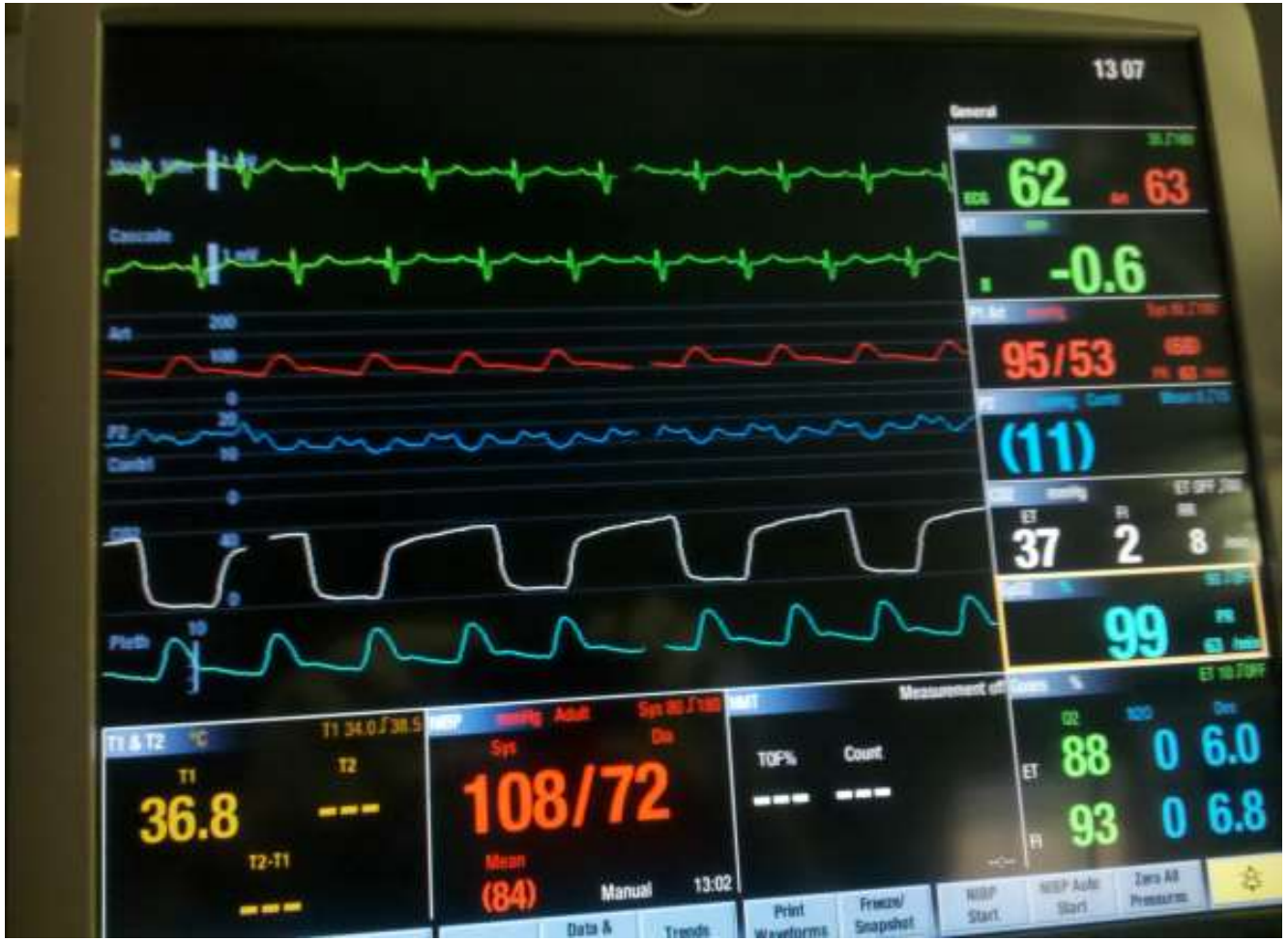
Oetter explained that despite colonoscopies being considered “routine” they still require the intensely focused concentration of the gastroenterologist, and that Dr. Choi’s entire attention was appropriately focused on navigating the scope through Gilbert’s colon.

It is normal for anesthesiologists to move around the room and attend to various matters during a procedure, so Oetter suggested Dr. Choi wouldn’t have necessarily noticed Dr. Stellway using a bag respirator, and she repeatedly stressed that Dr. Choi supposedly only continued the procedure after explicitly asking Dr. Stellway if he should.

“The anesthesiologist never says the patient is not breathing,” she said.

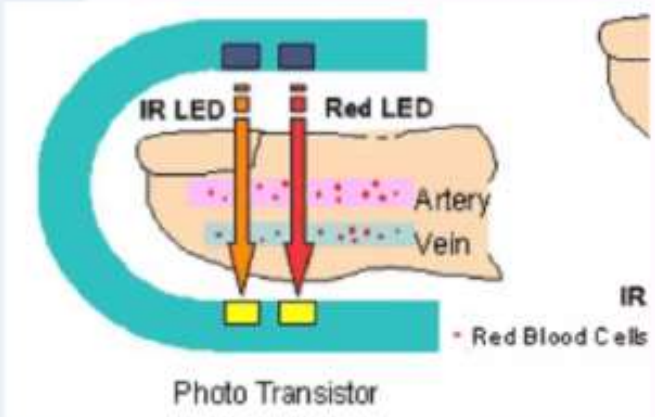
Anesthesia Monitors

- ECG
- NIBP
- Pulse Oximeter
- End-Tidal CO2
- Temp



Pulse Oximeter

Absorbance spectra of O_2Hb and HHb



- Pulse oximeter emits two wavelengths of light- red at 660 nm and near infrared at 940 nm from a pair of small light-emitting diodes located in one arm of the finger probe. The light that is transmitted through the finger is then detected by a photodiode on the opposite arm of the probe
- O_2Hb absorbs greater amount of IR and less amount of red light (scatters more red light) whereas HHb absorbs more red light and less infrared light.
- The relative amount of red and IR light absorbed or not absorbed are used by the photodetector of pulse oximeter to ultimately determine the proportion of Hb bound to oxygen.

