Changes in insulin sensitivity in adolescents who underwent bariatric surgery: effects of laparoscopic sleeve gastrectomy and laparoscopic gastric banding

Gianpaolo DE FILIPPO[1,2], Guillaume POURCHER[1,3], Naziha KHEN-DUNLOP[4], Christèle KYHENG[1,2], Pierre BOUGNERES[1,2]

1: Unité médico-chirurgicale de l'obésité grave de l'adolescent, Hôpitaux Universitaires Paris Sud, France
2: Service d'Endocrinologie Pédiatrique & Médecine des Adolescents, CHU Bicêtre (APHP), France
3: Service de Chirurgie Digestive Mini-Invasive, Hôpital Antoine Béclère , Hôpitaux Universitaires Paris Sud, France
4: Service de Chirurgie Pédiatrique Viscérale, Hôpital Necker (APHP), France

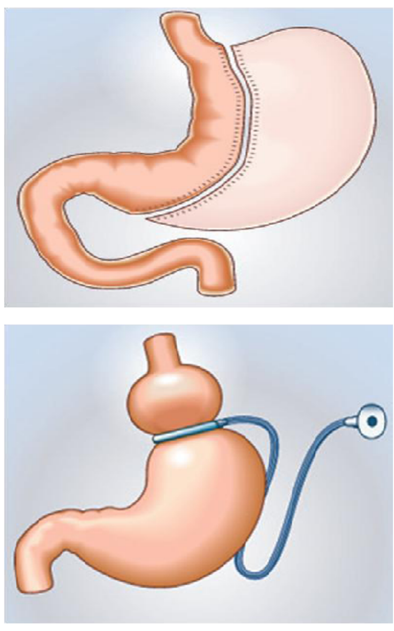
Background: in adults, bariatric surgery has gradually emerged as a "metabolic" surgery, able to rapidly improve metabolic disturbances linked to severe obesity.
Even if type 2 diabetes is rare in European obese adolescents, alteration in insulin sensitivity is present in almost all.

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).

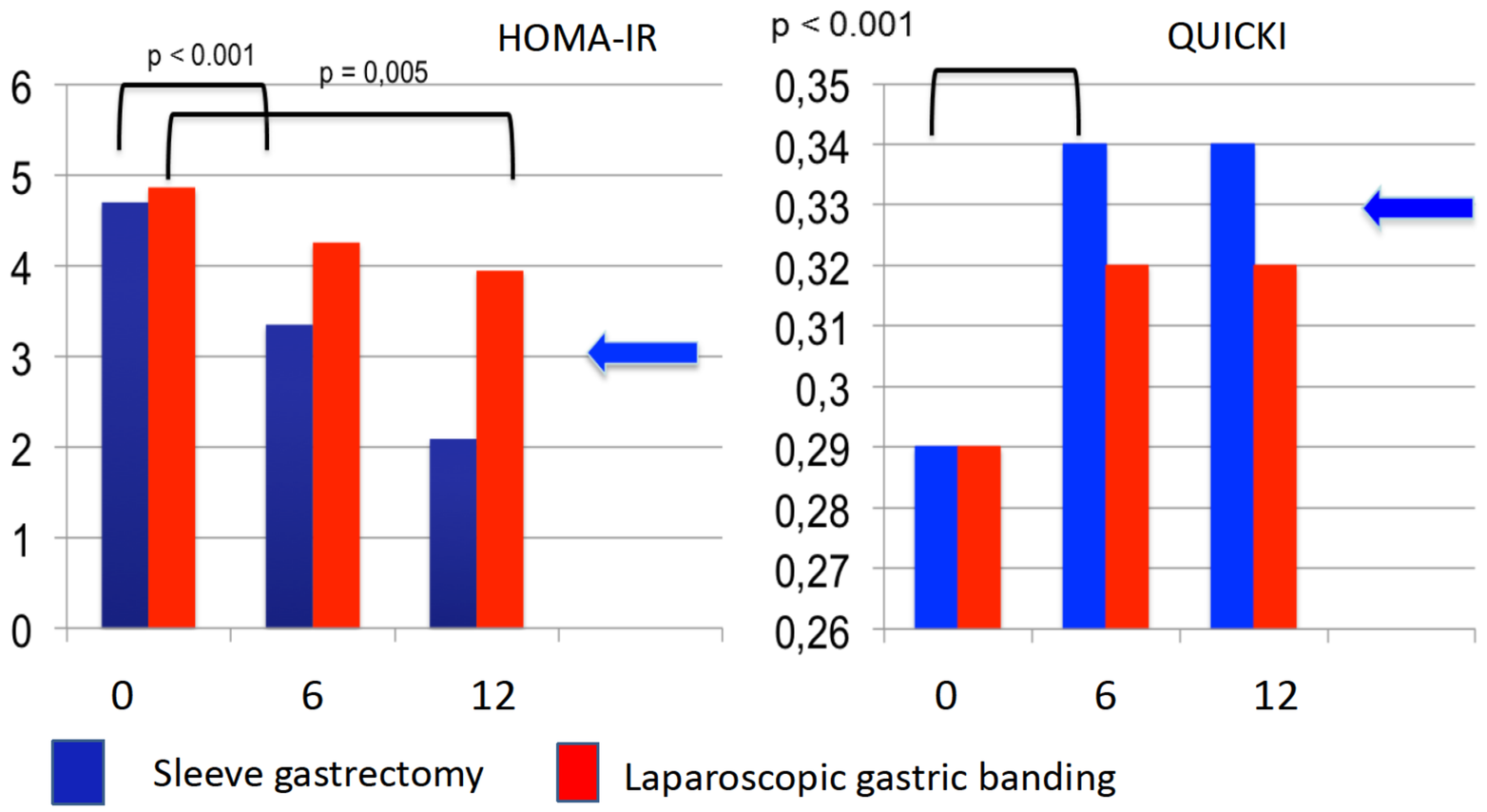
Patients and methods: 40 patients followed for 12 months were studied.
20 underwent LSG (mean age 17.14 ± 1.46 yrs, BMI 44.73 ± 9.37; z-score 4.7 ± 0.95) and 20 underwent LGB (mean age 15.55 ± 1.9 yrs , BMI 37.86 ± 4.12; z-score + 4.48 ± 0.68). IR was estimated by HOMA-IR (Homeostasis Model of Assessment).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

Sleeve gastrectomy	
N°	20
Age (yrs)	17.14 ± 1.46
BMI	44.73 ± 9.37
DS BMI	4.7 ± 0.95
HOMA-IR T0	4.7 ± 0.95
QUICKI T0	0.29 ± 0.01

AGB	
N°	20
Age (yrs)	15.55 ± 1.9
BMI	37.86 ± 4.12
DS BMI	4.48 ± 0.68
HOMA-IR T0	4.87 ± 2.62
QUICKI TO	0.29 ± 0.01



Results: among patients who underwent LSG, improvement in IR was significant after 6 (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 T 12) 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.

Contact:gianpaolo.defilippo@aphp.fr

ESPE 2015
342--P2
Fat Metabolism, Obesity
Gianpaolo De Filippo
DOI: 10.3252/pso.eu.54espe.2015
Poster presented at: 54th Annual Meeting 1-3 October ESPE 2015 BARCELONA European Society for Paediatric Endocrinology