

Calcium absorption may be affected after either sleeve gastrectomy or Roux-en-Y gastric bypass in premenopausal women: a 2-y prospective study

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Abstract

Background: Although Roux-en-Y gastric bypass (RYGBP) is known to reduce calcium absorption (CA), the effects of vertical sleeve gastrectomy (SG) and its long-term implications on CA have not yet been studied.

Objective: The aim of this study was to evaluate changes in CA and its relation with modifications of bone mineral density (BMD), intakes of calcium and vitamin D, vitamin D status, and parathyroid hormone (PTH) concentrations \leq 24 mo after SG and RYGBP, respectively.

Design: Twenty-six premenopausal women undergoing SG [mean \pm SD body mass index (BMI; kg/m²): 37.3 \pm 3.2; age: 34.2 \pm 10.2 y] and 32 undergoing RYGBP (BMI: 42.0 \pm 4.2; age: 37.3 \pm 8.1 y) were studied at baseline (presurgery) and followed up at 12 and 24 mo after surgery. BMD, bone alkaline phosphatase activity, and serum PTH, 25-hydroxyvitamin D [25(OH)D], calcium, magnesium, and phosphorus concentrations were determined. Food and supplement intakes were recorded. CA was measured by using a dual stable isotope method.

Results: In premenopausal women, CA was significantly reduced from 36.5% \pm 2.0% preoperatively to 21.0% \pm 2.3% and 18.8% \pm 3.4% at 12 and 24 mo post-SG surgery, respectively. CA also decreased significantly from 41.5% \pm 2.8% preoperatively to 27.9% \pm 3.8% and 18.5% \pm 2.2% 12 and 24 mo after RYGBP, respectively. No difference was found between type of surgery (time \times group interaction, $P = 0.60$). Considering both groups combined, 56.6% of the variance in CA at the 12-mo but not at the 24-mo follow-up was

explained by serum PTH and 25(OH)D concentrations, together with vitamin D and calcium intakes.

Conclusions: CA was similarly reduced in both SG and RYGBP compared with baseline, and it was not associated with changes in BMD or body weight loss. This reduction in CA could be explained only partially by calcium intake increase.

Palabras clave

Palabras clave de autor:[calcium absorption](#); [bone mineral density](#); [sleeve gastrectomy](#); [Roux-en-Y gastric bypass](#); [25-hydroxyvitamin D](#); [PTH](#)

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