Brigham and Women's Hospital
Founding Member, Mass General Brigham
Center *for* Gastrointestinal Motility

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GLP-1 Agonists and Dysmotility Effect: Clinical, Practical, and Ethical Considerations

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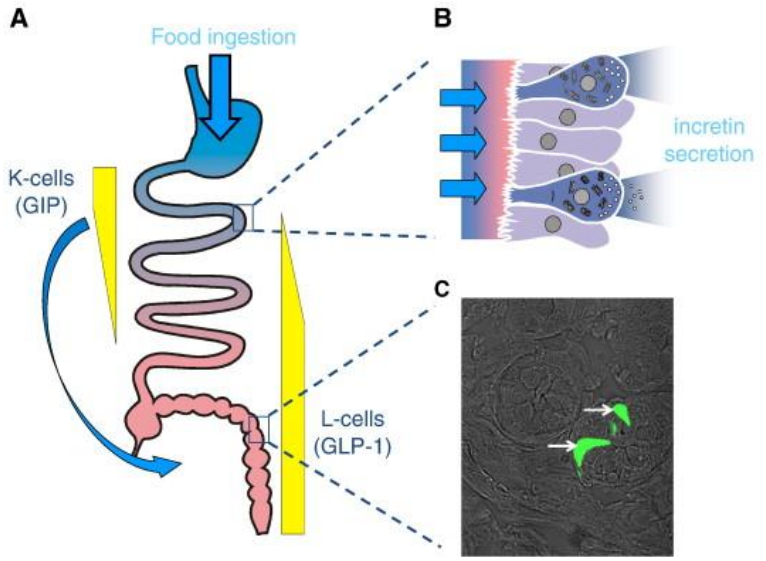
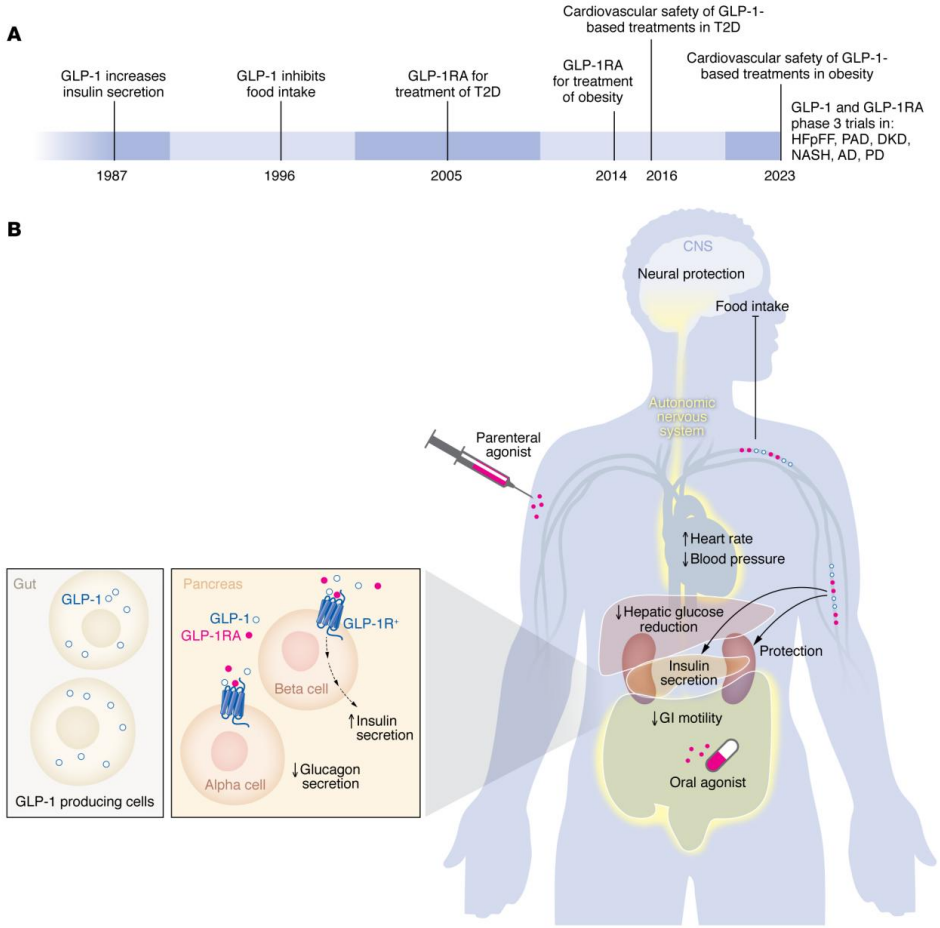
Incretin Hormones

- Stimulated by meal ingestion
  - Glucagon-like peptide-1 (GLP-1)
    - Secreted by epithelial intestinal L cells (ileum and colon)
  - Glucose-dependent insulinotropic peptide (GIP)
    - Secreted by L cells and K cells (proximal small bowel)
- Receptors expressed in the gut, pancreas, brainstem, hypothalamus, vagal afferent nerves



Diakogiannaki E et al. Physiol Behav 2012

GLP-1 and Glycemic Control



- Role of GLP-1 in glycemic control
  - Pancreatic islet cell functions
    - β cells: increases insulin secretion
    - α cells: reduces glucagon secretion
  - Increases insulin sensitivity
    - Reduces hepatic gluconeogenesis
    - Enhances muscular glucose uptake and storage

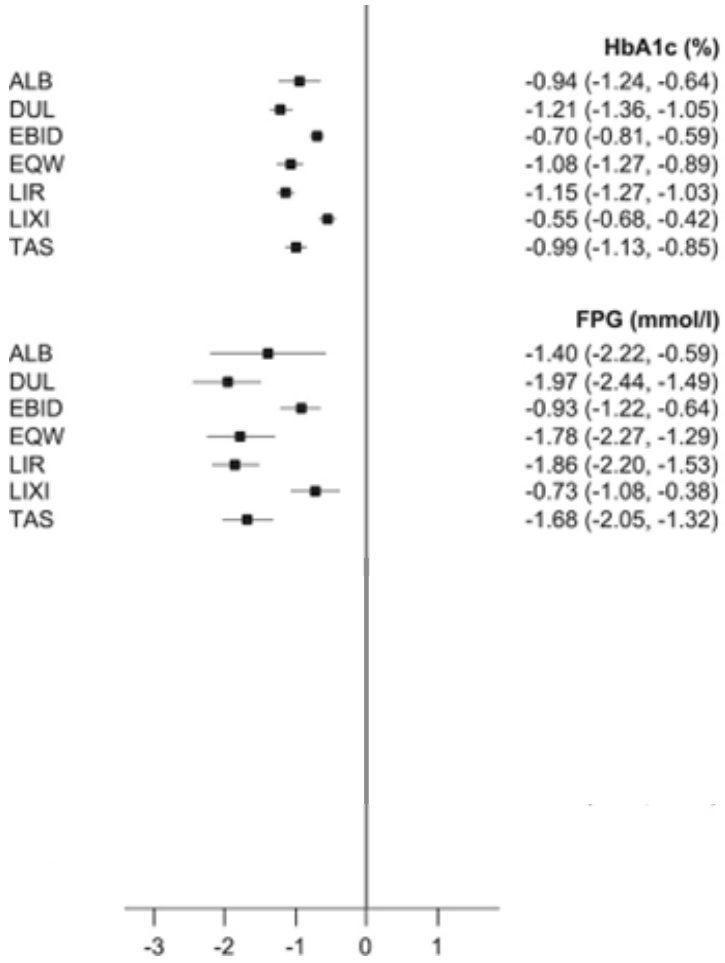
Drucker DJ. J Clin Invest 2024

Incretin Agonists

	Dosing Frequency/ Route of Administration	Indications	Elimination Half-Life	Approved Dosages
Short-Acting GLP-1 RA				
Exenatide	Twice daily SQ	Type II Diabetes	2.4 hours	5-10 mg BID
Long-Acting GLP-1 RA (SQ)				
Liraglutide	Once daily SQ	Type II Diabetes Weight Management	13 hours	0.6-3 mg QD
Semaglutide SQ	Once weekly SQ		5 days	0.25-1.5 mg weekly
Exenatide ER	Once weekly SQ	Type II Diabetes	8-16 hours	2 mg weekly
Long-Acting GLP-1 RA (oral)				
Semaglutide PO	Once daily PO	Type II Diabetes	7 days	3-14 mg QD
Long-Acting Dual Incretin GIP/GLP-1 RA				
Tirzepatide	Once weekly SQ	Type II Diabetes	5 days	2.5-15 mg weekly