Capnographic Monitoring Reduces the Incidence of Arterial Oxygen Desaturation and Hypoxemia During Propofol Sedation for Colonoscopy: A Randomized, Controlled Study (ColoCap Study)

Beitz, Analena MD[1, 6]; Riphaus, Andrea MD[2, 6]; Meining, Alexander MD[1]; Kronshage, Tim[2]; Geist, Christoph[2]; Wagenpfeil, Stefan MSc[3]; Weber, Andreas MD[1]; Jung, Andreas MD[1]; Bajbouj, Monther MD[1]; Pox, Christian MD[2]; Schneider, Gerhard MD[4]; Schmid, Roland M MD[1]; Wehrmann, Till MD[5]; Delius, Stefan von MD[1]

Author Information

American Journal of Gastroenterology 107(8):p 1205-1212, August 2012. | *DOI:* 10.1038/ajg.2012.136

•BUY

- **RESULTS:**
- **A total of 760 patients were enrolled at three German endoscopy centers. The intention-to-treat analysis revealed a significant reduction of the incidence of oxygen desaturation in the*capnography arm*in comparison with the*standard arm*(38.9% vs. 53.2%;*P*<0.001). The numbers of patients with a fall in SaO_2 <90% and ≤85% were also significantly different (12.5% vs. 19.8%;*P*=0.008 and 3.7 vs. 7.8%;*P*=0.018)**

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Capnography

In subject area: Medicine and Dentistry

Capnometry refers to the measurement of carbon dioxide (CO2) exhaled by a patient and capnography is a visual representation of exhaled CO2 graphically as a function of tidal volume or time.

From: Critical Care Nursing Clinics of North America, 2017

Sedation and Monitoring in Gastrointestinal Endoscopy

Franco Radaelli MD, ... Giorgio Minoli MD, in Gastrointestinal Endoscopy Clinics of North America, 2004

In a case series of 10 patients undergoing advanced upper endoscopic with propofol infusion, Vargo et al [44] investigated the usefulness of capnography, as an adjunct to pulse oximetry, blood pressure cuff, and electrocardiography, for adjusting the propofol dosages. Six patients experienced periods of apnea (defined as a cessation of breathing for 10 seconds or longer) lasting from 10 to 45 seconds. These episodes of apnea preceded any episodes of hypoxemia by a median of 105 seconds (range 30–180 seconds). An immediate downward titration or temporary discontinuation of the propofol infusion whenever the graphic display of respiratory activity indicated apnea resulted in a rapid normalization of respiratory activity with no significant hypoxemia, hypotension, arrhythmias, or the development of more significant respiratory depression.

Communication from the ASGE Standards of Practice Committee

GUIDELINE

Guidelines for sedation and anesthesia in GI endoscopy

Prepared by: ASGE STANDARDS OF PRACTICE COMMITTEE

Dayna S. Early, MD, FASGE, Jenifer R. Lightdale, MD, MPH, FASGE, John J. Vargo, II, MD, MPH, FASGE (invited content expert, ad hoc member), Ruben D. Acosta, MD, Vinay Chandrasekhara, MD, Krishnavel V. Chathadi, MD, John A. Evans, MD, Deborah A. Fisher, MD, MHS, FASGE, Lisa Fonkalsrud, BSN, RN, CGRN, Joo Ha Hwang, MD, PhD, FASGE, Mouen A. Khashab, MD, V. Raman Muthusamy, MD, FASGE, Shabana F. Pasha, MD, FASGE, John R. Saltzman, MD, FASGE, Amandeep K. Shergill, MD, Brooks D. Cash, MD, FASGE, Previous Committee Chair, John M. DeWitt, MD, FASGE, Committee Chair

The ASGE guidelines for sedation and anesthesia in GI endoscopy were reviewed and endorsed by the American Association for the Study of Liver Diseases, the American College of Gastroenterology, and the American Gastroenterological Association.

This document was reviewed and approved by the Governing Board of the American Society for Gastrointestinal Endoscopy.

Guidelines for sedation and anesthesia in GI endoscopy

We recommend the routine monitoring of blood pressure, oxygen saturation, and heart rate in addition to clinical observation for changes in cardiopulmonary status during all endoscopic procedures using sedation. Supplemental oxygen administration should

Communication from the ASGE Standards of Practice Committee

GUIDELINE

Guidelines for sedation and anesthesia in GI endoscopy

We suggest that capnography monitoring be considered for patients undergoing endoscopy targeting deep sedation. ⊕⊕◯◯

American Society of Anesthesiologists

Standards for Basic Anesthetic Monitoring

- During all Anesthetics, Blood Pressure, ECG, and Pulse Oximetry should be employed.

- During moderate or deep sedation the adequacy of ventilation shall be evaluated by continual observation of qualitative clinical signs and monitoring for the presence of exhaled carbon dioxide unless precluded or invalidated by the nature of the patient, procedure, or equipment.

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Communication from the ASGE Standards of Practice Committee

GUIDELINE

Guidelines for sedation and anesthesia in GI endoscopy

Supplemental Oxygen Administration should be considered for Moderate Sedation and should be administered during Deep Sedation

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American Society of Anesthesiologists

Practice Parameter | March 2018

Practice Guidelines for Moderate Procedural Sedation and Analgesia 2018:
A Report by the American Society of Anesthesiologists Task Force on Moderate Procedural Sedation and Analgesia, the American Association of Oral and Maxillofacial Surgeons, American College of Radiology, American Dental Association, American Society of Dentist Anesthesiologists, and Society of Interventional Radiology*

Recommendations for Supplemental Oxygen

- Use supplemental oxygen during moderate procedural sedation/analgesia unless specifically contraindicated for a particular patient or procedure

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Regular NC ($2)

End-Tidal NC ($1.50)

(Amazon)

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Anesthesia Drugs

- Propofol
- Midazolam (Versed)
- Fentanyl
- Etomidate
- Ketamine
- Lidocaine (5mg/Kg allowed dose)

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Anesthetic Duration of Action

- Propofol….10-Min
- Midazolam (Versed)….60-120-Min
- Fentanyl….30-60 Min
- Lidocaine 4%-Topical…60-Min...(Toxic Dose 5mg/Kg)

Cetacaine

Topical Anesthetic

Spray and Liquid

Active ingredients

Benzocaine	14.0%
Butamben	2.0%
Tetracaine Hydrochloride	2.0%

Contains

Benzalkonium Chloride	0.5%
Cetyl Dimethyl Ethyl Ammonium Bromide	0.005%

In a bland, water-soluble base.

Rx Only.

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Cetacaine Spray should be applied for approximately one second or less for normal anesthesia. Only a limited quantity of Cetacaine is required for anesthesia. Spray in excess of two seconds is contraindicated. Each one-second spray contains an average of 200 mg of product, not including propellant.

