

# Laparoscopic Sleeve Gastrectomy in Adolescents: Metabolic Consequences

Ybarra M<sup>1</sup>; Franco RR<sup>1</sup>; Cominato L<sup>1</sup>; Velhote MCP<sup>1</sup>; Damiani D<sup>1</sup>

1 - Instituto da Criança - Hospital das Clínicas - Faculdade de Medicina - Universidade de São Paulo

## BACKGROUND

Severe obesity (SO), defined as BMI ≥ 95th percentile, has increased worldwide among adolescents. American studies estimated that 1.3-2.8% of 12-19-year-old individuals have a BMI >40 kg/m<sup>2</sup> or a BMI >35 kg/m<sup>2</sup> with at least one serious comorbidity. The immediate and long-term risks associated with SO in adolescents include cardiovascular and metabolic diseases, obstructive sleep apnoea and nonalcoholic fatty liver disease. However, the results of sleeve gastrectomy in adolescents are still uncertain.

## OBJECTIVES AND HYPOTHESIS

We aimed to assess the long-term safety, efficacy, and metabolic changes of laparoscopic sleeve gastrectomy in adolescents with SO.

## METHODS

Longitudinal retrospective study of 22 adolescents with SO who underwent laparoscopic sleeve gastrectomy. Clinical and metabolic variables immediately before surgery and after 6, 12, 18 and 24 months were assessed.

## RESULTS

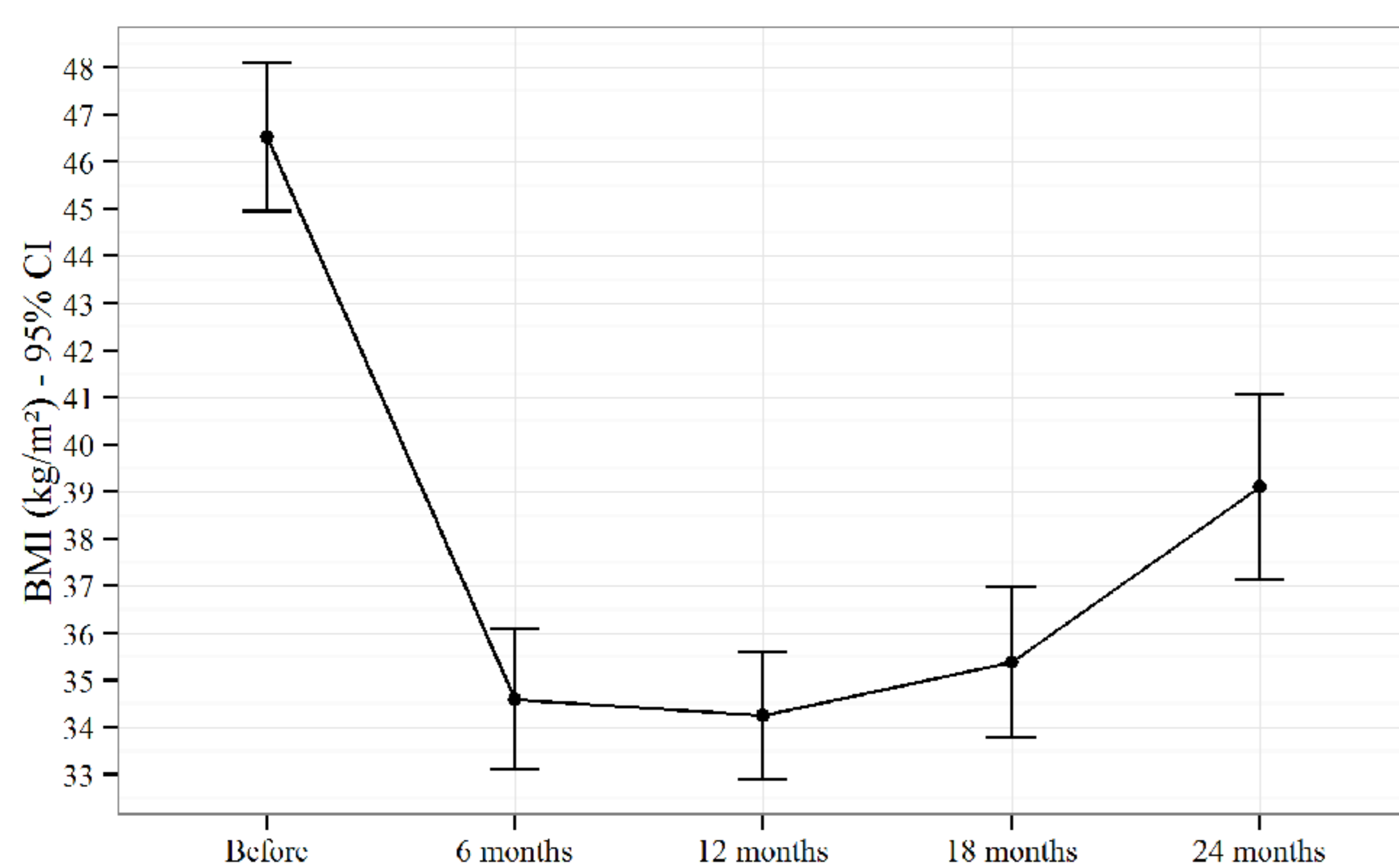


Figure 2. Percent of reduction in body mass index (BMI) following laparoscopic sleeve gastrectomy (LSG) in severely obese adolescents

