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POSTER PRESENTATION

Semaglutide Therapy Improves Cardiac Remodeling in Egyptian Patients With Obesity-Related HFpEF: A Multicenter Echocardiographic Study

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INTRODUCTION

- Obesity drives a distinct HFpEF phenotype marked by volume expansion, epicardial fat, pericardial restraint and adverse atrial and right-heart remodeling.
- Obesity-related HFpEF is increasingly prevalent in Egypt, mirroring the high national burden of obesity.
- In STEP-HFpEF, semaglutide 2.4 mg improved symptoms, physical limitation, exercise capacity and body weight.
- Its effects on cardiac structure and function in Middle Eastern cohorts remain poorly characterized.

AIM

To evaluate the impact of once-weekly semaglutide on cardiac remodeling and echocardiographic functional parameters in Egyptian patients with obesity-related HFpEF over 52 weeks.

Table 1. Study characteristics

Design	Prospective, randomized, placebo-controlled echo substudy
Setting	5 tertiary cardiac centers, Egypt
Participants	462 patients with obesity-related HFpEF
Semaglutide arm	n = 232; 2.4 mg SC once weekly
Placebo arm	n = 230
Follow-up	52 weeks
Imaging	Standardized TTE at baseline and 52 weeks
Primary endpoint	Change in LA volume
Adjustment	Baseline value, BMI, diabetes, AF

Study at a glance

462 patients randomized

5 tertiary cardiac centers

2.4 mg semaglutide, once weekly

52 wk echo follow-up

Baseline demographic and echocardiographic characteristics were comparable between the two groups.

METHODS

- **Design:** prospective, randomized, placebo-controlled, multicenter echocardiographic substudy.
- **Population:** 462 adults with obesity-related HFpEF from five tertiary cardiac centers in Egypt.
- **Intervention:** semaglutide 2.4 mg SC once weekly (n=232) vs placebo (n=230).
- **Imaging:** standardized transthoracic echocardiography at baseline and 52 weeks.
- **Primary endpoint:** change in left atrial (LA) volume.
- **Secondary:** RV dimensions, diastolic indices (E/e′, E/A), LV geometry and systolic performance.
- **Statistics:** multivariable ANCOVA adjusted for baseline value, BMI, diabetes status and atrial fibrillation.