Camilleri M et al. Am J Gastroenterol 2024

GLP-1 Agonists: Effect in Type II Diabetes

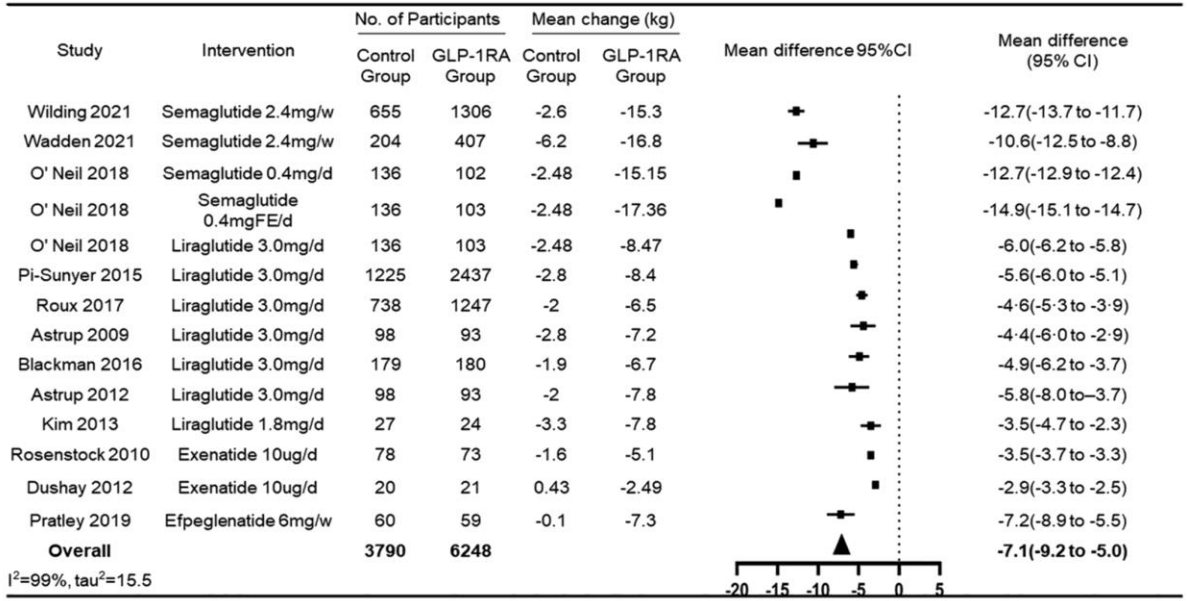


- Significant improvement in glycemic control compared to placebo in all formulations (n=14,464)
  - HbA1c
  - Fasting plasma glucose
- Significant reduction in body weight compared to placebo (n=14,054)

Htike ZZ et al. Diabetes Obes Metab 2017

GLP-1 Agonists: Effect in Non-Diabetic Patients with Obesity

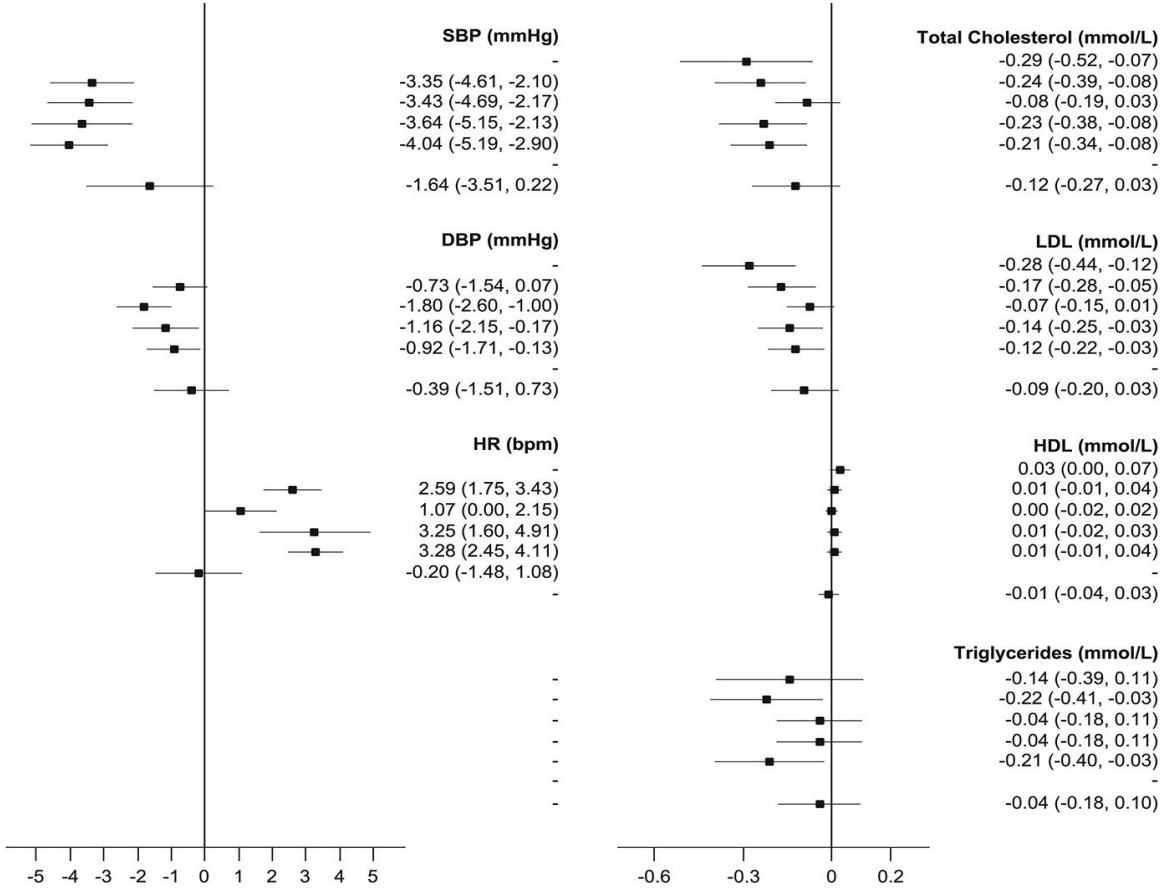
- Significant reduction in body weight compared to placebo (n=10,038)
  - Weight loss effect in both daily and weekly formulations
  - Reduction in:
    - Fasting blood glucose (-3.6 mg/dl)
    - Systolic BP (-3.4 mmHg)
    - Diastolic BP (-0.7 mmHg)



Study	Intervention	No. of Participants		Mean change (kg)		Mean difference (95% CI)
		Control Group	GLP-1RA Group	Control Group	GLP-1RA Group	
Wilding 2021	Semaglutide 2.4mg/w	655	1306	-2.6	-15.3	-12.7(-13.7 to -11.7)
Wadden 2021	Semaglutide 2.4mg/w	204	407	-6.2	-16.8	-10.6(-12.5 to -8.8)
O' Neil 2018	Semaglutide 0.4mg/d	136	102	-2.48	-15.15	-12.7(-12.9 to -12.4)
O' Neil 2018	Semaglutide 0.4mgFE/d	136	103	-2.48	-17.36	-14.9(-15.1 to -14.7)
O' Neil 2018	Liraglutide 3.0mg/d	136	103	-2.48	-8.47	-6.0(-6.2 to -5.8)
Pi-Sunyer 2015	Liraglutide 3.0mg/d	1225	2437	-2.8	-8.4	-5.6(-6.0 to -5.1)
Roux 2017	Liraglutide 3.0mg/d	738	1247	-2	-6.5	-4·6(-5·3 to -3·9)
Astrup 2009	Liraglutide 3.0mg/d	98	93	-2.8	-7.2	-4·4(-6·0 to -2·9)
Blackman 2016	Liraglutide 3.0mg/d	179	180	-1.9	-6.7	-4.9(-6.2 to -3.7)
Astrup 2012	Liraglutide 3.0mg/d	98	93	-2	-7.8	-5.8(-8.0 to–3.7)
Kim 2013	Liraglutide 1.8mg/d	27	24	-3.3	-7.8	-3.5(-4.7 to -2.3)
Rosenstock 2010	Exenatide 10ug/d	78	73	-1.6	-5.1	-3.5(-3.7 to -3.3)
Dushay 2012	Exenatide 10ug/d	20	21	0.43	-2.49	-2.9(-3.3 to -2.5)
Pratley 2019	Efpeglenatide 6mg/w	60	59	-0.1	-7.3	-7.2(-8.9 to -5.5)
Overall		**3790**	**6248**			**-7.1(-9.2 to -5.0)**
I^2=99%, tau^2=15.5						

Iqbal J et al. Obes Rev 2023

GLP-1 Agonists: Other Effects in Patients with Type II Diabetes

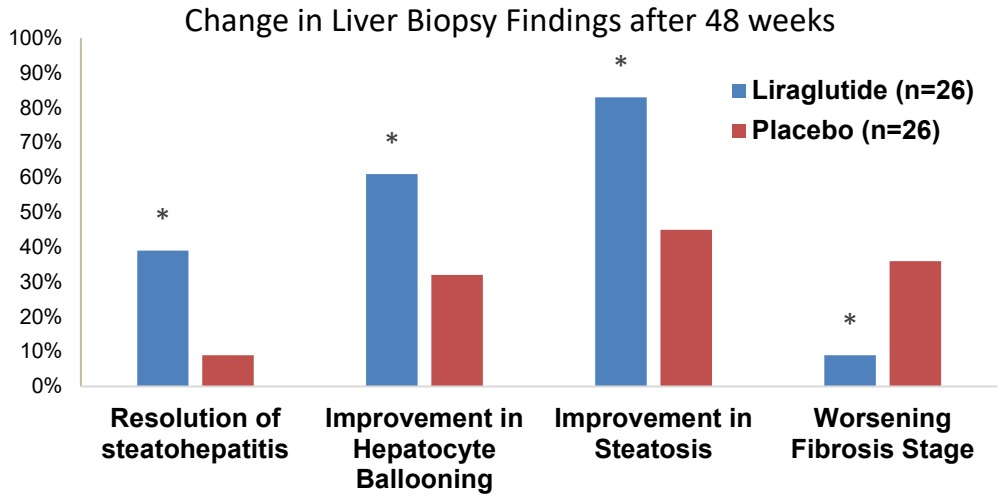


- Improvement in other cardiometabolic outcomes compared to placebo among type II diabetics
  - Hypertension
  - Hypercholesterolemia
  - Hypertriglyceridemia

