

Network Meta-analysis Of Endoscopic Sleeve Gastrectomy Versus Pharmacotherapy And Lifestyle Intervention For The Treatment Of Obesity (BMI \geq 30 kg/m²)

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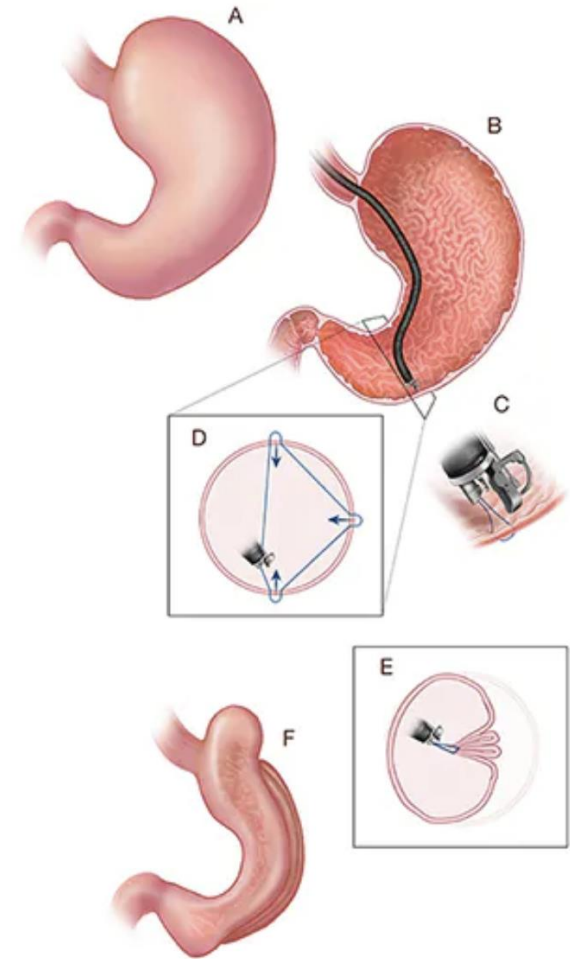
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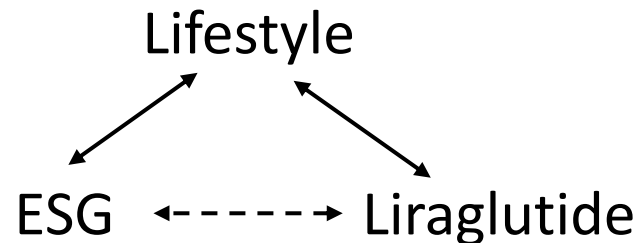
Background

- Endoscopic sleeve gastrectomy has emerged as a minimally invasive approach for the treatment of obesity
- It involves the plication of the greater curvature of the stomach with a full-thickness endoscopic suturing device (OverStitch, Apollo Endosurgery, Austin, TX)



Background

- New pharmacotherapies like glucagon-like peptide-1 receptor agonists (GLP1-RA) e.g. liraglutide has demonstrated remarkable efficiency
- ESG and liraglutide are promising options in the treatment armamentarium of mild obesity (BMI 30-40 kg/m²)
- This systematic review and network meta-analysis (SRMA) seeks to explore outcomes of ESG versus liraglutide 3.0mg versus lifestyle intervention for the treatment of patients with BMI \geq 30 kg/m²



Methods

- Comprehensive search across 4 databases (PUBMED/MEDLINE, EMBASE, Cochrane, Scopus) from inception till 31st June 2024

P

Patients with Class I obesity BMI \geq 30 kg/m²

I

Patient receiving ESG or liraglutide 3.0mg

C

Lifestyle intervention/dietary intervention/placebo

O

Primary: %TWL, %EWL, BMI loss, weight loss

Secondary: adverse events, serious adverse events (SAEs), treatment discontinuation rates

Results



ESG (n=236) vs lifestyle (n=427)



Mean age 46.3



Female 82.7%



Mean BMI 38.1 kg/m²

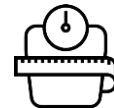
Liraglutide (n=4529) vs lifestyle (n=2965)



Mean age 47.3



Female 69.5%



Mean BMI 38.0 kg/m²

Results: %TWL

	ESG	Liraglutide	Lifestyle
ESG	NIL	-4.6 (-6.5, -2.7)	-9.0 (-10.8, -7.3)
Liraglutide	4.6 (2.7, 6.5)	NIL	-4.4 (-5.1, -3.7)
Lifestyle	9.0 (7.3, 10.8)	4.4 (3.7, 5.1)	NIL

	P score
ESG	1.0
Liraglutide	0.5
Lifestyle	0.0



Only 52weeks-56weeks f/u



Results: AEs

ESG

- Pooled rate of 84.4% (n = 168/199)
- GI symptoms (66%)

