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The Application of GLP-1 Receptor Agonists Before Bariatric Surgery

Stephen NG

Consultant Surgeon, Clinical Associate Professor (Honorary)
Prince of Wales Hospital, The Chinese University of Hong Kong

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Combined Therapies, The Dawn of a New Era

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Disclosure Slide



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Scope to Discussions

- Rationales/Indications of GLP-1RA use before surgery
- Existing Data
- Practical Considerations



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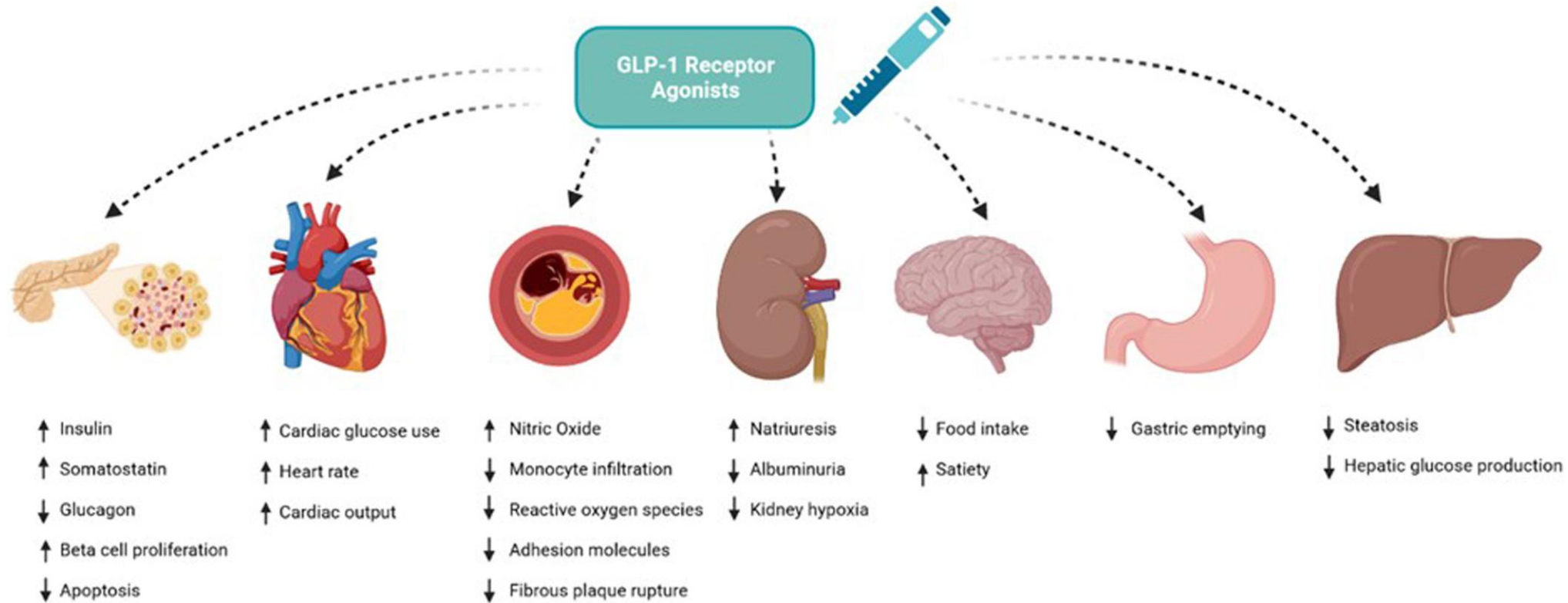
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Actions of GLP-1 RA