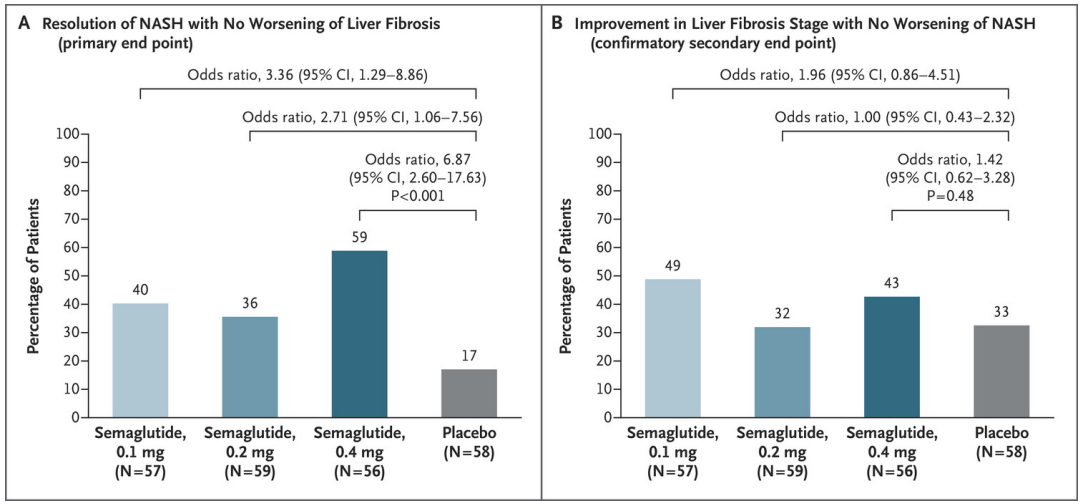
Htike ZZ et al. Diabetes Obes Metab 2017

GLP-1 Agonists: Effects on MASH

- GLP-1 agonist use has been associated with improvement and/or resolution of NASH/MASH and decreased progression, but not reversal, of fibrosis in prior clinical trials



RCT of patients with overweight and NASH

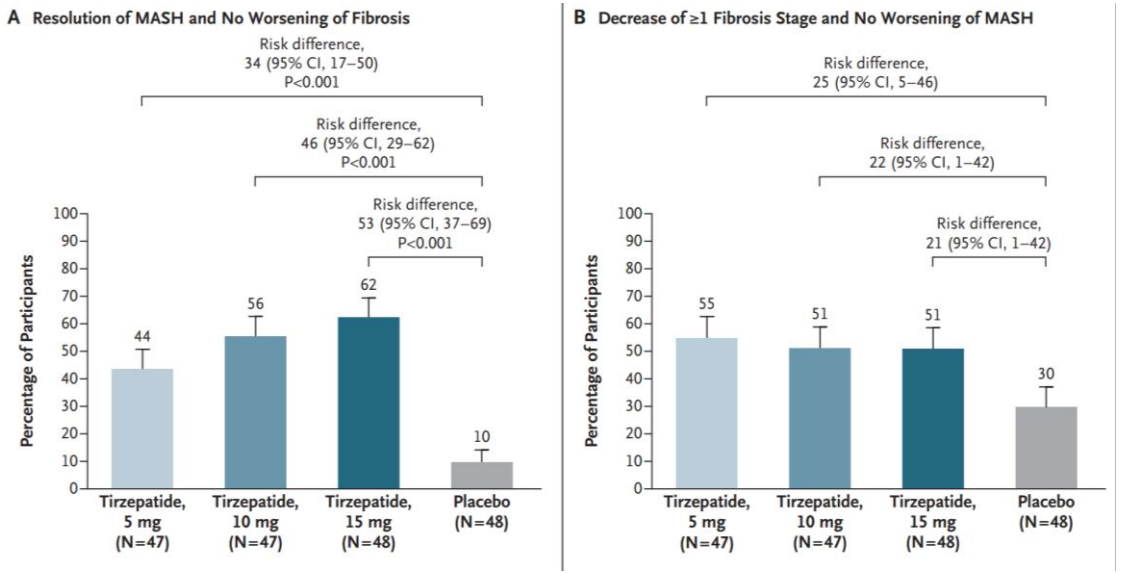


RCT of patients with NASH

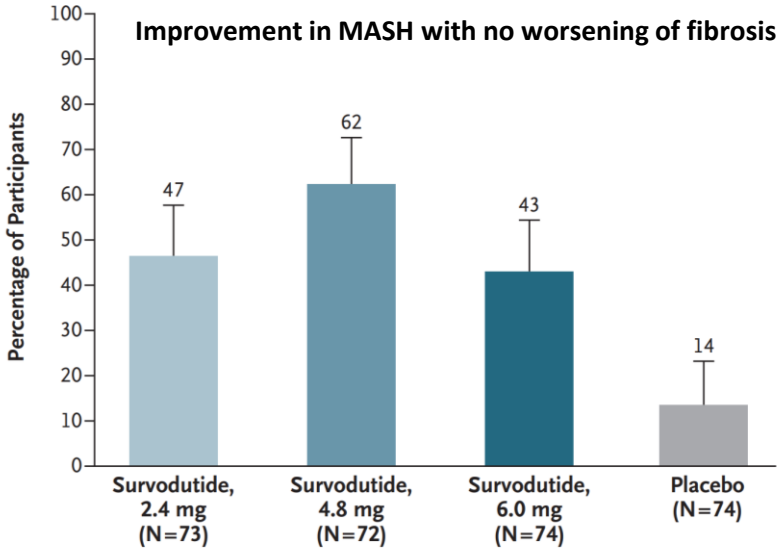
Armstrong MJ et al. Lancet 2016
Newsome PN et al. New Engl J Med 2021

GLP-1/Glucagon Receptor Agonists and MASH

- Hepatocytes lack GLP-1 receptors
  - Combination GLP-1 receptor and glucagon receptor agonism may provide more benefits for treating MASH than GLP-1 agonist alone



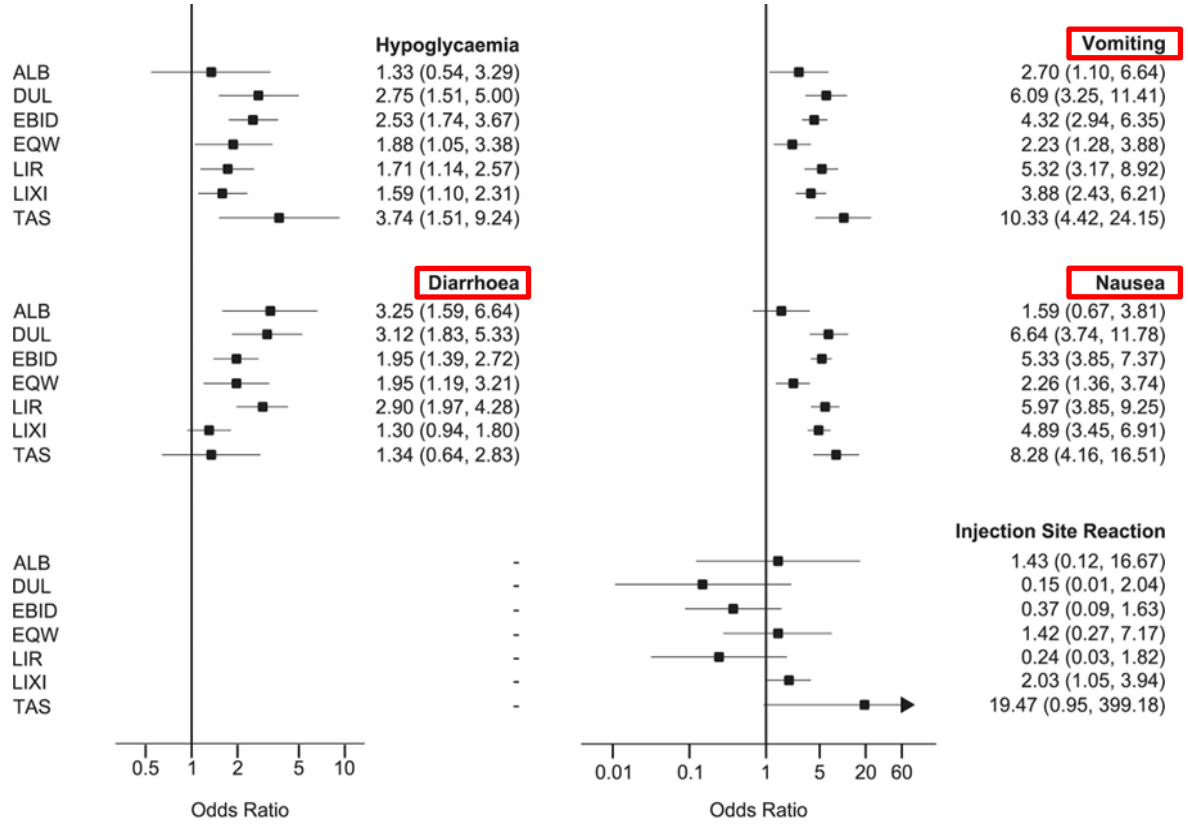
MASH + F2 or 3 fibrosis (52 weeks)



MASH + F1, 2 or 3 fibrosis (48 weeks)