Liraglutide

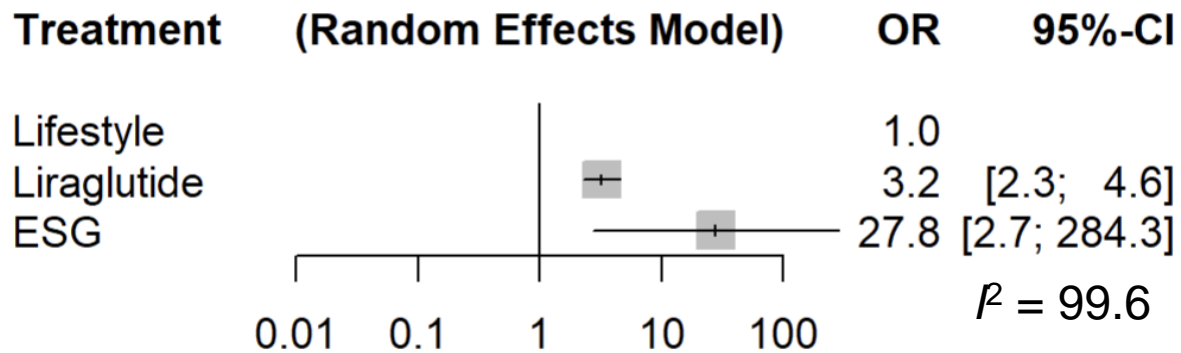
- Pooled rate of 84.5% (n = 3705/4385)
- GI symptoms (68.4%)
- Infections (26.6%)
- Injection site reactions (12.3%)
- Hypoglycaemia (10.9%)
- Cardiovascular events (4.0%)
- Neoplasm (1.5%)
- Allergic reaction (1.0%)

Network meta-analysis was not possible since only one ESG study provided data on adverse events

Results: SAEs

	ESG	Liraglutide	Lifestyle
ESG	NIL	0.1 (0.0, 1.2)	0.0 (0.0, 0.4)
Liraglutide	8.6 (0.8, 90.2)	NIL	0.3 (0.2, 0.4)
Lifestyle	27.8 (2.7, 284.3)	3.2 (2.3, 4.6)	NIL

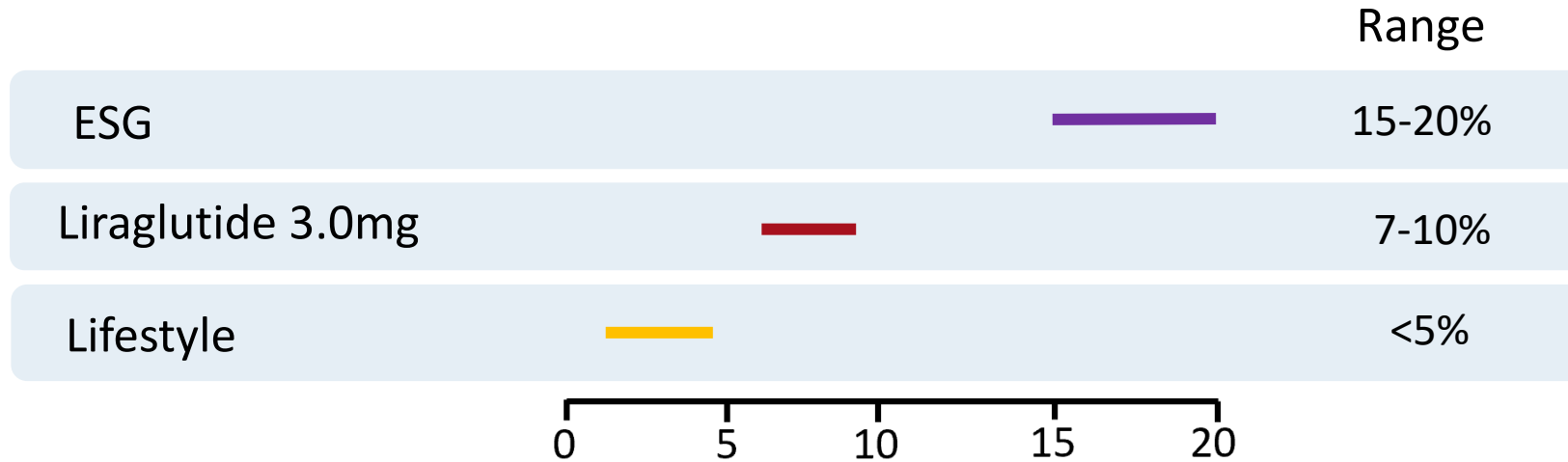
	P score
Lifestyle	1.0
Liraglutide	0.5
ESG	0.0



Discussion: Summary

- Our study demonstrated that ESG is associated with **higher weight loss** compared to liraglutide and lifestyle intervention
- However, there is a corresponding **higher rate of serious adverse events** with ESG

Discussion: weight loss



- Our meta-analysis is consistent with weight loss estimates based on published trial results
- High discontinuation rate (up to 50%) for liraglutide and subsequent weight regain
- Promising midterm weight loss results for ESG

Discussion: SAEs and metabolic parameters

- Higher SAEs from ESG were mainly procedural-related (upper GI bleeding and perigastric collections)
- SAEs from liraglutide are rare and include pancreatitis, gallbladder disease, neoplasm, and cardiovascular events (incidence <1%)
- Improvement in metabolic parameters correlate with weight loss
 - > Resolution rates of up to 60% for DM, HTN, dyslipidemia and OSA for ESG

Discussion: Future work

- Variation of ESG in terms of suturing pattern, number of sutures, interval in stomach length, tightness of cinching
- Indications for offering ESG (optimal BMI target, upfront therapy vs 2nd line to bariatric surgery, bridge to bariatric surgery, revisional procedure)
- Comparison with other endobariatric procedures (e.g. POSE)
- Cost effectiveness analysis of ESG vs pharmacotherapies

- Thank you