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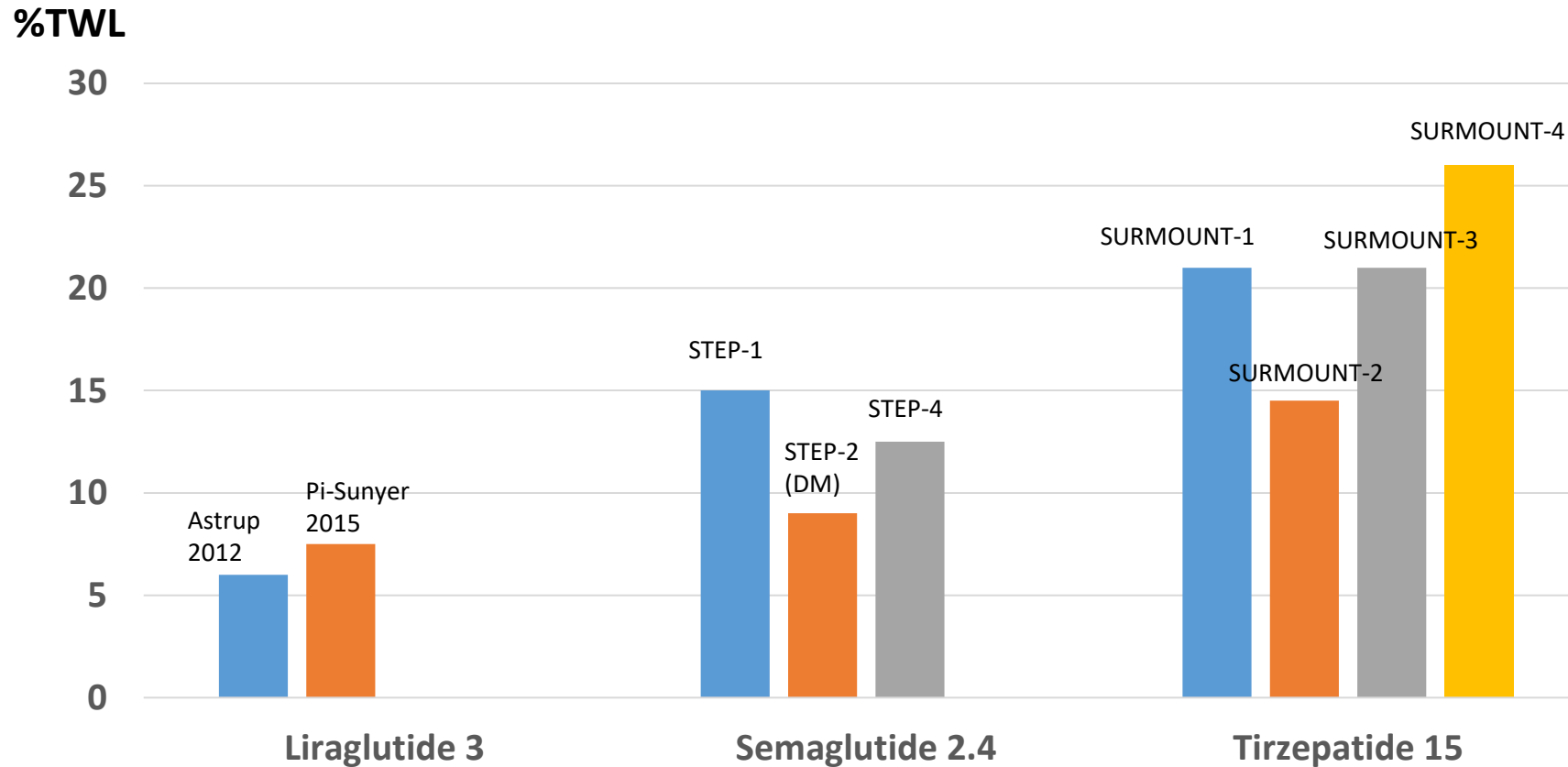
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Weight Loss Efficacy of GLP-1 RAs



GLP-1 RAs(+GIP) produce significant weight reduction (5-25%)



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Benefits of GLP-1 RA on Medical Comorbidities




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The NEW ENGLAND
JOURNAL of MEDICINE






Phase 3 Trial of Semaglutide in Metabolic Dysfunction–Associated Steatohepatitis

Authors: Arun J. Sanyal, M.D., Philip N. Newsome, M.B., Ch.B., Ph.D., Iris Kliers, M.D., Laura Harms Østergaard, M.Sc., Michelle T. Long, M.D., Mette Skalhøj Kjær, M.D., Ph.D. , Anna M.G. Cali, M.D., Elisabetta Bugianesi, M.D., Ph.D., Mary E. Rinella, M.D., Michael Roden, M.D., and Vlad Ratziu, M.D., Ph.D., for the ESSENCE Study Group* [Author Info & Affiliations](#)

Cardiovascular and renal outcomes of glucagon-like peptide 1 receptor agonists among patients with and without type 2 diabetes mellitus: A meta-analysis of randomized placebo-controlled trials

[Frederick Berro Rivera](#)^a, [Linnaeus Louise A. Cruz](#)^b, [John Vincent Magalong](#)^b, [Jade Monica Marie J. Ruyeras](#)^c, [John Paul Aparece](#)^d, [Nathan Ross B. Bantayan](#)^b, [Kyla Lara-Breitinger](#)^e, [Martha Gulati](#)^f   

Benefits of GLP-1 (Glucagon-Like Peptide 1) Receptor Agonists for Stroke Reduction in Type 2 Diabetes: A Call to Action for Neurologists

Ronald M. Goldenberg, MD  , Alice Y.Y. Cheng, MD , Tess Fitzpatrick, MD , Jeremy D. Gilbert, MD , Subodh Verma, MD, PhD

GLP-1 Receptor Agonists for the Reduction of Atherosclerotic Cardiovascular Risk in Patients With Type 2 Diabetes

[Nikolaus Marx](#), MD  , [Mansoor Husain](#), MD , [Michael Lehrke](#), MD , [Subodh Verma](#), MD, PhD , and [Naveed Sattar](#), FMedSci, PhD



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Rationale

- Preoperative weight loss & optimization of medical comorbidities
 - Reduces perioperative complication and mortality
 - Reduces operative time

- Predict response to bariatric surgery



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Literature : GLP-1 RA as Bridging Therapy