Loomba R et al. N Engl J Med 2024
Sanyal AJ et al. N Engl J Med 2024

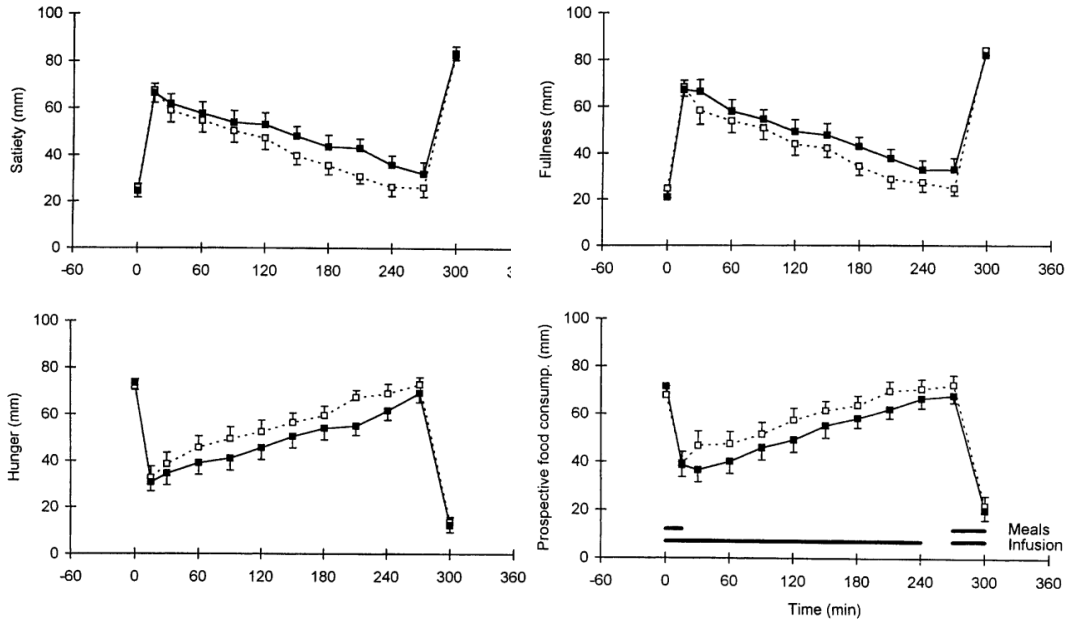
GLP-1 Agonists: GI Adverse Effects



- GI symptoms = major adverse effects of GLP-1 agonists
  - Most common: **nausea** (25-44%), **diarrhea** (19-30%)
  - **Vomiting** (8-24%), **constipation** (11-24%), **abdominal pain** (9-20%), **dyspepsia** (9-10%)
  - Decreased appetite
  - Mostly <u>mild/moderate</u> in severity
  - Usually during initial dose escalation and most are <u>transient</u>

Htike ZZ et al. Diabetes Obes Metab 2017

GLP-1: Satiation and Energy Intake



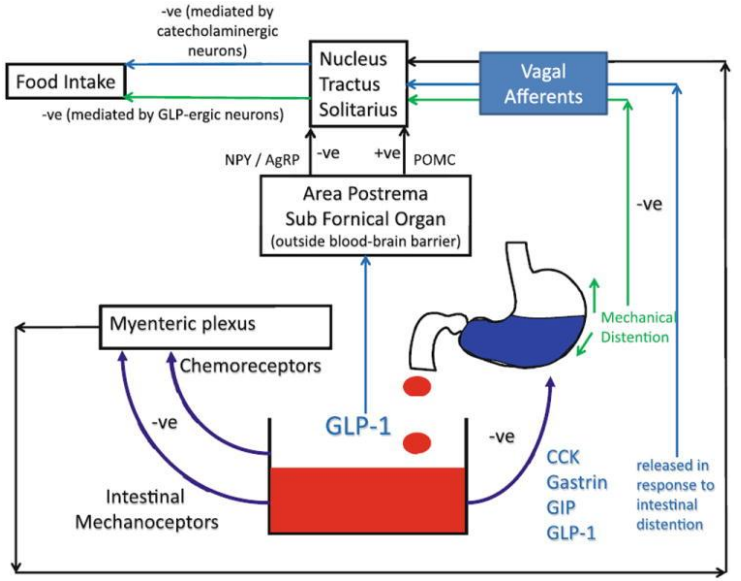
- Flint et al infused GLP-1 vs placebo in 20 healthy individuals with ingestion of test meal. Compared to placebo, GLP-1:
  - Increases satiation, fullness and plasma insulin after test meal
  - Decreases hunger, food/energy consumption, plasma glucagon, blood glucose

Flint A et al. J Clin Invest 1998

GLP-1 and Satiation

- Meal-Induced Satiation

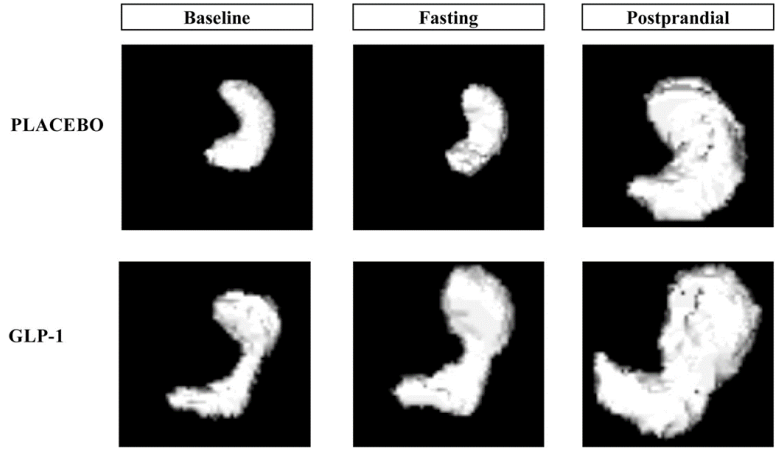
- GLP-1 may affect satiation through actions in both the brain and the gut
  - Effects on gastric function and vagal nerve signaling
  - Direct impact on central neuronal processes involved in regulation of feeding



Shah M et al. Rev Endocr Metab Disord 2015

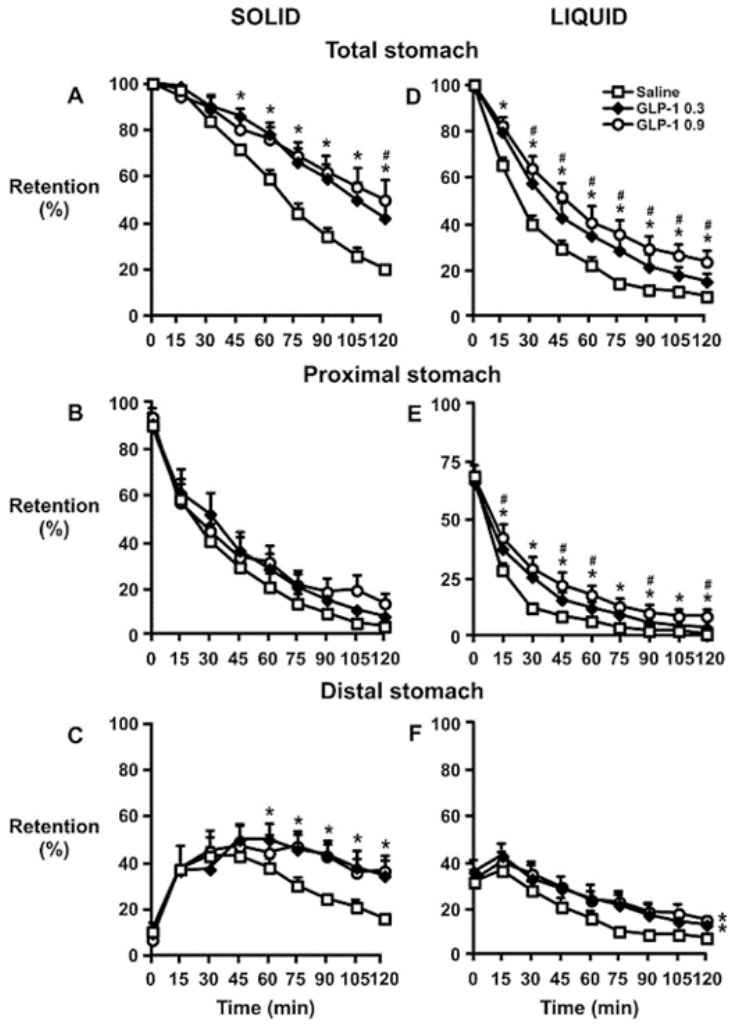
GLP-1 and Gastric Function

- 24 healthy volunteers received GLP-1 (n=13) and placebo (n=11)
  - Gastric emptying scintigraphy obtained at baseline, fasting, and post-prandially
  - Higher total and proximal gastric volume post-prandially in the GLP-1 group
- Increase in gastric volume by GLP-1 is absent in diabetic patients with vagal neuropathy
  - GLP-1 effect on gastric volume is vagally-mediated



Delgado-Aros S et al. Am J Physiol Gastrointest Liver Physiol 2002
Delgado-Aros S et al. Neurogastroenterol Motil 2003

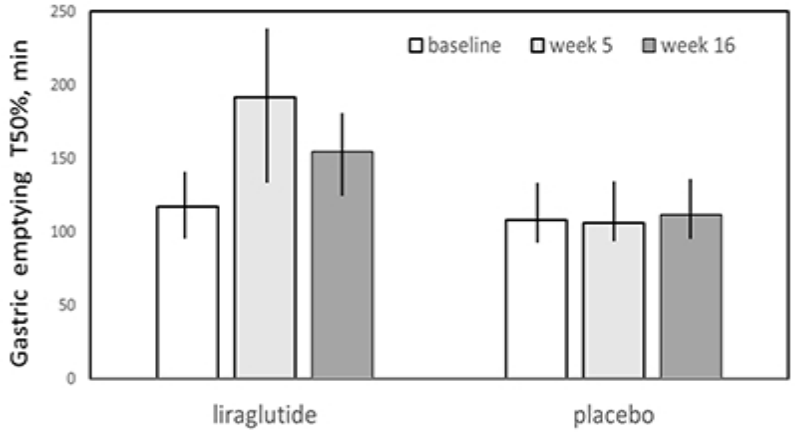
GLP-1 and Gastric Function



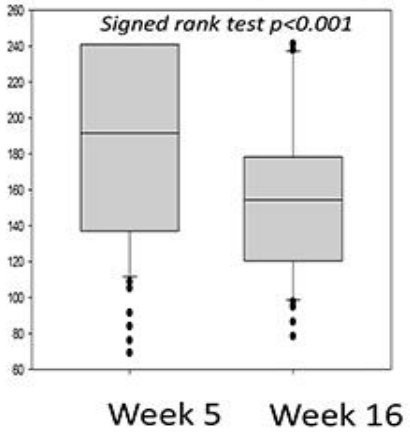
- Increased accommodation is associated with slower gastric emptying
  - Higher total/proximal post-prandial volume correlates with rate of emptying
- Exogenous GLP-1 leads to delayed emptying of solids and liquids in healthy subjects
  - Increased meal retention in distal stomach
  - Rise in blood glucose attenuated by GLP-1
    - Blood glucose inversely correlates with gastric emptying time