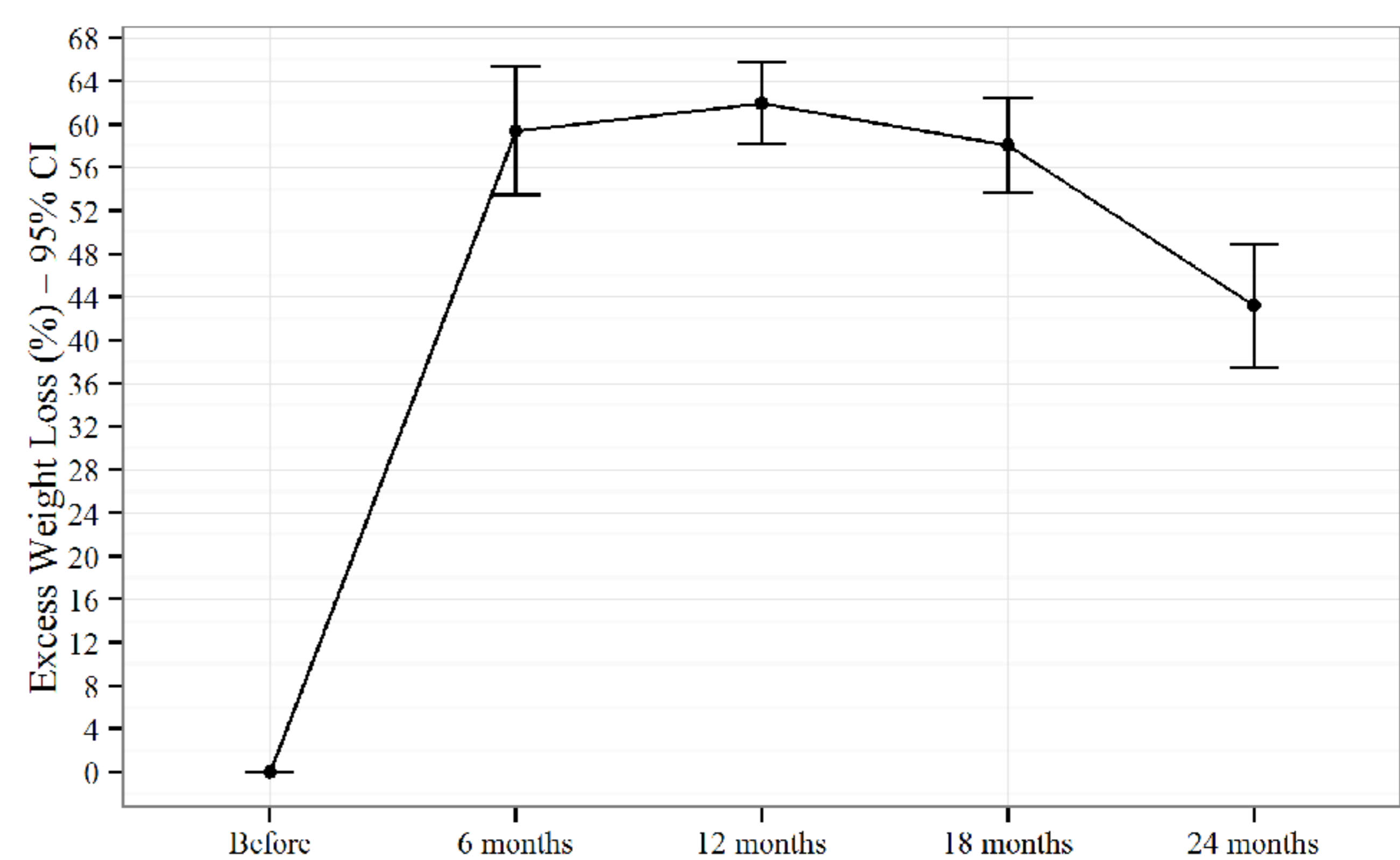


Figure 1. Percent of excess weight loss (EWL) following laparoscopic sleeve gastrectomy (LSG) in severely obese adolescents

