Vitamin D deficiency in bariatric surgery: 5-year prospective follow-up in the REMISSION study

Félix Marcotte[1, 2, 3, 4, 5], Stéphanie Harrison[3, 4], Marianne Legault[2], Mélanie Nadeau[1], Mélissa Pelletier[1], Anne-Sophie Morisset[2, 3, 4, 5], Odette Lescelleur[1], Andréanne Michaud[1, 2, 3, 4], Laurent Biertho[1] et André Tchernof[1, 2]

Affiliations:

1. Centre de recherche de l'Institut universitaire de cardiologie et de pneumologie de Québec – Université Laval;
2. École de nutrition, Faculté des sciences de l'agriculture et de l'alimentation – Université Laval;
3. Institut sur la nutrition et les aliments fonctionnels, INAF;
4. Centre Nutrition santé et société, NUTRISS;
5. Centre de recherche du CHU de Québec – CHUL.

The aim of our study was to assess the prevalence of vitamin D deficiency before bariatric surgery and up to five years of post-operative follow-up. From the REMISSION study, 115 women and 96 men living with severe obesity (age: 49.2±7.8 years; BMI: 45.5±5.9 kg/m2) who underwent sleeve gastrectomy (SG; n=92), biliopancreatic diversion with duodenal switch (BPD-DS; n=75) or Roux-en-Y gastric bypass (RYGB; n=43) were selected. Blood samples were collected before surgery and 4, 8, 12, 24, 36, 48 and 60 months post-surgery. Vitamin D deficiency or insufficiency was characterized by serum levels of 25(OH)D <50nmol/L. Recurring deficiencies were defined as present at ≥2 follow-up visits. Linear mixed models and Tukey-Kramer pot-hoc comparisons were used to examine changes in vitamin D status over time and differences by surgery type. At baseline, 92 individuals (43.8%) presented vitamin D deficiency while 18 individuals (9.5%) showed vitamin D deficiency at the five-year follow-up. After adjusting for sex, vitamin D levels showed significant variations over time up to 60 months of follow-up. When compared to other surgeries, SG showed lower levels of 25(OH)D at 4, 8 and 12 months ($p<0.0001$, $p=0.0004$, $p=0.014$). During the 5-year follow-up, 28 individuals (17.3%) presented recurring vitamin D deficiency without differences in 25(OH)D levels between surgery types ($p=0.976$). Vitamin D deficiency is more prevalent before bariatric surgery rather than after. When compared to other bariatric surgeries, individuals undergoing BPD-DS show comparable levels of vitamin D at five years following the procedure. [Funding: J&J]

243/250 words