Wang XJ et al. Am J Physiol Gastrointest Liver Physiol 2021
Little TJ et al. J Clin Endocrinol Metab 2006

GLP-1 Agonists and Gastric Function



Gastric emptying $T_{1/2}$ at 5 and 16 weeks in liraglutide group



- Randomized, placebo-controlled trial of liraglutide (n=59) vs placebo (n=65) in patients with obesity
  - Liraglutide associated with increased weight loss and satiation
  - Emptying half-time ($T_{1/2}$) on gastric emptying scintigraphy was prolonged in liraglutide group compared to placebo
  - Gastric emptying shorter at 16 weeks compared to 5 weeks after initiation of therapy -> *tachyphylaxis*

Maselli D et al. Obesity 2022

GLP-1 Agonists and Gastric Function

- How much do GLP-1 agonists delay gastric emptying?
  - Meta-analysis of randomized placebo-controlled trials of GLP-1 agonists
  - Pooled delay in $T_{1/2}$ on scintigraphy (solid emptying) = **~36 minutes**
  - Pooled delay in T_{max} on acetaminophen absorption test (liquid emptying) = **no significant delay**

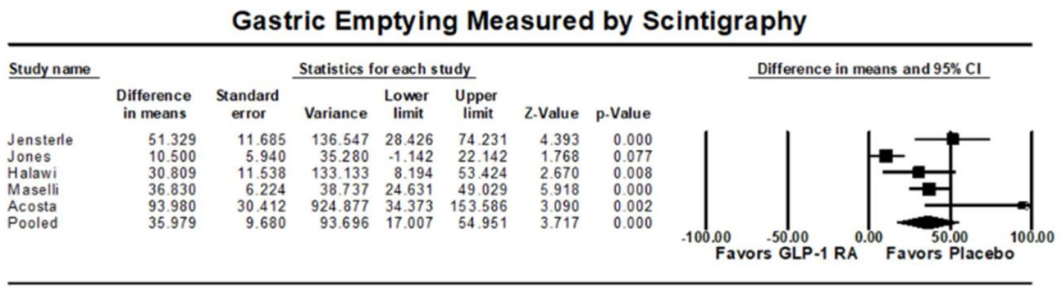


Figure 2. Gastric emptying study (scintigraphy) primary outcome ($T_{1/2}$, minutes), pooled mean difference. CI, confidence interval; GLP-1 RA, glucagon-like peptide-1 receptor agonist.

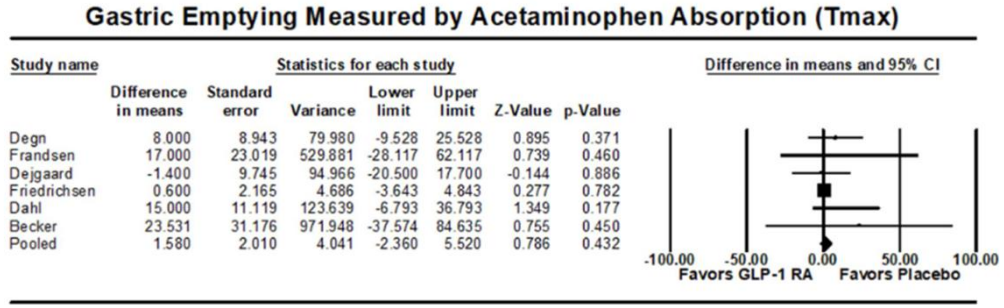
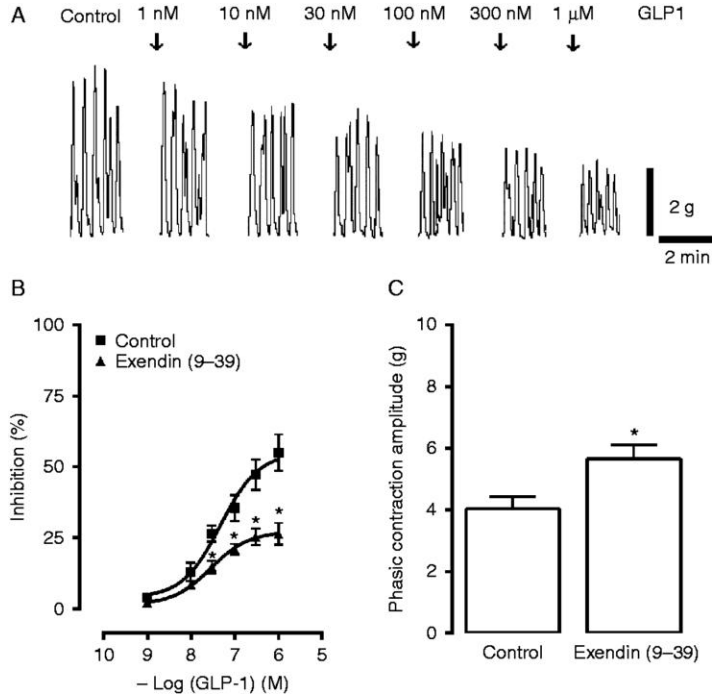


Figure 3. Acetaminophen absorption–based measurement of the gastric emptying primary outcome (T_{max}, minutes), pooled mean difference. CI, confidence interval; GLP-1 RA, glucagon-like peptide-1 receptor agonist.

Hiramoto B / Chan WW et al. Am J Gastroenterol 2024

GLP-1 and Intestinal Motility

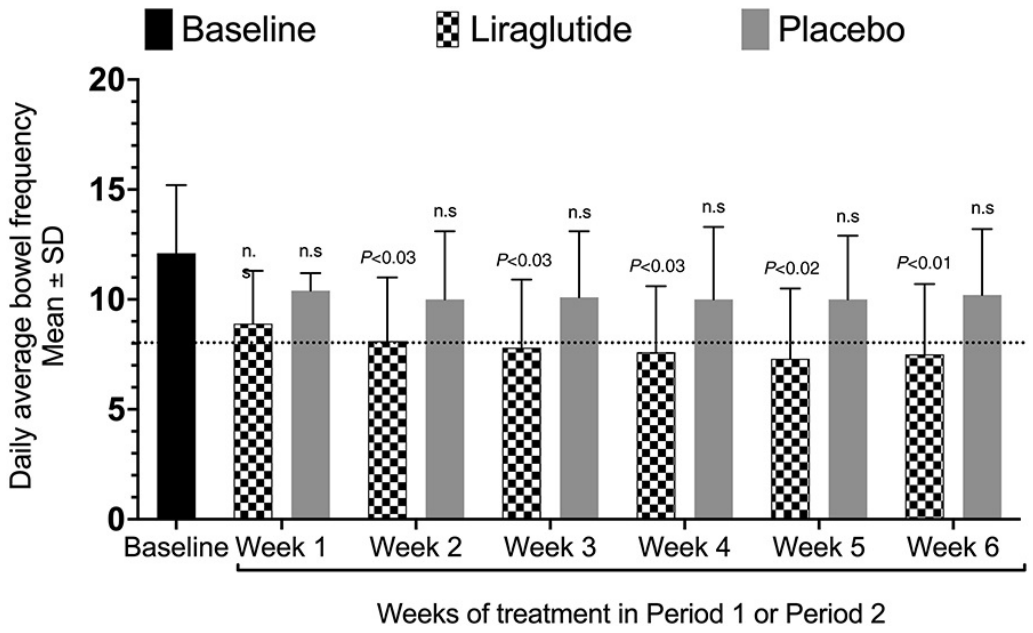
- Exogenous GLP-1 inhibits colonic contraction amplitude and peristaltic function
  - Serosal GLP-1 relaxes colonic smooth muscle
  - Effect inhibited by GLP-1 receptor antagonists
- Endogenous GLP-1 secreted by luminal L cells accelerates proximal colonic motility
  - Luminally applied GLP-1 accelerated propagation of peristaltic waves in colonic segments
- GLP-1 may contribute to constipation or diarrhea



Amato A et al. J Endocrinol 2014
Nakamori H et al. Am J Physiol Gastrointest Liver Physiol 2021

GLP-1 and Intestinal Motility

- Effect of GLP-1 on gastrointestinal motility may be leveraged for management of symptoms
  - Many post-colectomy/IPAA patients develop high bowel frequency
  - Low GLP-1 levels have been reported among colectomy patients
  - Pilot study showed decreased bowel frequency in post-colectomy/IPAA patients treated with liraglutide



