

# Perio-operative Management of Patients Taking Weight Loss Drugs

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# Glucagon-like peptide receptor agonists (GLP-1 RAs) and glucose-dependent insulinotropic polypeptide receptor agonists (GIP RAs)

| Drug / Brand name | Indications | Mechanism of action | Half-life | Administration schedule and dose |
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| Dulaglutide/ Trulicity | NIDDM | GLP-1 RA | 90 hours | 0.75-4.5 mg weekly |
| Exenatide/ Bydureon | NIDDM | GLP-1 RA | 120 hours | 2 mg weekly |
| Liraglutide/ Saxenda/ Victoza<br><br>Xultophy (Liraglutide combination with insulin degludec) | NIDDM (Victoza/ Xultophy)<br><br>Weight loss (Saxenda) | GLP-1 RA | 13 hours | 0.6-1.8 mg daily (Victoza)<br><br>0.6-3 mg daily (Saxenda)<br><br>0.36-1.8 mg daily (Xultophy) |
| Lixisenatide (fixed dose combination with insulin glargine)/ Suliqua | NIDDM | GLP-1 RA | 3-4 hours | 5-20 ug daily |
| Semaglutide/ Ozempic or Wegovy<br><br>Oral formulation (Rybelsus) | NIDDM (Ozempic/ Rybelsus)<br><br>Weight loss (Wegovy)<br><br>Cardiovascular risk reduction (Wegovy) | GLP-1 RA | 160 hours | 0.25-2 mg weekly (Ozempic)<br><br>0.25-2.4 mg weekly (Wegovy)<br><br>3 mg, 7 mg, 14 mg daily (Rybelsus) |
| Tirzepatide/ Mounjaro | NIDDM<br>Weight loss | GIP & GLP-1 RA | 120 hours | 2.5-15 mg weekly |

# GLP-1 and GIP

- Incretin hormones released by the body in response to glucose
- Their receptors are found in pancreas, CNS, heart GIT, kidneys and liver
- Can be short or long acting
- Route of admin – oral (daily) subcutaneous (daily or weekly)
- MOA: GLP-1 and GIP receptors in the pancreas **increases insulin secretion** from βcells in the islets of Langerhans and GLP-1 RAs **inhibit glucagon** in pancreatic α-cells which leads to reduction in blood sugar levels
- Metabolised by liver and excreted by kidney

# GLP-1 and GIP

- In the CNS activation decreases appetite and increases hunger, reduced systolic blood pressure, weight loss
- In the GIT reduced gastric motility and secretions, delayed gastric emptying - can be associated with pulmonary aspiration despite preoperative fasting during deep sedation or GA
- No interaction with benzodiazepines, nitrous oxide, NMDA receptor agonists or synthetic opioids used in procedural sedation
- They DO interact with ERYTHROMYCIN - can reduce effectiveness of GLP-1 RAs, but can also help accelerate gastric emptying

# GLP-1 and GIP

- GLP-1 and GIP RAs commonly prescribed for diabetes and wright loss
- May in the future be prescribed for respiratory disease, aesthetic medicine and Alzheimer’s

# Dental Implications

| Side effect | Relevance to dental sedationists |
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| Gastroparesis (delayed gastric emptying) | Pulmonary aspiration, post-operative nausea and vomiting |
| Increased risk of hypoglycaemia | Dentists must be aware of the risk of hypoglycaemia, as well as other differential diagnoses for loss of consciousness. |
| Reflux and vomiting | Dental erosion and increased risk of aspiration |
| Dysgeusia | Impaired gustation |
| Loss of appetite (anorexia) | May affect pre-operative fasting routine.<br><br>Oral manifestations include xerostomia, sialosis, ulceration and angular stomatitis |
| Dizziness | Increased risk of fall post-sedation |

# Delayed gastric emptying

Several case reports prior to sedation/ GA

Prevalence 0.1-5% patients taking GLP-1 RAs

Symptoms of gastroparesis: chronic early satiety, postprandial fullness, upper abdominal pain, vomiting, nausea, loss of appetite

Gastroparesis can also be associated with **older age, diabetes, Parkinson's, post abdominal surgery**

Other drugs that can cause gastroparesis: **opioids, anticholinergics, alcohol, tobacco, cannabinoids**

# Pulmonary aspiration

Inhalation of oropharyngeal or gastric contents into the larynx and lower respiratory tract which can lead to aspiration pneumonitis, aspiration pneumonia and rarely death

PA is associated with deep sedation/ GA due to loss of protective reflexes especially during prolonged procedures under deep sedation and if patients are taking other medications that cause gastroparesis

Can occur hours afterwards

Symptoms: wheeze, cough, ronchi, rales, apnea, cyanosis

BP falls, tachycardia and tachypnoea

Those at increased risk: escalation phase of dosing, taking higher doses, longer acting forms, C/O gastroparesis or at risk of it

# How to reduce risk of aspiration

Identify patients prone to vomiting and reflux

Pre-operative fasting

Reducing emetic stimuli

Preserving protective reflexes

# Management of aspiration

- Placing patient in a head down tilt / Trendelenburg position (head positioned to the right)
- Clearing the airway, providing oxygenation through a face mask or nasal cannula
- care should be exercised with bag-valve mask ventilation to avoid gastric insufflation
- Reversal, and, if needed, referral to a hospital setting for observation or if the patient is deteriorating.

