

P13 & FP – The postoperative gut microbiota impacts the weight loss and the general health improvement in obese patients

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Obesity is an abnormal or excessive fat accumulation, with life-threatening sequelae. The increased burden of obesity has inflated the request for bariatric surgery (1). Among the factors influencing the surgery-mediated weight loss, the gut microbiota seems to be pivotal (2).

Our aim was that of investigating the impact of postoperative gut microbiota on weight loss and health improvement in obese patients.

By Next Generation Sequencing, we conducted a prospective longitudinal study on 27 healthy lean subjects and 25 obese patients undergoing elective bariatric surgery (n° 12 Roux-en-Y Gastric Bypass, RYGB, and n° 13 Laparoscopic Sleeve Gastrectomy, LSG). Inclusion criteria for lean subjects were the absence of morbidity and age 18 to 65; inclusion criteria for obese patients complied with the international bariatric guidelines. Anthropometric and metabolic data, smoke habits, and stool samples were collected from lean subjects and from obese patients before, 3 and 6 months after surgery (T0, T3 and T6, respectively). A food preference questionnaire was administered both to lean subjects and to bariatric patients at T0, T3 and T6. Differences in microbial community composition were investigated using QIIME 1.9.1. The p values were corrected for False Discovery Rate.

The gut microbiome of obese patients before surgery (T0) was not statistically different from that of the lean patients' group. Instead, at T3 but not at T6 after RYGB, the gut pathogens *Yokenella regensburgei* (p=0.03) and *Fusobacterium varium* (p=4E-05) and the oral bacteria *Veillonella dispar*, *Veillonella atypica*, *Streptococcus australis*, and *Streptococcus gordonii* (p<0.05) were increased. Conversely, *Akkermansia muciniphila* (p<0.05) was permanently increased. In LSG, we observed a modified profile of the microbiota without significant changes. On the metabolic point of view, after RYGB, the microbiota composition was correlated to the excess weight loss and the improvement of hypercholesterolemia and hypertension. After LSG, the microbial variations were correlated to the changes in food preferences.

The bariatric surgery significantly impacts the microbiota composition depending on the surgical technique performed. RYGB implies significant microbial changes which are linked to the weight loss and the general health improvement. Probably, it depends on the anatomical rearrangement of the bowel after the procedure. Conversely, the LSG induces weight loss without significantly affecting the microbiota.

References

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