Barnes EL et al. Am J Gastroenterol 2024

GLP-1 Agonists and Esophageal Motility

- Variable data on the impact on GLP-1 agonists use and esophageal motility
  - Case series of 57 type II diabetes patients treated with GLP-1 agonists for 10 weeks
    - No change in manometry metrics vs baseline
  - Case-control study of 74 GLP-1 agonist users vs non-users undergoing manometry
    - ↑ IRP, DCI, hypercontractile swallows
    - No difference in symptom score (BEDQ) or esophageal emptying on esophagram
    - Unclear clinical relevance of manometric findings with GLP-1 agonists

	Cases	Controls	*P* value
HRM indications			.59
Atypical chest pain	2 (2.7)	2 (2.7)	
Chronic cough	8 (10.8)	10 (13.7)	
Chronic hiccups	1 (1.4)	0 (0.0)	
Dysphagia	31 (41.9)	36 (49.3)	
GERD	25 (33.8)	16 (21.9)	
Globus	0 (0.0)	1 (1.4)	
Pre-lung transplant	7 (9.5)	8 (10.7)	
HRM metrics and thresholds			
IRP, *mmHg*	14.4 ± 12.2 (68)	10.5 ± 10.9 (71)	**.04**
Resting LES pressure, *mmHg*	35.2 ± 21.1 (72)	34.0 ± 19.8 (73)	.72
DCI, *mmHg·cm·s*	3585.9 ± 4074.8 (66)	1981.6 ± 1759.9 (60)	**<.01**
No. normal swallows	6.5 ± 3.9 (74)	6.7 ± 4.0 (74)	.87
No. weak swallows	1.2 ± 2.0 (74)	1.6 ± 2.7 (74)	.46
No. failed swallows	3.2 ± 4.0 (74)	2.6 ± 3.9 (74)	.45
No. hypercontractile/hypertensive/ jackhammer swallows	2.1 ± 3.7 (74)	0.5 ± 2.0 (74)	**<.01**
Chicago classification v 4.0			
Normal	26 (35.1)	36 (48.7)	.13
Achalasia subtypes	6 (8.1)	6 (8.1)	1.00
EGJOO	16 (21.6)	12 (16.2)	.41
Ineffective esophageal motility	13 (17.6)	17 (23.0)	.54
Absent contractility	1 (1.4)	0 (0.0)	1.00
Diffuse esophageal spasm	1 (1.4)	1 (1.4)	1.00
Hypercontractile esophagus	12 (16.2)	2 (2.7)	**<.01**
Single-peak hypercontractile swallows	4 (33.3)	2 (100.0)	
Multi-peak hypercontractile swallows (jackhammer pattern)	8 (66.7)	0 (0.0)	
Hypercontractile swallows with a vigorous LES	0 (0.0)	0 (0.0)	

Quast DR et al. Diabetes Care 2020
Gala K et al. Clin Gastroenterol Hepatol 2025

GLP-1 Agonists and GERD

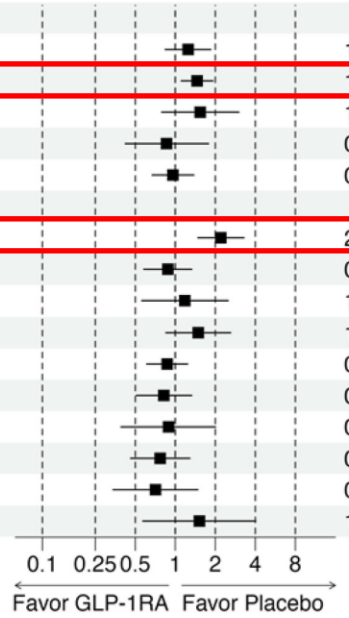
- Large population-based studies suggest *marginally* increased risk of GERD associated with GLP-1 agonists use
  - TriNetX study of 177,666 type II diabetes patients comparing short-acting GLP-1 agonists vs other second-line diabetes meds
    - ↑ risk of erosive reflux disease (HR 1.22), esophagela stricture (HR 1.28), Barrett's (non-dysplastic: HR 1.37; dysplastic: HR 1.51)
    - No association with long-active GLP-1 agonist
  - U.K. Clinical Practice Research Datalink study of 24,708 new GLP-1 agonist users vs 89.096 SGLT-2 inhibitor users for type II diabetes
    - ↑ risk of GERD (RR 1.27)
- Limitations: Diagnosis code-based studies, residual confounding

Liu BD et al. Gut 2024
Noh Y et al. Ann Intern Med 2025

GLP-1 Agonists GI Effects

Outcome	Number of Studies	Cases for GLP-1RA	At Risk for GLP-1RA	Cases for Control	At Risk for Control	RR (95% CI)	*P*-value	I^2 (%)
Biliary adverse events								
Cholecystitis	36	252	40199	172	33447	1.25 (0.84-1.85)	.27	46.59
Cholelithiasis	35	314	47580	186	40584	1.46 (1.11-1.92)	.01	21.8
Cholangitis	9	31	28489	17	27151	1.54 (0.79-3.01)	.20	15.3
Cholestasis	11	17	35370	19	33533	0.86 (0.42-1.78)	.69	11.5
Pancreatitis	24	148	44276	127	39026	0.96 (0.67-1.38)	.83	29.7
Gastrointestinal adverse events								
GERD	32	468	44194	125	39404	2.20 (1.48-3.29)	<.01	61
Gastritis	20	91	39389	94	36679	0.88 (0.58-1.33)	.54	28.5
Esophagitis	11	19	35002	12	33144	1.18 (0.56-2.50)	.67	9.1
Gastrointestinal ischemia	16	36	38869	19	36572	1.49 (0.85-2.61)	.16	6.78
Gastrointestinal hemorrhage	23	271	40197	275	37289	0.87 (0.61-1.24)	.45	55.75
Intestinal obstruction	19	80	39830	86	36221	0.82 (0.51-1.33)	.43	35.3
Paralytic Ileus	8	18	34100	20	32884	0.89 (0.39-2.01)	.78	25.9
Gastrointestinal ulceration	19	62	40633	70	36808	0.77 (0.46-1.29)	.32	36
Gastrointestinal perforation	11	19	36796	26	34540	0.71 (0.34-1.48)	.36	24.2
Gastroparesis	10	12	25872	5	25531	1.52 (0.57-4.03)	.40	9.1

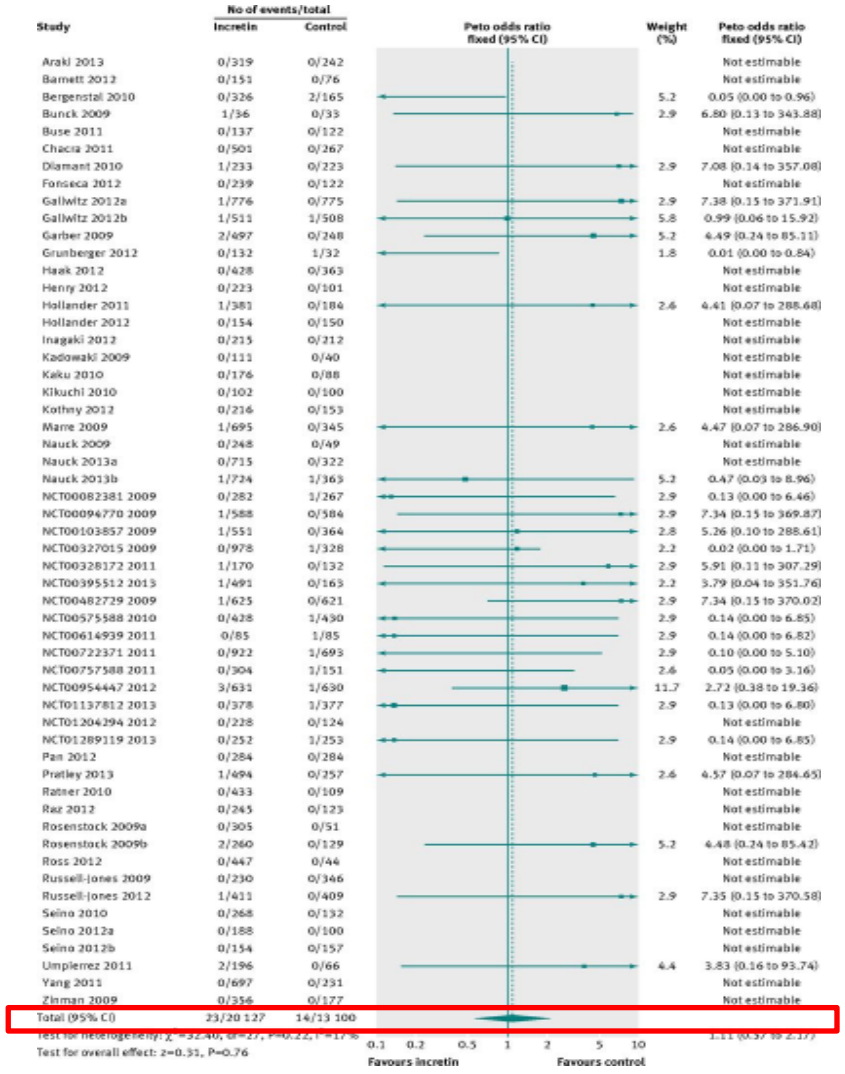
NO increased esophagitis



- Recent meta-analyses only found modestly increased risks of GERD (4 cases /1000 treated) and cholelithiasis (2/1000) with GLP-1 agonists
  - GERD risks most significant in studies with patients with overweight/obesity, MASH/MALD, or higher-dose/weight loss-inducing GLP-1 agonists