Figure 1. Study design and flow

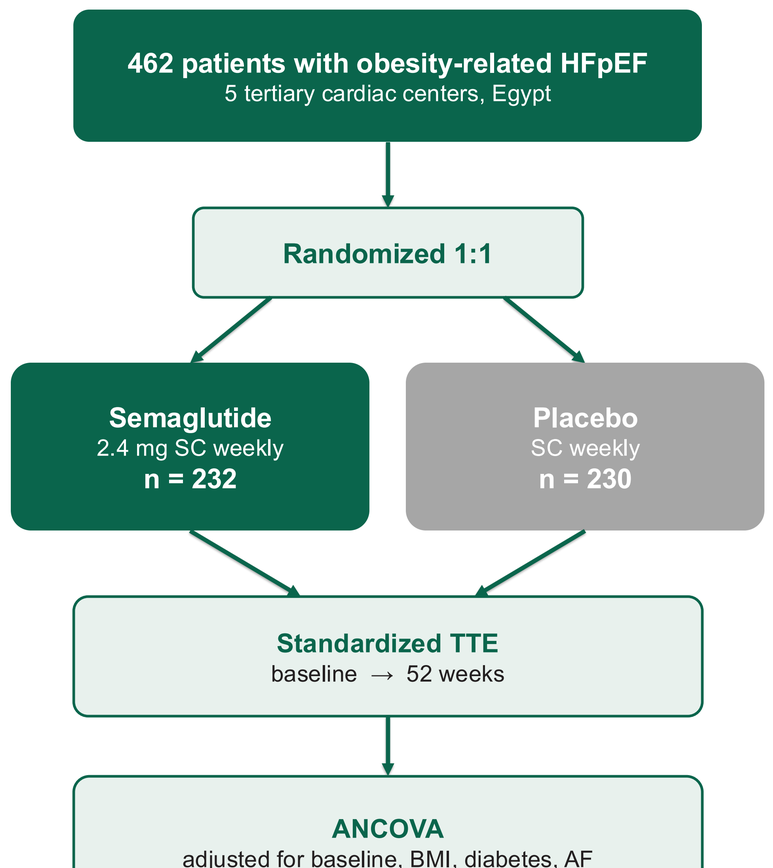
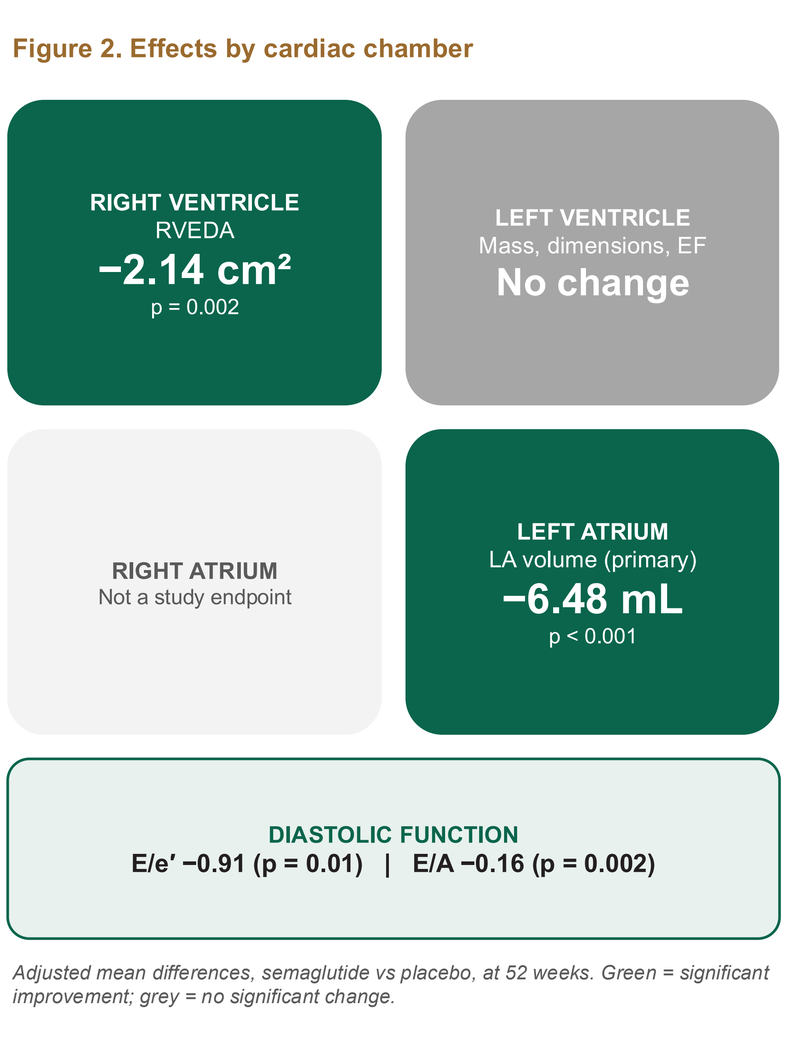


Figure 2. Effects by cardiac chamber



Adjusted mean differences, semaglutide vs placebo, at 52 weeks. Green = significant improvement; grey = no significant change.

RESULTS

Baseline characteristics were comparable. At 52 weeks, semaglutide significantly improved atrial, RV and diastolic indices.

−6.48 LA volume, mL p<0.001

−2.14 RVEDA, cm² p=0.002

−0.91 E/e′ ratio p=0.01

−0.16 E/A ratio p=0.002

Table 2. Adjusted differences at 52 weeks

Parameter	Mean difference (95% CI)	p
LA volume, mL (primary)	**−6.48 (−9.72 to −3.24)**	**<0.001**
RVEDA, cm²	−2.14 (−3.51 to −0.77)	0.002
E/e′ ratio	−0.91 (−1.61 to −0.21)	0.01
E/A ratio	−0.16 (−0.26 to −0.06)	0.002
LV mass	No significant change	NS
LV dimensions	No significant change	NS
LV ejection fraction	No significant change	NS

Semaglutide vs placebo; ANCOVA adjusted for baseline value, BMI, diabetes and AF.

Weight loss and LA reverse remodeling

Interaction p = 0.028

Greater semaglutide-induced weight loss was independently associated with greater LA volume regression.

CONCLUSIONS

- Semaglutide attenuated LA and RV remodeling and improved diastolic function.
- LV mass, dimensions and EF were unchanged.
- LA reverse remodeling tracked weight loss.
- **Supports a potential disease-modifying role in Egyptian obesity-related HFpEF.**

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