Cetacaine Overdose (Benzocaine)

- Greater than 2-Seconds of 20% Benzocaine Spray
- Methemoglobinemia
- Cyanosis…..Pulse-Ox of 85%
- Oxidized Hemoglobin cannot bind O2

Treatment…

- Supplemental Oxygen
- Methylene Blue 1%

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Lidocaine Maximum Dose….4.5mg/kg

- 70 kg patient…4.5 x70= 315mg max dose
- If give Lidocaine 50mg IV, then 315-50=265mg left to give
- Lidocaine 4% has 40mg/cc, so can give 200/40=5cc of Topical Lidocaine…(I like to stay well below the Max Dosage !)

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ORIGINAL ARTICLES · Volume 53, Issue 1, P14-18, January 2001 Download Full Issue

Evaluation of topical pharyngeal anesthesia for upper endoscopy including factors associated with patient tolerance

Yasushi Soma, MD · Hiroshi Saito, MD · Toshihiko Kishibe, MD · Toshiyuki Takahashi, MD · Haruhiko Tanaka, MD · Akihiro Munakata, MD

- **Results:** The RR of patient discomfort on intubation was 0.56 for the anesthesia versus the placebo group

Review > Gastrointest Endosc. 2006 May;63(6):761-6. doi: 10.1016/j.gie.2005.11.059.

Pharyngeal anesthesia during sedated EGDs: is "the spray" beneficial? A meta-analysis and systematic review

Luke T Evans [1], Sara Saberi, Hyungjin Myra Kim, Grace H Elta, Philip Schoenfeld

-Patients who rated their discomfort during the sedated procedure as none/minimal were more likely to have received pharyngeal anesthesia

POM Mask

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Incidence of Hypoxemia with NC vs FM during Anesthesia for Endoscopy. (Salomon G, et al..)

- Retrospective analysis of 11,921 cases from our EPIC EMR
- Odds of Hypoxemia were lower for Facemask vs Nasal Cannula (OR 0.55)

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High-Flow Nasal Cannula

High–flow nasal oxygenation or standard oxygenation for gastrointestinal endoscopy with sedation in patients at risk of hypoxaemia: a multicentre randomised controlled trial (ODEPHI trial)

Mai-Anh Nay [1], Lucie Fromont [2], Axelle Eugene [2], Jean-Louis Marcueyz [3], Willy-Serge Mfam [3], Olivier Baert [4], Francis Remerand [2], Céline Ravry [5], Adrien Auvet [5], Thierry Boulain [6]

- **Results:** In 379 patients, a decrease in SpO_2 ≤92% occurred in 9.4% (18/191) for the high-flow nasal oxygen group, and 33.5% (63/188) for the standard oxygen groups

Efficacy of high flow nasal oxygenation against hypoxemia in sedated patients receiving gastrointestinal endoscopic procedures: A systematic review and meta-analysis

Kuo-Chuan Hung [1], Ying-Jen Chang [2], I-Wen Chen [3], Tien-Chou Soong [4], Chun-Ning Ho [3], Chung-Hsi Hsing [5], Chin-Chen Chu [3], Jen-Yin Chen [3], Cheuk-Kwan Sun [6]

- Results…(High-Flow NC vs Standard Oxygen Delivery-FM/NC)
  - Lower Risk of Hypoxemia (RR-0.3)
  - Lower Risk of Severe Hypoxemia (RR 0.3)

Oral Airways…

Seeing the Endo World in Black v White ?

- Is my patient skinny or Obese ?
- Is my patient healthy or sick ?
- Does my patient have CHF or a valvular disorder (Aortic Stenosis…) ?
- Obstructive Sleep Apnea (OSA) ?
- High BMI ?

Skinny and Healthy…..

- Propofol is just the best……fast metabolism, fast wake up, wake up with a sense of wellbeing
- Patient can handle some hypotension, (Significant Vasodilator) not at high risk of upper airway obstruction (can cause a loss of muscle tone and cause upper airway obstruction)
- Some burning on injection…pre-treat with Lidocaine, maybe dilute first Propofol dose….
- Comments…how do you do Skinny ?

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Obese ? Valvular Stenosis ? OSA ?

- Midazolam… Less Propofol….
- Fentanyl…
- That Combo causes less Vasodilation, less Hypotension
- That Combo causes much less loss of Muscle Tone, folks don't obstruct as much…
- 4% Lidocaine Topicalization of Oropharynx for Upper Endoscopies…
- POM Mask ?
- Tell these patients they will be comfortable and relaxed, not necessarily asleep all the way.
- How do you do High-BMI / OSA ?

Scenario-1

- 55-yo male for Screening Colonoscopy HTN, BMI-23.
- Anesthesia Provider……Propofol…maybe a pinch of Fentanyl 25-50ug
- Nurse only…..Midaz/Fentanyl Combo ?
- Thoughts ????

Scenario-2

55-yo male for Colonoscopy with HTN, OSA, BMI-40

- Midazolam, Fentanyl…less Propofol…
- Pt obstructing ? Need Oral Airway ?
- Lighten patient up, use only Midaz/Fentanyl

-Prepare patient ahead of time…

-How do you all do challenging pt's ?

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Glucagon-Like Peptide-1 Receptor Agonists..