Chiang CH et al. Gastroenterology 2025

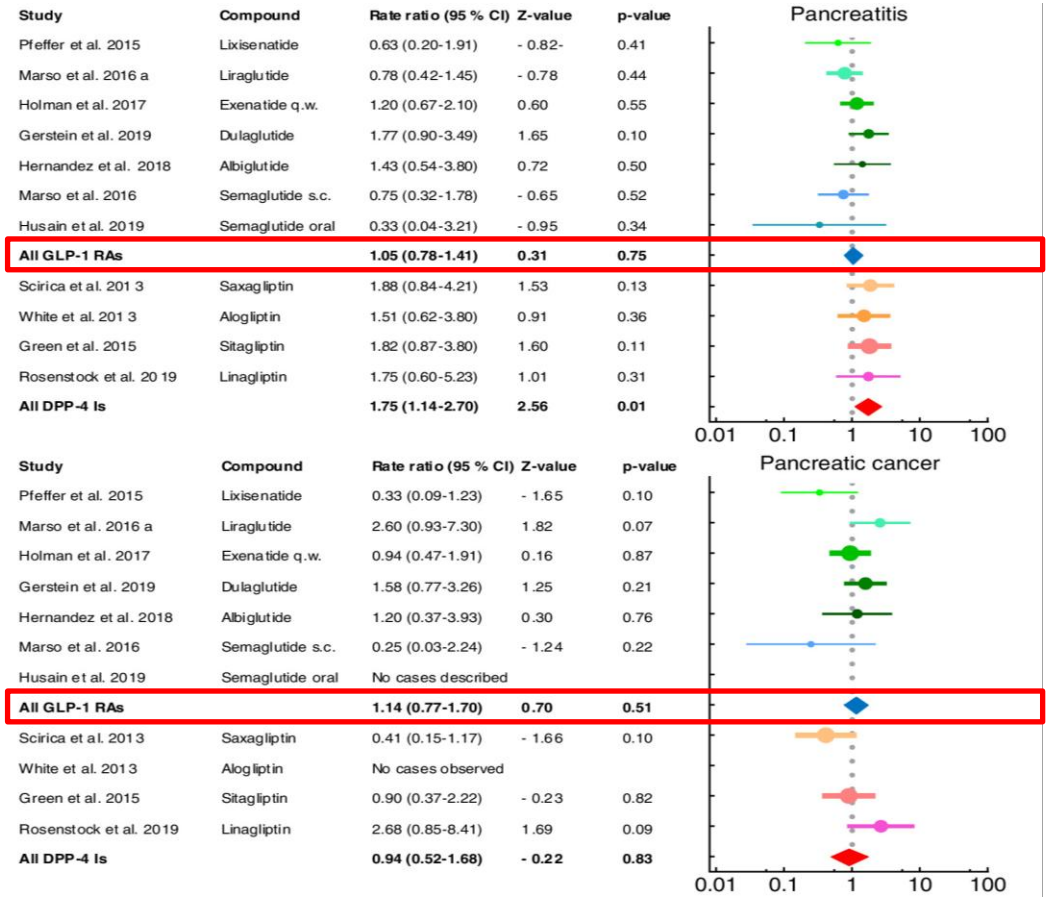
GLP-1 and Pancreas



- Early case reports raised concerns for increased risk for acute pancreatitis with GLP-1 agonists use
  - Study using FDA Adverse Event Reporting System database in 2019-2021 showed a link between pancreatitis and GLP-1 agonists
  - Meta-analysis of randomized controlled trials showed a low incidence of pancreatitis associated with GLP-1 agonists use, with **no increase in risk**

Alenzi KA et al. Front Pharmacol 2024
Li L et al. BMJ 2014

GLP-1 and Pancreas



Study	Compound	Rate ratio (95 % CI)	Z-value	p-value
Pfeffer et al. 2015	Lixisenatide	0.63 (0.20-1.91)	- 0.82-	0.41
Marso et al. 2016 a	Liraglutide	0.78 (0.42-1.45)	- 0.78	0.44
Holman et al. 2017	Exenatide q.w.	1.20 (0.67-2.10)	0.60	0.55
Gerstein et al. 2019	Dulaglutide	1.77 (0.90-3.49)	1.65	0.10
Hernandez et al. 2018	Albiglutide	1.43 (0.54-3.80)	0.72	0.50
Marso et al. 2016	Semaglutide s.c.	0.75 (0.32-1.78)	- 0.65	0.52
Husain et al. 2019	Semaglutide oral	0.33 (0.04-3.21)	- 0.95	0.34
All GLP-1 RAs		**1.05 (0.78-1.41)**	**0.31**	**0.75**
Scirica et al. 201 3	Saxagliptin	1.88 (0.84-4.21)	1.53	0.13
White et al. 201 3	Alogliptin	1.51 (0.62-3.80)	0.91	0.36
Green et al. 2015	Sitagliptin	1.82 (0.87-3.80)	1.60	0.11
Rosenstock et al. 20 19	Linagliptin	1.75 (0.60-5.23)	1.01	0.31
All DPP-4 Is		**1.75 (1.14-2.70)**	**2.56**	**0.01**

Study	Compound	Rate ratio (95 % CI)	Z-value	p-value
Pfeffer et al. 2015	Lixisenatide	0.33 (0.09-1.23)	- 1.65	0.10
Marso et al. 2016 a	Liraglutide	2.60 (0.93-7.30)	1.82	0.07
Holman et al. 2017	Exenatide q.w.	0.94 (0.47-1.91)	0.16	0.87
Gerstein et al. 2019	Dulaglutide	1.58 (0.77-3.26)	1.25	0.21
Hernandez et al. 2018	Albiglutide	1.20 (0.37-3.93)	0.30	0.76
Marso et al. 2016	Semaglutide s.c.	0.25 (0.03-2.24)	- 1.24	0.22
Husain et al. 2019	Semaglutide oral	No cases described		
All GLP-1 RAs		**1.14 (0.77-1.70)**	**0.70**	**0.51**
Scirica et al. 2013	Saxagliptin	0.41 (0.15-1.17)	- 1.66	0.10
White et al. 2013	Alogliptin	No cases observed		
Green et al. 2015	Sitagliptin	0.90 (0.37-2.22)	- 0.23	0.82
Rosenstock et al. 2019	Linagliptin	2.68 (0.85-8.41)	1.69	0.09
All DPP-4 Is		**0.94 (0.52-1.68)**	**- 0.22**	**0.83**

- More recent meta-analysis of cardiovascular outcome trials of GLP-1 agonists showed **no increase in risk of pancreatitis or pancreatic cancer** compared to placebo

El Aziz MA et al. Diabetes Obes Metab 2020

GLP-1 Agonists GI Effects: Management

- Nausea, vomiting, constipation, diarrhea, altered appetite/satiety are common symptoms associated with GLP-1 agonists
- Potential underlying mechanisms
  - Delayed gastric emptying
  - Change in gastric accommodation
  - Altered intestinal motility
  - Impact on central control of appetite/feeding
  - Effect on gut-brain interactions / neurosensory input of GI tract

GLP-1 Agonists GI Effects: Management

- Anti-emetics
- Bowel regimen
- Pro-motility agents
- Neuromodulators
- Acid suppression

← Discontinue GLP-1 agents

- Start at lowest dose with slower titration
- Dose de-escalation
- Change regimen/agent

- Reassurance: most symptoms observed during dose escalation and often improve with persistent use
- Lifestyle and dietary management of symptoms

GLP-1 Agonists GI Effects: Management

GLP-1 Agonists: Procedural Considerations

- Concern for possible risk of aspiration from delayed gastric emptying that may be associated with GLP-1 agonists use
- Retrospective observational studies showed increased rates of gastric residue on upper endoscopy
  - 5.4-24.2% with GLP-1 RA vs 0.5-5.1% with controls
  - Possible increased risk among those with diabetes and complications
  - Limitations:
    - Gastric residue = varying definitions of consistency and volume
    - Retrospective chart review based only on procedural reports

Kobori T et al. J Diab Invest 2023
Silveira SQ et al. J Clin Anesth 2023
Nadeem D et al. Gastrointest Endosc 2024
Garza K et al. Am J Gastroenterol 2024

GLP-1 Agonists: Procedural Considerations

- Debates on proper peri-procedural management of patients on GLP-1 agonist medications
- Initial conflicting guidelines/practice updates from professional societies
  - *American Society of Anesthesiologists* (Consensus-Based Guidance)
    - Withhold GLP-1 agents for a day (short-acting) or week (long-acting) before procedure
    - Delay procedure for patients with GI symptoms concerning for gastric residue or those who did not withhold medications
  - *American Gastroenterological Association* (Clinical Practice Update)
    - Continue GLP-1 agents
    - Liquid only diet on the day before procedure with standard fasting period

https://www.asahq.org/about-asa/newsroom/news-releases/2023/06/american-society-of-anesthesiologists-consensus-based-guidance-on-preoperative
Hashash JG et al. Clin Gastroenterol Hepatol 2024

GLP-1 Agonists: Procedural Considerations

- Concurrent colonoscopy (with clear liquid diet + bowel preparation) may decrease gastric residue risks with GLP-1 agonists
  - Case-control study of 612 patients undergoing endoscopy
    - Higher rates of gastric residue with GLP-1 agents (14% vs 4%), particularly in patients with type II diabetes, insulin-dependent, or with complications of diabetes
    - Lower rate of gastric residue if patients underwent prolonged fasting and clear liquids for concurrent colonoscopy (2%)
  - Retrospective cohort of 1512 GLP-1 agonist users undergoing endoscopy
    - Overall rate of retained gastric residue: 9.4%
    - Concurrent colonoscopy independently protects against retained residue (OR 0.34, $p<0.001$)

Garza K et al. Am J Gastroenterol 2024
Firkins SA et al. Clin Gastroenterol Hepatol 2024