# Green et al 2017

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| Systematic review – incidence of PA during procedural sedation |
| No cases attributed to dentistry |
| Drugs: propofol, midazolam, diazepam, one case in relation to nitrous oxide |
| Mainly endoscopic procedures |
| Did not clarify whether any of the patients were taking GLP-1 or GIP RAs |
| Ozempic 2020, Mounjaro 2022 |

| RECOMMENDATION | COMMENT |
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| **Full sedation pre-assessment** | Universal sedation pre-assessment, including medical, pharmacological and social history; physical examination (pulse, oxygen saturation, blood pressure, BMI, etc) and airway assessment, should be completed. Inquire specifically about GLP-1 or GIP RA medication use, as patients may not disclose it if taken for cosmetic weight loss.[6] |
| **Shared discussion of the risks and benefits of stopping medication with patient** | Cessation of medication is likely to have a more significant impact on patients taking GLP-1 RAs or tirzepatide for diabetes than patients taking the medication for obesity or weight loss.<br><br>Benefits of continuing would include better peri-operative diabetic control and preventing the need for a sliding scale (for patients with diabetes) and help with reducing weight for patients with obesity.[40] The risk of continuing medication includes increased incidence of hypoglycaemia, gastroparesis and pulmonary aspiration under deep sedation and general anaesthesia.[40]<br><br>Risks of stopping medication include hyperglycaemia and inferior glycaemic control (including complications such as acute coronary syndrome, acute kidney injury, cerebrovascular events and, rarely, death), surgical site infections, delay in treatment and cost to the patient and may be viewed as discriminatory.[2, 40]<br><br>Current UK guidance is not to routinely stop GLP-1 RA containing medication.[37] |

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| **Discussion of alternative treatment modalities** | If possible, treatment should be considered with local anaesthesia or nitrous oxide sedation (avoiding over 50% nitrous oxide).<br><br>Sedation techniques that involve administering bolus doses (intranasal or oral) should be avoided due to the increased risk of oversedation and unpredictable responses, as the doses are not titrated. Certain drugs used for sedation (eg propofol) and multiple drug sedation may have an increased risk of oversedation and should also be avoided.<br><br>Avoid general anaesthesia for dental treatment. |
| **Multidisciplinary consult** | Consider consulting the patient's endocrinologist for those taking GLP-1 RAs or tirzepatide for diabetes.[2]<br>Notify the patient's prescribing pharmacist or GP before stopping GLP-1 or GIP RAs.<br>If in a hospital setting, a referral to radiology for a gastric ultrasound may be considered.[2] |

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| **Timing** | Elective care is more appropriate (avoid emergency procedural sedation appointments), especially for higher risk patients, as it allows for fasting and stopping medication if required. The UK guidance suggests procedures requiring surgery within 48 hours may increase the risk of pulmonary aspiration.[37]<br><br>Consider treatment after the patient has finished therapy and reduced their weight.<br><br>Avoid treatment during the escalation phase of therapy (first 1-2 months).[2] |
| **Pre-operative fasting** | Patients taking GLP-1 or GIP RAs should be considered for fasting prior to procedural sedation.<br><br>Currently, UK guidance suggests no routine need to change preoperative fasting routine, however, a short duration of fasting (<8 hours) may increase the risk of pulmonary aspiration.[37]<br><br>Some anaesthetic societies suggest a liquid diet for up to 24 hours for higher risk patients[2] (this may be more appropriate for general anaesthesia).<br><br>Standard fasting times may suffice in low risk patients after 12 weeks of treatment (tachyphylaxis with prolonged use).[41] |

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| **Risk assessment for pulmonary aspiration risk under procedural sedation** | **Medical history:** assess for medical conditions that may increase the risk of gastroparesis, for example, diabetes, abdominal surgery, body mass index >30kg/m$^2$ or renal failure.[37]<br><br>**Pharmacological history:** assess for medications that may potentiate sedation and increase the risk of gastroparesis. Recent commencement of GLP-1 RA (within 3 months / within 5 half-lifes) may increase the risk of pulmonary aspiration.[37]<br><br>**Screen for gastrointestinal symptoms prior to the sedation:** ask the patient about nausea, vomiting and abdominal pain on the day of surgery and consider deferring elective treatment if positive for symptoms.[2]<br><br>Consider an opinion from a medical professional / anaesthetist if unclear on the risk of the patient. |
| **Special investigations** | Consider pre-sedation blood glucose (to rule out hypoglycaemia).<br><br>Pre-sedation gastric ultrasound (in a hospital setting), gastric volume less than 1.5 ml.kg-1 is considered low risk for aspiration.[42] |

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| **Position** | Treat the patient in an upright position and avoid the supine position during procedural sedation. |
| **Titration and preparedness** | Carefully titrate the sedative drug, allowing for slower and longer intervals between doses to avoid deep or over sedation, and reduce the treatment time under sedation.<br><br>Ensure that rescue medication is available. |
| **Patient / escort Information** | Explain to the patient the risk of pulmonary aspiration, including hours after sedation. |
| **Report adverse events through yellow card scheme** | To aid future research and assess pulmonary aspiration risk during dental sedation. |

# Reference


- Peri-operative management of dental patients requiring procedural sedation and taking Ozempic®, Mounjaro®, or other glucagon-like peptide-1 receptor agonist-containing medications I. Khan. SAAD digest. 2025: 41(II): 98-104