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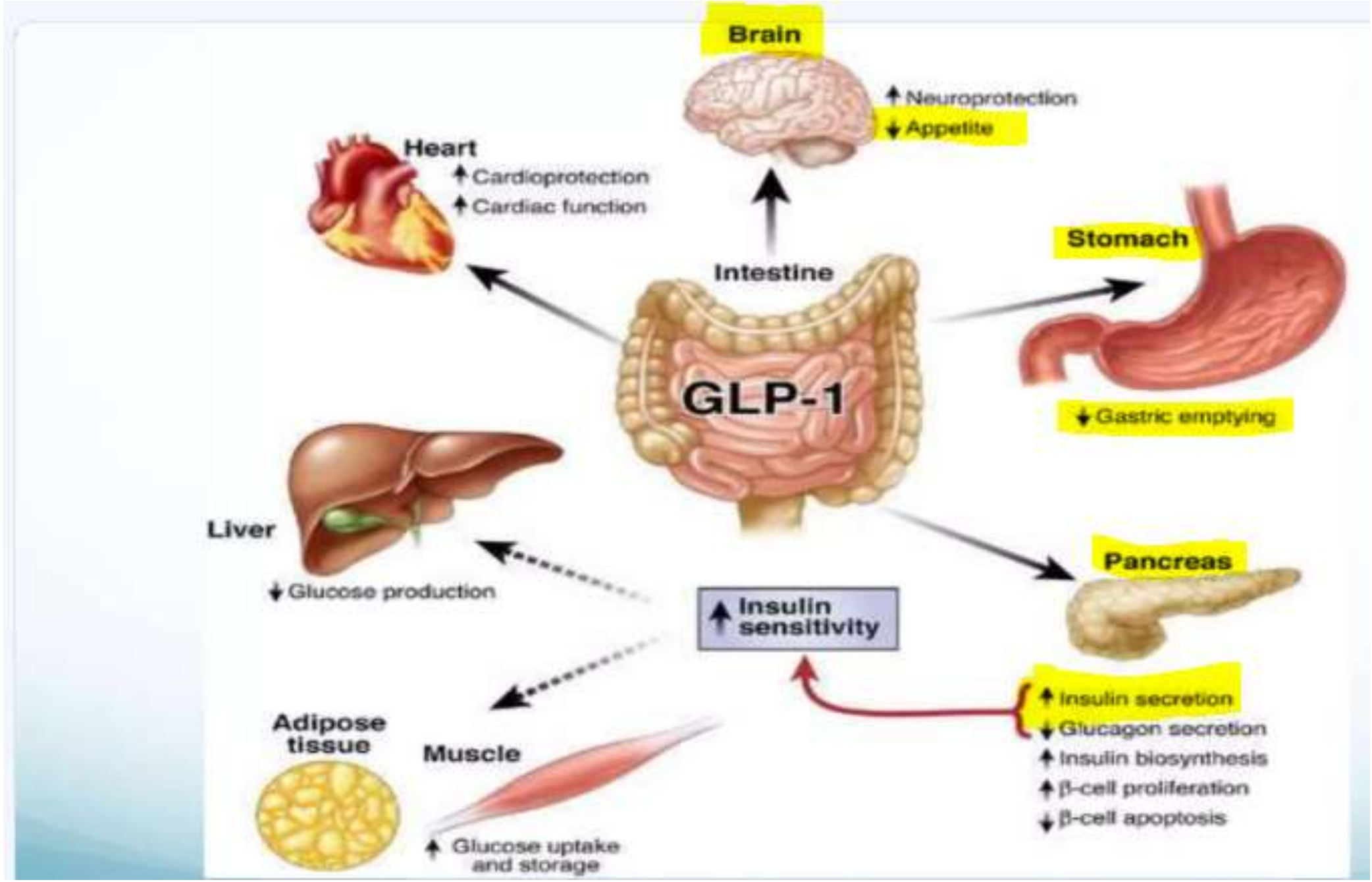
Brain
Neuroprotection
Appetite
Heart
Cardioprotection
Cardiac function
Intestine
Stomach
GLP-1
Gastric emptying
Liver
Glucose production
Insulin sensitivity
Pancreas
Insulin secretion
Glucagon secretion
Insulin biosynthesis
β-cell proliferation
β-cell apoptosis
Adipose tissue
Muscle
Glucose uptake and storage

ASA Consensus-based Guidance on Preoperative Management of Patients on Glucagon-like Peptide-1 Receptor Agonists

Deepu S. Ushakumari, M.B.B.S., M.H.C.D.S., D.F.P.M., F.A.S.A.;
Robert N. Sladen, M.B.Ch.B., M.R.C.P.(UK), F.R.C.P.C., F.C.C.M.
Author and Article Information

Anesthesiology February 2024, Vol. 140, 346–348.
https://doi.org/10.1097/ALN.0000000000004776

-We suggest that the ASA Guideline should emphasize that we currently do not have evidence that holding these agents a day or a week before surgery predictably ameliorates gastroparesis, and that all patients taking GLP-1 agonists should be managed with this risk in mind.

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OZEMPIC®

semaglutide injection 0.5mg, 1mg, 2mg

HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use OZEMPIC® safely and effectively. See full prescribing information for OZEMPIC®.

OZEMPIC® (semaglutide) injection, for subcutaneous use
Initial U.S. Approval: 2017

WARNING: RISK OF THYROID C-CELL TUMORS

See full prescribing information for complete boxed warning.

- **In rodents, semaglutide causes thyroid C-cell tumors. It is unknown whether OZEMPIC® causes thyroid C-cell tumors, including medullary thyroid carcinoma (MTC), in humans as the human relevance of semaglutide-induced rodent thyroid C-cell tumors has not been determined (5.1, 13.1).**
- **OZEMPIC® is contraindicated in patients with a personal or family history of MTC or in patients with Multiple Endocrine Neoplasia syndrome type 2 (MEN 2). Counsel patients regarding the potential risk of MTC and symptoms of thyroid tumors (4, 5.1).**

RECENT MAJOR CHANGES

Dosage and Administration, Recommended Dosage (2.1)	03/2022
Contraindications (4)	03/2022
Warning and Precautions, Acute Gallbladder Disease (5.8)	03/2022

INDICATIONS AND USAGE

OZEMPIC® is a glucagon-like peptide 1 (GLP-1) receptor agonist indicated as:

- an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus (1).
- to reduce the risk of major adverse cardiovascular events in adults with type 2 diabetes mellitus and established cardiovascular disease (1).

Limitations of Use:

- Has not been studied in patients with a history of pancreatitis. Consider another antidiabetic therapy (1, 5.2).
- Not for treatment of type 1 diabetes mellitus (1).

DOSAGE AND ADMINISTRATION

- Start at 0.25 mg once weekly. After 4 weeks, increase the dose to 0.5 mg once weekly.
- If additional glycemic control is needed, increase the dose to 1 mg once weekly after at least 4 weeks on the 0.5 mg dose (2.1).
- If additional glycemic control is needed, increase the dose to 2 mg once weekly after at least 4 weeks on the 1 mg dose (2.1)
- Administer once weekly at any time of day, with or without meals (2.1).
- If a dose is missed administer within 5 days of missed dose (2.1).
- Inject subcutaneously in the abdomen, thigh, or upper arm (2.2).

DOSAGE FORMS AND STRENGTHS

Injection: 2 mg/3 mL (0.68 mg/mL) available in:
- Single-patient-use pen that delivers 0.25 mg or 0.5 mg per injection (3)

Injection: 2 mg/1.5 mL (1.34 mg/mL) available in:
- Single-patient-use pen that delivers 0.25 mg or 0.5 mg per injection (3).