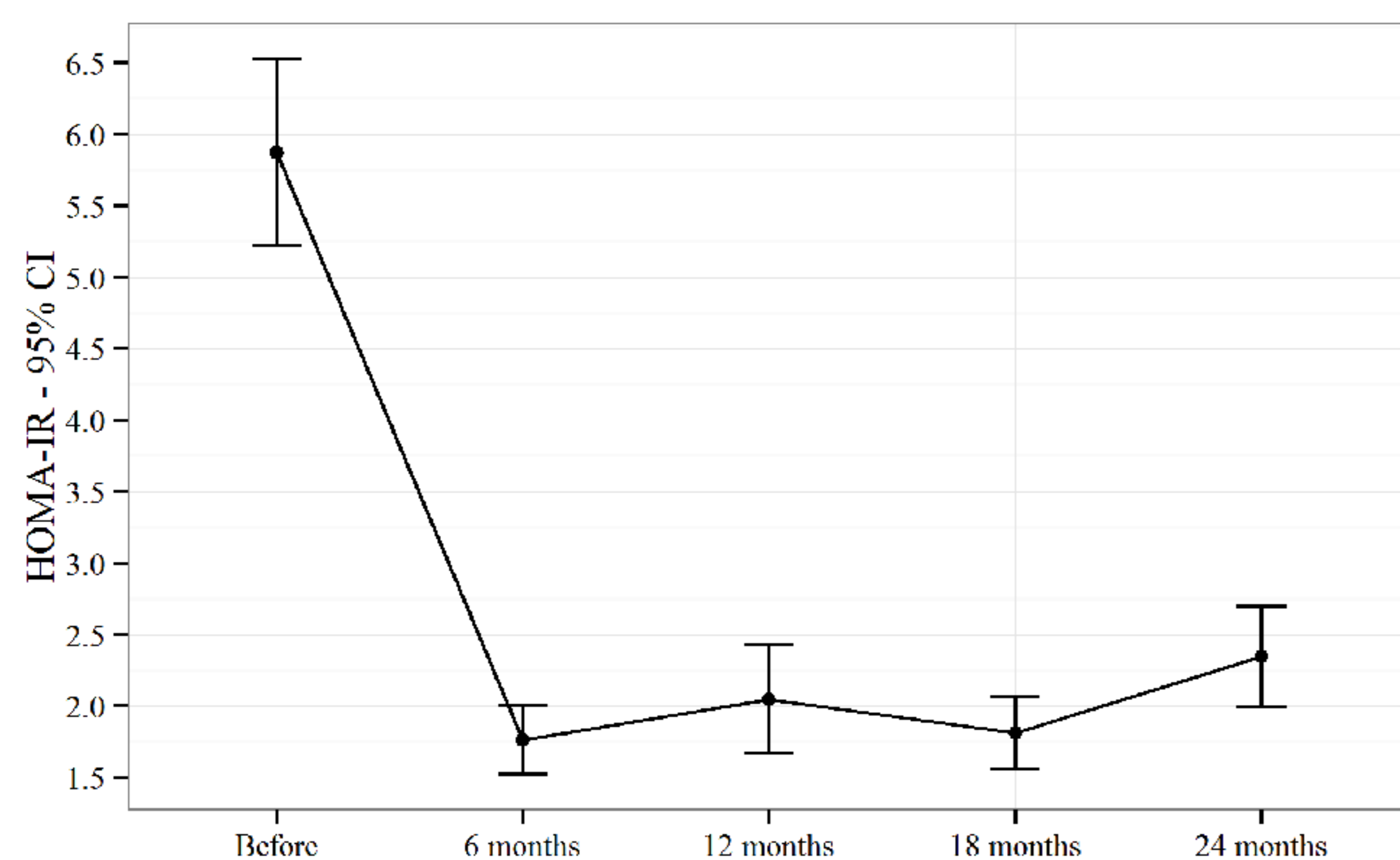


Figure 3. Mean HOMA-IR (homeostatic model assessment of insulin resistance) post laparoscopic sleeve gastrectomy (LSG) in severely obese adolescents.

Measure	Before	12 months	24 months	p value <sup>1</sup>
SAH	13/22 (59.1%)	3/17 (17.6%)	3/14 (21.4%)	<b>0.023</b>
DM	1/22 (4.5%)	0/12 (0%)	0/13 (0%)	0.999
OGI	2/22 (9.1%)	0/12 (0%)	0/13 (0%)	0.999
HOMA-IR > 2.5	21/22 (95.5%)	4/12 (33.3%)	6/13 (46.2%)	<b>0.046</b>
Hepatic steatosis	12/22 (54.5%)	2/12 (16.7%)	1/14 (7.1%)	<b>0.027</b>
Dyslipidemia	21/22 (95.5%)	2/12 (16.7%)	3/13 (23.1%)	<b>0.004</b>

(1) McNemar's between measures at baseline and 24 months follow up.

Table 1. Remission of comorbidities relative to the time post laparoscopic sleeve gastrectomy in severely obese teens. SAH: systemic arterial hypertension; DM: type 2 diabetes; OGI: oral glucose intolerance; HOMA-IR: homeostatic model assessment of insulin resistance.

The mean age was 16.89 years. The mean preoperative weight and BMI were 128.5 kg (SD 23.1) and 46.5 kg/m<sup>2</sup> (SD 7.4), respectively.

## CONCLUSION

Laparoscopic sleeve gastrectomy in adolescents with SO seems to be a safe and effective procedure associated to weight and BMI loss and significant metabolic improvement in the first two years.