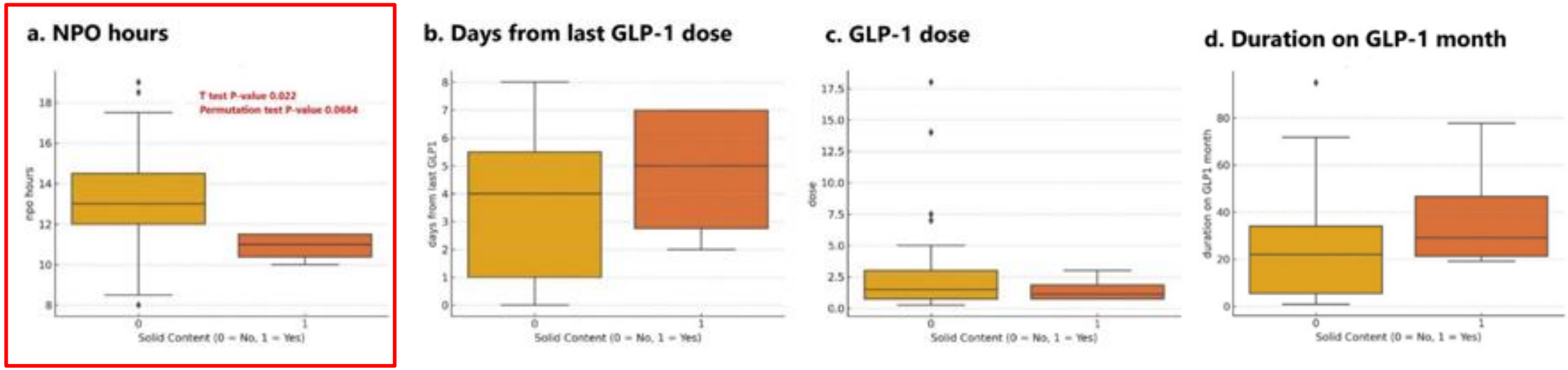
GLP-1 Agonists: Procedural Considerations

- Risk of respiratory complications with perioperative GLP-1 agonists
  - Large claim-based database (TriNetX) study of ~15,000 users vs non-users
    - 126 events in GLP-1 group vs 94 in non-users (absolute risk difference: 0.2%)
    - Limitation: inadequate control of confounding (lack of non-active comparator)
  - Large national database (Merative MarketScan) of 3502 GLP-1 agent users vs 20,177 non-users
    - Included only patients with same-day, emergent surgery (i.e. no withholding of meds)
    - Active comparator group of diabetes patients without prescription for GLP-1 agents
    - No difference in respiratory complication risks (OR 1.03, p=0.80)

Yeo YH et al. Gastroenterology 2024
Dixit AA et al. JAMA 2024

GLP-1 Agonists: Procedural Considerations

- Retained gastric contents among GLP-1 agonist users presenting for endoscopy appears to correlate most strongly with **fasting duration**, but *not* GLP-1 agonist last dose, dosage, or duration of use



N=134 adult GLP-1 RA users undergoing gastric ultrasound when presenting for upper endoscopy

Shahidifar E et al. Dig Dis Sci 2025

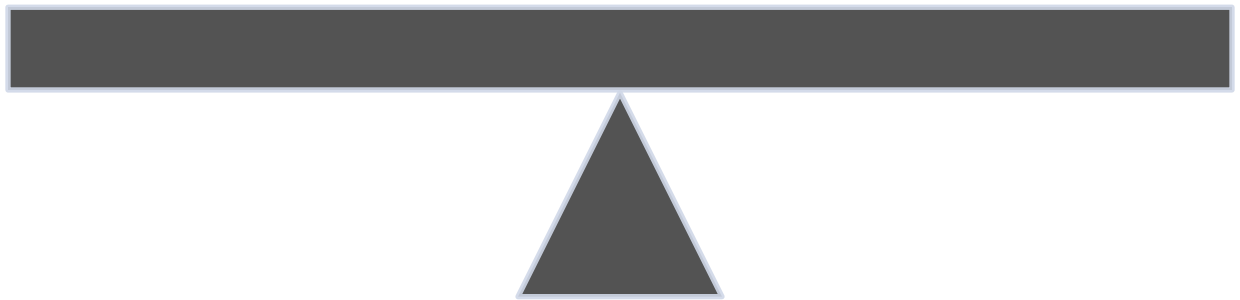
GLP-1 Agonists, Foregut Motility, and Endoscopy Considerations

- What do we know about the endoscopy and peri-procedural considerations of GLP-1 agonists use?
  - Evidence of ↑ gastric residue, but may be mediated by fasting duration
  - Some delay in solid emptying (but likely mild relative to pre-procedural fasting)
  - No/minimal delay in liquid emptying
    - Concurrent colonoscopy (with clear liquid diet + bowel prep) ↓ risk of gastric residue
  - No clear evidence of increased aspiration or respiratory complication related to GLP-1 agonists use
  - Modestly increased risk for inadequate bowel preparation and incomplete or aborted examinations

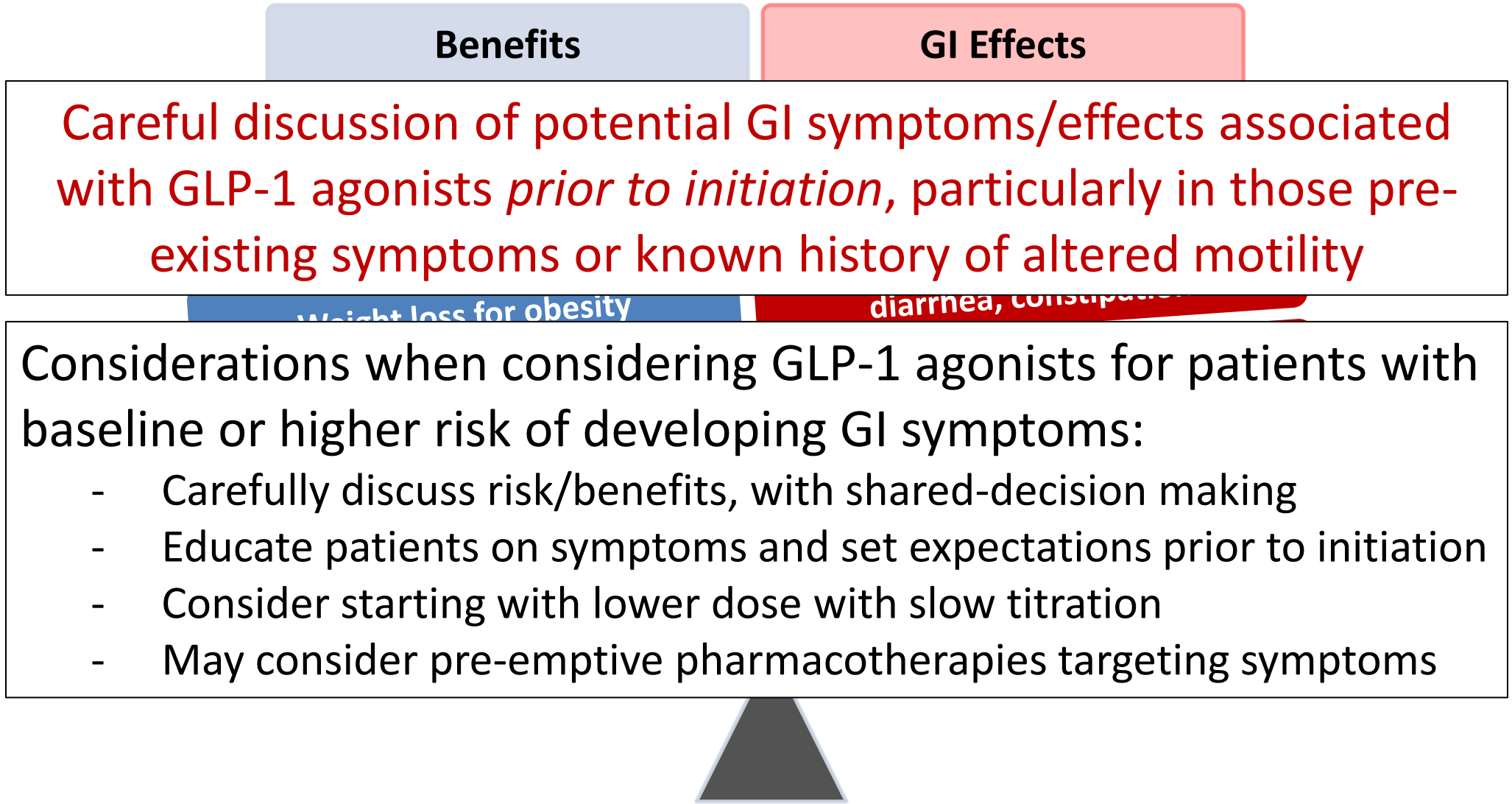
GLP-1 Agonists: Friend or Foe?

Benefits

GI Effects



GLP-1 Agonists: Friend or Foe?



Take-Home Points

- Common GI effects of GLP-1 agonists: nausea, diarrhea, constipation, vomiting, abdominal pain, dyspepsia
  - GLP-1 effects on GI tract may be due to different mechanisms:
    - Dysmotility, central impact on satiety/appetite, altered gut-brain interactions
- Management of symptoms
  - Conservative: most symptoms improve over time
  - Dosage / agent adjustment: slower titration, dose de-escalation, change agent
  - Pharmacotherapy: anti-emetic, bowel regimen, promotility agent, neuromodulator
- Multidisciplinary approach to pre-procedural GLP-1 users management
  - Respiratory complication risk appears low, and may be further modulated with clear liquid diet prior to procedure

Thank You

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