Injection: 4 mg/3 mL (1.34 mg/mL) available in:
- Single-patient-use pen that delivers 1 mg per injection (3).

Injection: 8 mg/3 mL (2.68 mg/mL) available in:
- Single-patient-use pen that delivers 2 mg per injection (3)

CONTRAINDICATIONS

- Personal or family history of medullary thyroid carcinoma or in patients with Multiple Endocrine Neoplasia syndrome type 2 (4).
- Serious hypersensitivity reaction to semaglutide or any of the excipients in OZEMPIC® (4).

WARNINGS AND PRECAUTIONS

- Pancreatitis: Has been reported in clinical trials. Discontinue promptly if pancreatitis is suspected. Do not restart if pancreatitis is confirmed (5.2).
- Diabetic Retinopathy Complications: Has been reported in a clinical trial. Patients with a history of diabetic retinopathy should be monitored (5.3).
- Never share an OZEMPIC® pen between patients, even if the needle is changed (5.4).
- Hypoglycemia: Concomitant use with an insulin secretagogue or insulin may increase the risk of hypoglycemia, including severe hypoglycemia. Reducing dose of insulin secretagogue or insulin may be necessary (5.5).
- Acute Kidney Injury: Monitor renal function in patients with renal impairment reporting severe adverse gastrointestinal reactions (5.6).
- Hypersensitivity Reactions: Serious hypersensitivity reactions (e.g., anaphylaxis and angioedema) have been reported. Discontinue OZEMPIC® if suspected and promptly seek medical advice (5.7).
- Acute Gallbladder Disease: If cholelithiasis or cholecystitis are suspected, gallbladder studies are indicated (5.8).

ADVERSE REACTIONS

The most common adverse reactions, reported in ≥5% of patients treated with OZEMPIC® are: nausea, vomiting, diarrhea, abdominal pain and constipation (6.1).

To report SUSPECTED ADVERSE REACTIONS, contact Novo Nordisk Inc., at 1-888-693-6742 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

DRUG INTERACTIONS

Oral Medications: OZEMPIC® delays gastric emptying. May impact absorption of concomitantly administered oral medications (7.2).

USE IN SPECIFIC POPULATIONS

Females and Males of Reproductive Potential: Discontinue OZEMPIC® in women at least 2 months before a planned pregnancy due to the long washout period for semaglutide (8.3).

See 17 for PATIENT COUNSELING INFORMATION and Medication Guide.

Revised: 10/2022

OZEMPIC®

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FDA.GOV

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RECENT MAJOR CHANGES

Warnings and Precautions, Pulmonary During General Anesthesia or Deep Sedation (5.9) 11/2024

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Injection: 2 mg/3 mL (0.68 mg/mL) available in:

- Single-patient-use pen that delivers 0.25 mg or 0.5 mg per injection (3)

Injection: 4 mg/3 mL (1.34 mg/mL) available in:

- Single-patient-use pen that delivers 1 mg per injection (3)

Injection: 8 mg/3 mL (2.68 mg/mL) available in:

- Single-patient-use pen that delivers 2 mg per injection (3)

CONTRAINDICATIONS

- Personal or family history of MTC or in patients with MEN 2(4).
- Serious hypersensitivity reaction to semaglutide or any of the excipients in OZEMPIC (4).

WARNINGS AND PRECAUTIONS

- Pancreatitis: Has been reported in clinical trials. Discontinue promptly if pancreatitis is suspected. Do not restart if pancreatitis is confirmed (5.2).
- Diabetic Retinopathy Complications: Has been reported in a clinical trial. Patients with a history of diabetic retinopathy should be monitored (5.3).
- Never share an OZEMPIC pen between patients, even if the needle is changed (5.4).
- Hypoglycemia: Concomitant use with an insulin secretagogue or insulin may increase the risk of hypoglycemia, including severe hypoglycemia. Reducing dose of insulin secretagogue or insulin may be necessary (5.5).
- Acute Kidney Injury: Monitor renal function in patients with renal impairment reporting severe adverse gastrointestinal reactions (5.6).
- Hypersensitivity Reactions: Serious hypersensitivity reactions (e.g., anaphylaxis and angioedema) have been reported. Discontinue OZEMPIC if suspected and promptly seek medical advice (5.7).
- Acute Gallbladder Disease: If cholelithiasis or cholecystitis are suspected, gallbladder studies are indicated (5.8).
- Pulmonary Aspiration During General Anesthesia or Deep Sedation: Has been reported in patients receiving GLP-1 receptor agonists undergoing elective surgeries or procedures. Instruct patients to inform healthcare providers of any planned surgeries or procedures. (5.9).

ADVERSE REACTIONS

The most common adverse reactions, reported in ≥5% of patients treated with OZEMPIC are: nausea, vomiting, diarrhea, abdominal pain and constipation (6.1).

To report SUSPECTED ADVERSE REACTIONS, contact Novo Nordisk Inc., at 1-888-693-6742 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

DRUG INTERACTIONS

Oral Medications: OZEMPIC delays gastric emptying. May impact absorption of concomitantly administered oral medications. Use with caution (7.2).

USE IN SPECIFIC POPULATIONS

Females and Males of Reproductive Potential: Discontinue OZEMPIC in women at least 2 months before a planned pregnancy due to the long washout period for semaglutide (8.3).

See 17 for PATIENT COUNSELING INFORMATION and Medication Guide.

Revised: 11/2024

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FDA.GOV

- Pulmonary Aspiration During General Anesthesia or Deep Sedation: Has been reported in patients receiving GLP-1 receptor agonists undergoing elective surgeries or procedures. Instruct patients to inform healthcare providers of any planned surgeries or procedures. (5.9).

American Society of Anesthesiologists Consensus-Based Guidance on Preoperative Management of Patients (Adults and Children) on Glucagon-Like Peptide-1 (GLP-1) Receptor Agonists

June *29, 2023*

Update: In October 2024, ASA issued an Affirmation of Value for a more recent, multi-society guidance GLP-1 document. Read more ...

- **Day(s) Prior to the Procedure:**

- For patients on daily dosing consider holding GLP-1 agonists on the day of the procedure/surgery. For patients on weekly dosing consider holding GLP-1 agonists a week prior to the procedure/surgery.

