Abstract

Background: C-peptide (Cp) serves as a surrogate of pancreatic beta-cell reserve. This study evaluates the clinical significance of basal Cp as a predictor of type 2 diabetes (T2D) remission after bariatric surgery (BS). Research design and methods: Retrospective study of 22 patients with BMI > 35 kg/m² and T2D who underwent BS. Evaluation of anthropometric and glucose metabolism parameters before BS and at one-year follow-up. Analysis of patients with T2D remission (HbA1c < 6%, fasting glucose (FG) < 100 mg/dl, absence of pharmacologic treatment) and preoperative characteristics associated (logistic binary regression model). ROC curve to estimate an optimal Cp value to predict T2D remission. Results: Preoperatively (mean ± SD): age 53.3 ± 9.4 years, BMI 42.9 ± 6.8 kg/m², T2D duration 6.9 ± 5.2 years, FG 159.6 ± 56.6 mg/dL, HbA1c 7.5 ± 1.1%, Cp 4.0 ± 2.0 (median 3.8, range 0.1-8.9) ng/mL. At one year follow-up, remission of T2D in 12 cases (54.5%). Preoperative Cp correlated with 12-month HbA1c (r = -0.519, p = 0.013). Preoperative Cp was higher in those who achieved remission: 5.0 ± 1.7 vs 3.0 ± 1.7 ng/ml, p = 0.013. A Cp concentration > 3.75 ng/mL provided a clinically useful cut-off for prediction of T2D remission. T2D remission rates were different according to median preoperative Cp: 27.3% if Cp < 3.8 ng/mL and 81.7% if Cp > 3.8 ng/mL (p = 0.010). Conclusions: Patients with elevated preoperative Cp levels achieve higher rates of T2D remission one year after BS. A Cp concentration > 3.75 ng/mL seems clinically useful.

Keywords

Key words, Bariatric surgery, Metabolic surgery, C-peptide, Diabetes mellitus, Type 2 diabetes mellitus.