

Bile acids synthesis decreases after laparoscopic sleeve gastrectomy

Escalona, A., Muñoz, R., Iribarra, V., Solari, S., Allende, F., & Miquel, J. F. (2016). Bile acids synthesis decreases after laparoscopic sleeve gastrectomy. *Surgery for Obesity and Related Di* <10.1016/j.soard.2015.11.015> Accessed 09 Jan 2021.

Abstract

Background: Bariatric surgery is the most effective treatment alternative in morbid obesity. The mechanisms contributing to these benefits remain poorly understood. Bile acids (BAs) are mediators of different regulatory functions in glucose and cholesterol homeostasis and energy expenditure. Recent evidence suggests that BAs are critically important for the beneficial effects of sleeve gastrectomy (SG). **Objectives:** The aim of this study was to evaluate the effect of SG on BA synthesis. **Setting:** University Hospital. Santiago, Chile. **Methods:** Obese patients were evaluated before and after SG (1, 3, 6, and 12 months). BA synthesis was evaluated through the serum marker, 7 α -hydroxy-4-cholesten-3-one (C4). Primary and secondary BA and C4 were determined by high performance liquid chromatography coupled with tandem mass spectrometry detection (HPLC-MS/MS). **Results:** From June 2013 to January 2014, 19 patients (age 37.6 ± 7.8 years; BMI 35.8 ± 3.5 kg/m²; 79% female) were included in this study. Mean weight loss at 1, 3, 6, and 12 months was 11.3, 17.5, 23.6, and 25.4 kg, respectively, equivalent to 11.8, 18.6, 24.8, and 26.9 of total body water percentage (%TBW) ($P < .0001$), respectively and 43.2, 68.2, 91, and 98.8 of percentage of excess weight loss (%EWL), respectively ($P < .001$). Serum C4 levels at baseline, 1, 3, 6, and 12 months were 23.4 ± 21.1 , 4.9 ± 8.2 , 8.7 ± 12.1 , 13.8 ± 12.9 , and 18.8 ± 16.8 ng/mL ($P < .0001$), respectively. Fibroblast growth factor 19 (FGF19) levels at baseline, 1, 3, 6, and 12 months were 71 ± 33.3 , 130.5 ± 66.2 , 117.8 ± 57.2 , 134.6 ± 91.7 , and 124.3 ± 85.9 pg/mL ($P = .019$), respectively. **Conclusion:** Serum levels of C4 decrease after SG, indicating a reduction in the synthesis of BA. FGF19 may play a role in decreasing BA synthesis. Further studies are necessary to characterize the effect of bariatric surgery on BA homeostasis..

Keywords

Obesity, Bariatric surgery, Sleeve gastrectomy, Bile acids.