American Society of Anesthesiologists

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American Society of Anesthesiologists Consensus-Based Guidance on Preoperative Management of Patients (Adults and Children) on Glucagon-Like Peptide-1 (GLP-1) Receptor Agonists

Update: In October 2024, ASA issued an Affirmation of Value for a more recent, multi-society guidance GLP-1 document. Read more ...

- **Day of the Procedure:**

- If gastrointestinal (GI) symptoms such as severe nausea/vomiting/retching, abdominal bloating, or abdominal pain are present, consider delaying elective procedure, and discuss the concerns of potential risk of regurgitation and pulmonary aspiration of gastric contents with the proceduralist/surgeon and the patient.

- If the patient has no GI symptoms, and the GLP-1 agonists have been held as advised, proceed as usual.

- If the patient has no GI symptoms, but the GLP-1 agonists were not held as advised, proceed with 'full stomach' precautions.

American Society of Anesthesiologists

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CLINICAL PRACTICE UPDATE

Management of patients taking GLP-1 receptor agonists prior to endoscopy

Published November 7, 2023

AGA does not endorse all patients stopping GLP-1s prior to endoscopy, but rather an individualized approach to each patient.

- In patients with symptoms suggesting possible retained gastric contents, (N/V…Bloating) transabdominal ultrasonography can be utilized to assess the stomach….

CLINICAL PRACTICE UPDATE

Management of patients taking GLP-1 receptor agonists prior to endoscopy

Published November 7, 2023

aga American Gastroenterological Association

- In symptomatic patients for whom delaying endoscopy may have negative clinical consequences, rapid-sequence intubation is a consideration

- Lastly, when possible, placing patients on a liquid diet the day before sedated procedures may be a more acceptable strategy, in lieu of RAs

- In closing, we endorse the GI multi-society guidance that "patient safety will always be paramount…"

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Practical guidance for ulcerative colitis therapy selection

AGA's first living guideline groups 12 therapies by efficacy, suggesting early use of advanced therapies over a step-up approach after treatment failure.

Get recognized for your work: Apply for an AGA abstract award

Powerhouse women in GI support up-and-comers

Act now: DDW® 2025 abstract submission period closes Dec. 5

Liquid fasting mitigates negative pre-surgery impact of semaglutide

Liquid Fasting Mitigates Negative Pre-Surgery Impact of Semaglutide

November 8, 2024 | GI And Hepatology News

Semaglutide use was an independent predictor of retained solid gastric contents (odds ratio [OR], 4.74;

- Patients who underwent same-day colonoscopy, which included a 24-hour clear liquid fast leading up to the procedure, were less likely to have retained gastric contents (OR, 0.41

Liquid Fasting Mitigates Negative Pre-Surgery Impact of Semaglutide

November 8, 2024 | GI AND HEPATOLOGY NEWS

…retrospectively analyzed clinical data from 1,212 patients undergoing upper endoscopy at a tertiary care center

- These findings suggest that patients taking GLP-1 receptor agonists (GLP-1RAs) may benefit from a 24-hour liquid fast before anesthetic procedures without the need for a medication hold, reported lead author Haarika Korlipara, MD, of NewYork–Presbyterian/Weill Cornell Medical Center, New York, and colleagues.

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J Clin Anesth. 2023 Aug:87:111091. doi: 10.1016/j.jclinane.2023.111091. Epub 2023 Mar 2.

Relationship between perioperative semaglutide use and residual gastric content: A retrospective analysis of patients undergoing elective upper endoscopy

Saullo Queiroz Silveira [1], Leopoldo Muniz da Silva [2], Arthur de Campos Vieira Abib [1], Diogo Turiani Hourneaux de Moura [3], Eduardo Guimarães Hourneaux de Moura [3], Leonardo Barbosa Santos [4], Anthony M-H Ho [5], Rafael Souza Fava Nersessian [2], Filipe Lugon Moulin Lima [1], Marcela Viana Silva [3], Glenio B Mizubuti [6]

Highlights

- Semaglutide, a GLP-1 agonist, has been associated with delayed gastric emptying.
- 5.1% of patients not using semaglutide had increased residual gastric content (RGC).
- 24.2% of patients taking semaglutide perioperatively had increased RGC ($p<0.001$).
- Presence of pre-endoscopy digestive symptoms was also associated with increased RGC.
- Interval of preoperative semaglutide cessation was not predictive of increased RGC.

> J Clin Anesth. 2023 Aug:87:111091. doi: 10.1016/j.jclinane.2023.111091. Epub 2023 Mar 2.

Relationship between perioperative semaglutide use and residual gastric content: A retrospective analysis of patients undergoing elective upper endoscopy

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- Conversely, a protective [0.25 (95%CI 0.16–0.39)] effect against increased RGC was observed in patients undergoing esophagogastroduodenoscopy combined with colonoscopy.

Multisociety Clinical Practice Guidance for the Safe Use of Glucagon-like Peptide-1 Receptor Agonists in the Perioperative Period

Tammy L. Kindel [1] · Andrew Y. Wang [2] · Anupama Wadhwa [3,4] · Allison R. Schulman [5] · Reem Z. Sharaiha [6] · Matthew Kroh [7] · Omar M. Ghanem [8] · Shauna Levy [9] · Girish P. Joshi [3] · Teresa L. LaMasters [10] representing the American Gastroenterological Association · American Society for Metabolic and Bariatric Surgery · American Society of Anesthesiologists · International Society of Perioperative Care of Patients with Obesity and the Society of American Gastrointestinal and Endoscopic Surgeons Show less

1) Care teams should consider the following variables as elevating the risk of delayed gastric emptying and aspiration with the periprocedural use of GLP-1RA:
   1. *Escalation phase:* The escalation phase, versus the maintenance phase, is associated with a higher risk of delayed gastric emptying with GLP-1RA usage[10–13]
   2. *Higher dose:* The higher the dose of GLP-1RA, the more likely the risk of gastrointestinal side effects.[10–13]
   3. *Weekly dosing:* Gastrointestinal side effects are more common with weekly compared to daily formulation compounds.[14]
   4. *Presence of gastrointestinal symptoms:* Symptoms suggestive of delayed gastric emptying and intestinal transit times may include nausea, vomiting, abdominal pain, dyspepsia, and constipation.[5]

Multisociety Clinical Practice Guidance for the Safe Use of Glucagon-like Peptide-1 Receptor Agonists in the Perioperative Period

