Changes in insulin sensitivity in adolescents who underwent bariatric surgery: effects of laparoscopic sleeve gastrectomy and laparoscopic gastric banding
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**Background:** in adults, bariatric surgery has gradually emerged as a "metabolic" surgery, able to rapidly improve metabolic disturbances linked to severe obesity. Even if type 2 diabetes is rare in European obese adolescents, alteration in insulin sensitivity is present in almost all.

**Objective and hypotheses:** to evaluate the modification of insulin resistance (IR) and insulin sensitivity (IS) in severe obese adolescents who underwent bariatric surgery, comparing two methods: laparoscopic sleeve gastrectomy (LSG) and laparoscopic gastric banding (LGB).

**Patients and methods:** 40 patients followed for 12 months were studied.
- 20 underwent LSG (mean age 17.14 ± 1.46 yrs, BMI 44.73 ± 9.37; z-score 4.7 ± 0.95)
- 20 underwent LGB (mean age 15.55 ± 1.9 yrs, BMI 37.86 ± 4.12; z-score 4.48 ± 0.68). IR was estimated by HOMA-IR (Homeostasis Model of Assessment). The IS was evaluated by QUICKI (Quantitative Insulin sensitivity Check Index).

**Results:** among patients who underwent LSG, improvement in IR was significant after 6 months (baseline HOMA-IR 4.7 ± 0.95 vs 3.35 ± 2.0 at T6, p = 0.036), and 12 months (2.089 ± 2.11). Normalization of IS was observed in all patients after 6 months (baseline QUICKI 0.29 ± 0.01; 0.34 ± 0.03 at T6, p = 0.020). The change in IS was not correlated with weight loss. In LGB patients, improvement of IS was slower, showing a trend without reaching significance (baseline HOMA-IR 4.87 ± 2.62 vs 4.26 ± 2.54 at T6, 3.95 ± 3.20 at T12) and correlated with weight loss.

**Conclusion:** our observation confirms the metabolic benefits of LSG even in a cohort of very young patients. Unlike LGB, the improvement of insulin sensitivity is sharp and not correlated to weight loss.

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