- Not fit for surgery / Waiting for surgery

Study	Medication	No. of Patients	BMI	Duration	Median TWL
Stier 2022	Liraglutide 1.8mg (+VLCD)	26	>70kg/m ²	3-4 weeks	11.4%
Martines 2023	Liraglutide 3mg	42	>50kg/m ²	24 weeks	6.71%
Rubio-Herrera 2023	Liraglutide 3mg, or Semaglutide 1mg	102	≥40kg/m ² , or BMI ≥35kg/m ² + comorbidities	≥26 weeks	16.1% (Lira) 16.9% (Sema)
Wilmington 2024	Liraglutide 3mg	50	40kg/m ²	26-52 weeks	TWL >5%: 85.7% TWL >10%: 33.3%
Sanche Munoz 2024	Liraglutide 3mg	37	>40kg/m ²	12 weeks	5.5%

GLP-1 RA as bridging therapy procedure effective weight loss



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Literature : Effects on Postoperative Outcomes



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JAMA Surgery

Neoadjuvant Semaglutide, Bariatric Surgery Weight Loss, and Overall Outcomes

Vasundhara Mathur, MD¹; Katherine Wasden, BA¹; Thomas H. Shin, MD, PhD¹; et al

- Retrospective study, propensity score matching
- Preoperative Semaglutide (n=182) vs control (n=182)
- FU 12 months

No difference in postoperative complications, %TWL and T2DM remission at 12 months

Surgical Outcomes in Patients with Preoperative GLP-1 Therapy: A Retrospective Analysis

- Retrospective study, propensity score matching
- Preoperative GLP-1RA: Lira/Sema/Dulia (n=54) vs control (n=54)
- FU 36 months

No difference in postoperative complications, %TWL and comorbidity improvement at 36 months

Uncertain Benefits on Postoperative Outcomes



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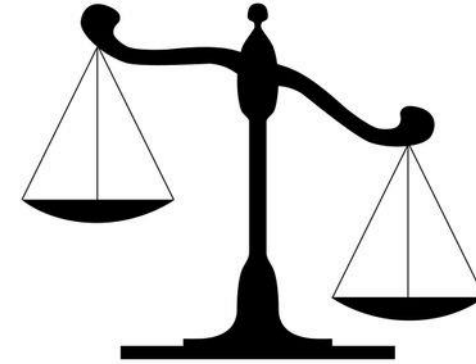
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Drawbacks

- Cost
 - Cost of Liraglutide in HK : USD\$100/month
- Some patients have suboptimal response to OMM
- Delay of surgery
 - Titration periods for newer therapies **may require up to 6 months** till achieve maximal effect
- Withdrawal from surgery
 - Rubio-Herrera 2023: **68.6% patients withdrew from MBS waiting list**



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IFSO Recommendations



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International consensus position statement on the role of obesity management medications in the context of metabolic bariatric surgery: expert guideline by the International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO)

Ricardo V. Cohen^{1,*} , Luca Busetto² , Randy Levinson³, Carel W. Le Roux⁴, Paulina Salminen^{5,6}  and Gerhard Prager⁷ on behalf of the experts of the International Consensus on the Role of Obesity Management Medications in the Context of Metabolic Bariatric Surgery

1. There is **insufficient high level evidence to support routine use** of OMMs for weight loss before surgery
2. The decision to use OMMs before surgery should be **personalized** to determine the most appropriate strategy for each patients' circumstances
3. **Future research is needed** to explore the value of using OMMs before MBS to assess their benefits, risks, and clinical outcome



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Questions need to be answered:

- Are there real benefits of surgical outcome with pre-op GLP-1 use?
- Who should receive GLP-1 RA before surgery
 - ? Extreme obesity, ? High surgical risks
- What is the treatment target
 - ? 5%, ? 10%
- How long should we wait for the effect
 - ? 12 weeks, ? Longer, ? Target-oriented(%TWL)
- What should be done for patients with poor response to GLP-1 RA?
 - ? Switch to other GLP-1 RA/GIP/endoscopy
 - ? Choice of Surgical procedure



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Safe Use of GLP1-RA

- Gradual titration
- Monitor for possible side effects
 - GI side effects (common), acute pancreatitis, gallstone, visual problem
- **Peri-operative aspiration risk**
 - Controversy of study findings on aspiration risk
 - 8 studies reported an increase in aspiration risk in GLP-1 RA users vs non-users
 - 4 studies reported no difference



Current Medical Research and Opinion, 41(4), 699–712



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AGA/ASMBS/ASA/ISPCPO/SAGES Guidelines



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

1. Identify **factors for increased risk** of delayed gastric emptying and aspiration
 - Escalation phase
 - Higher dose
 - Weekly dose
 - Presence of GI symptoms
 - Concomitant medical conditions : bowel dysmotility, gastroparesis, Parkinson disease, etc
2. GLP-1 RA may be **continued in pre-operatively in patients without elevated risk**
3. Measures to minimize aspiration risk
 - **Fluid diet 24 hours before surgery**
 - Gastric USG on day of surgery
 - Rapid sequence induction
 - **Hold Lira one day, hold Dulia/Sema/Tirz one week before**



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Conclusions

- No data to support routine GLP-1 RA use before surgery
- May be beneficial in selected patients. Further research is required
- Pre-operative assessment on risk of aspiration with preventive measures



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Thank You