Tammy L. Kindel [1] · Andrew Y. Wang [2] · Anupama Wadhwa [3,4] · Allison R. Schulman [5] · Reem Z. Sharaiha [6] · Matthew Kroh [7] · Omar M. Ghanem [8] · Shauna Levy [9] · Girish P. Joshi [3] · Teresa L. LaMasters [10] representing the American Gastroenterological Association · American Society for Metabolic and Bariatric Surgery · American Society of Anesthesiologists · International Society of Perioperative Care of Patients with Obesity and the Society of American Gastrointestinal and Endoscopic Surgeons Show less

The safe use of GLP-1RAs in the perioperative period should include efforts to minimize the aspiration risk of delayed gastric emptying. This can be achieved by preoperative diet modification and/or altering anesthesia plan to consider rapid sequence induction of general anesthesia for tracheal intubation.

a) Preoperative diet modification (preoperative liquid diet for at least 24 hours, as performed in patients undergoing colonoscopy and bariatric surgery) can be utilized in patients when there is concern for delayed gastric emptying based on clinical symptom review as described in Recommendation 1a.[5,11,15]

b) When clinical concern for retained gastric contents exists on the day of the procedure, point-of-care gastric ultrasound could be used to assess aspiration risk. This technology may be clinically limited based on institutional resources, interuser variability, and credentialing requirements.[4,16]

c) When clinical concern for retained gastric contents exists or is confirmed on the day of the procedure, providers should engage patients in a shared decision-making model and consider the benefits and risks of rapid sequence induction of general anesthesia for tracheal intubation to minimize aspiration risk versus procedure cancellation.[4,11]

Mount Sinai GLP-1 Policy

- Hold One dose of your GLP-1
- Last Solid Meal until 2pm day before, then Clears only until Midnight, the NPO past Midnight. (double the normal NPO …)
- In depth conversation with patient and proceduralist about Risks of Retained Gastric Content/Aspiration, presence or absence of GI Symptoms, need for GI-US, need for GETA, safety of proceeding vs delay…..and DOCUMENT EVRYTHING ….

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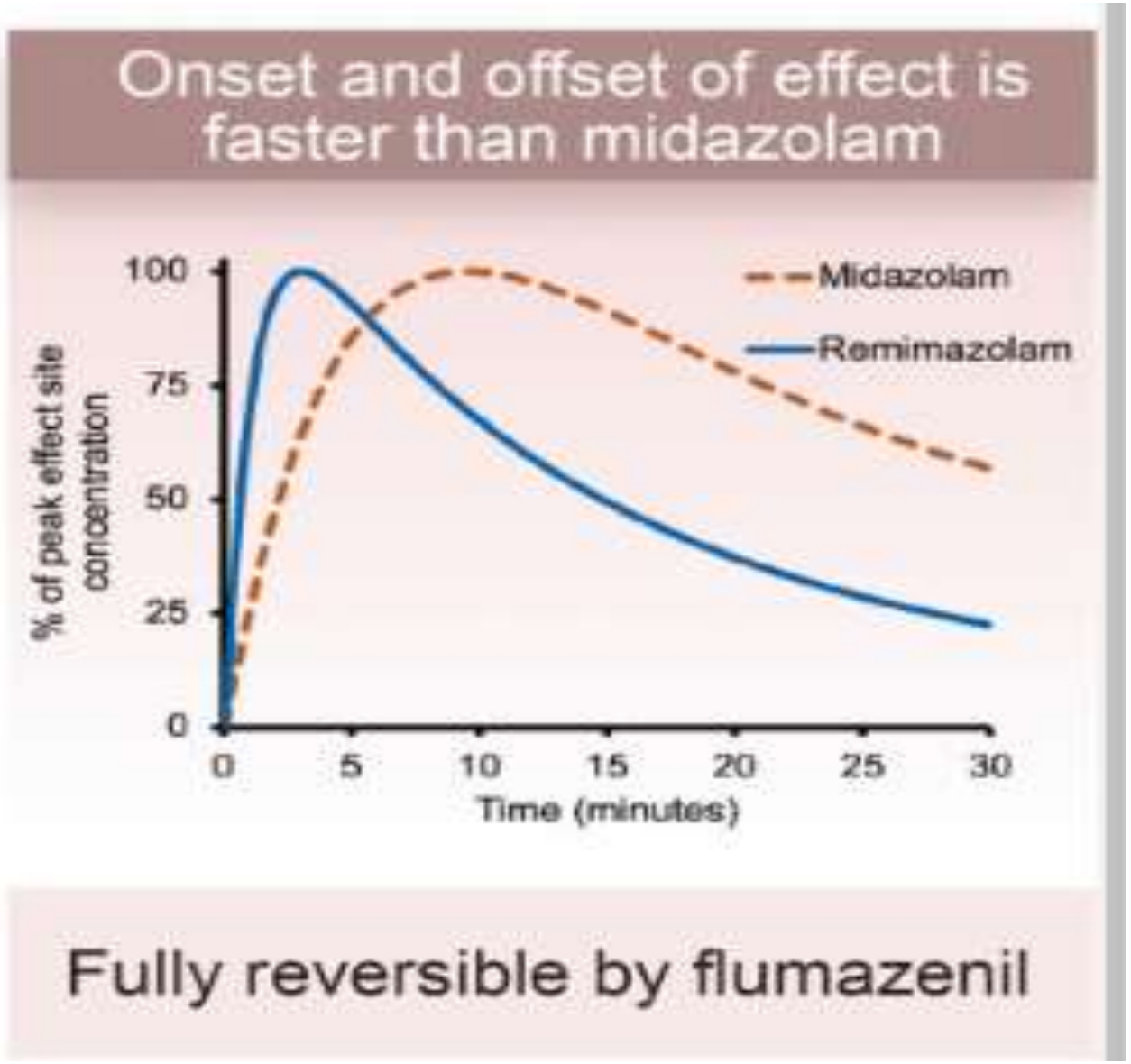
- Mechanism of Action
- Byfavo is a benzodiazepine. Like other benzodiazepines, Byfavo binds to $GABA_A$ receptors in the brain
- Ultra-Short Acting…Rapid-Metabolism…Hydrolyzed by Tissue Esterase
- Less Hypotension…..pt's awake faster
- Action reversed by Flumazenil
- 3x faster Systemic Clearance than Midazolam

byfavo® (remimazolam)
for injection 2.5 mg/mL

Peak: 3-3.5 Minutes

Duration of Action:
11-14 minutes
(after last dose)



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Remimazolam vs. propofol for general anaesthesia in elderly patients: a meta-analysis with trial sequential analysis

Eduardo Maia Pereira [1], Vitor Ryuiti Moraes, Mariana Gaya da Costa, Tatiana Souza do Nascimento, Eric Slawka, Carlos Galhardo Júnior, Michel Mrf Struys

Conclusions: Remimazolam significantly reduced the risk of hypotension, bradycardia and injection pain, despite an increase in the time to loss of consciousness. Remimazolam appears to be an effective and well tolerated alternative to propofol in elderly patients undergoing general anaesthesia.

Remimazolam Dosing for Gastroscopy: A Randomized Noninferiority Trial

Huichen Zhu [1], Zhongxue Su [1], Hongmei Zhou [2], Jian Lu [2], Xiangrui Wang [3], Zhonghua Ji [3], Shibiao Chen [4], Xiuhong Wang [4], Ming Yao [5], Yaping Lu [5], Weifeng Yu [1], Diansan Su [1]

- …incidence of bradycardia, hypotension, subclinical respiratory depression, and hypoxia in the remimazolam groups was significantly lower than that in the propofol group.

What did we learn today ?

- Please use Supplemental O2
- Please measure ET-CO2 by Capnography
- Identify your most at risk patient's, and give them TLC…
- Whats TLC ?
  - -Midaz/Fent
  - Less Propofol
  - Topical Local Anesthesia for Uppers…
  - Consider a POM Mask for extra Oxygen Administration
  - Consider High-Flow NC for high BMI patients

What did we learn today…..

- Create a Culture of Safety !

- Oh…Oh…O-Zempic ?....Data supports clear liquid diet the day before ! Be proactive !
- Try Remi-Mazolam for higher risk pt's….actually cool….less hypotension….off faster

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Could we have done better ?

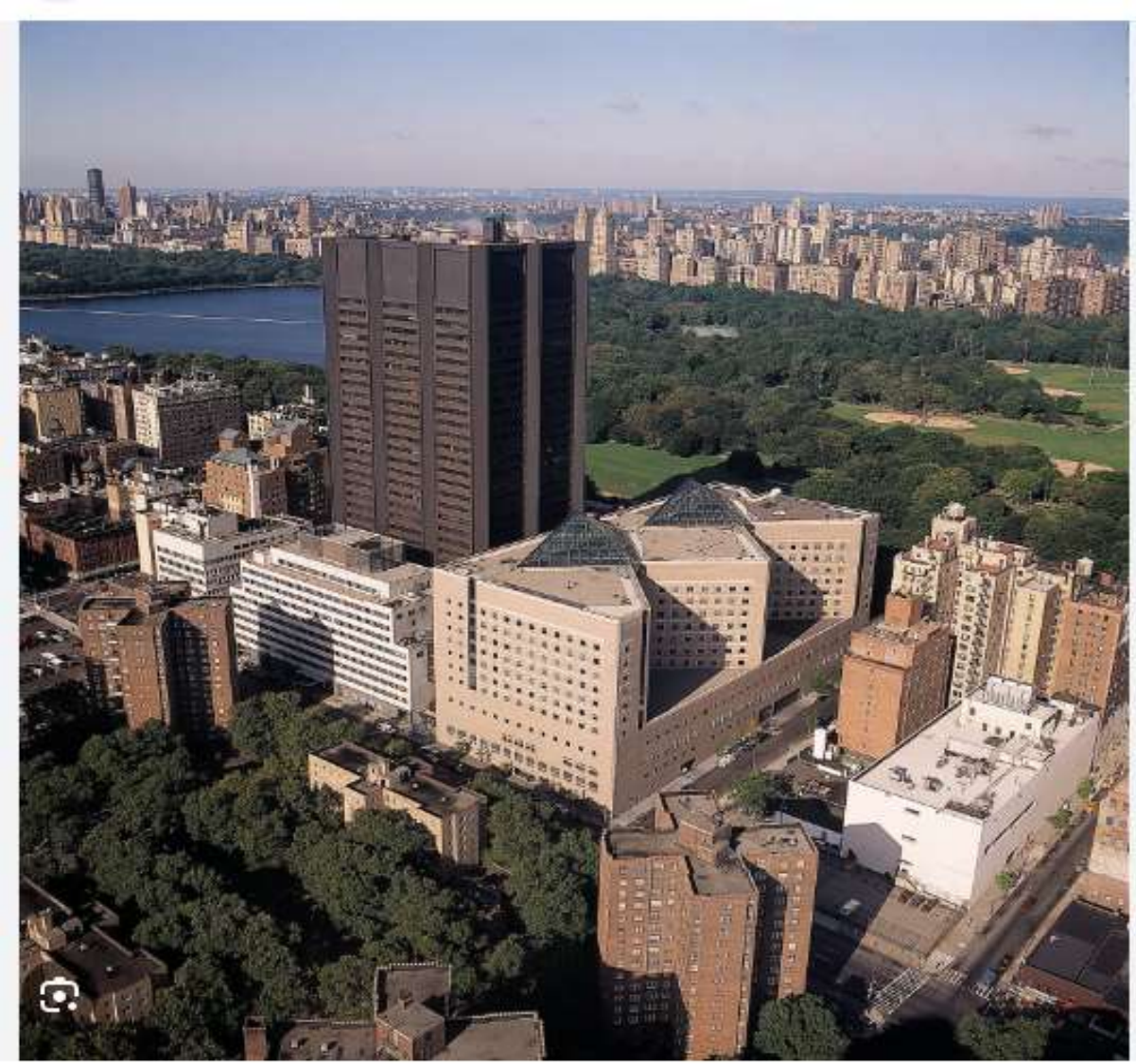
- BMI-40
- OSA and uses CPAP at home
- Appropriate for ASC vs Hospital ?
- Extra O2…POM Mask …High-Flow NC ?
- Patient Obstructing…..Oral Airway !
- Absolutely need End-Tidal CO2 Monitor
- Perhaps only use Midaz/Fent…Propofol not appropriate ?
- Frank D/W Patient that Propofol may not be safe….perhaps Moderate Sedation safer than Deep ?

Could we have done better ?

- Jury found Anesthesia responsible for 60% of damages
- Endo-Center was responsible for 40%...specifically the Nurse and Endo Tech in the room failed to initiate an Emergency Response

Guy Salomon MD….

- Guy.salomon@mountsinai.org
- 917-463-8980 (cell)



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