

Development of de novo diabetes in long-term follow-up after bariatric surgery

ABSTRACT

Introduction: While bariatric surgery leads to significant prevention and improvement of type 2 diabetes, patients may rarely develop diabetes after bariatric surgery. The aim of this study was to determine the incidence and the characteristic of new-onset diabetes after bariatric surgery over a 17-year period at our institution. **Methods:** Non-diabetic patients who underwent bariatric surgery at a single academic center (1997–2013) and had a postoperative glycated hemoglobin (HbA1c) $\geq 6.5\%$, fasting blood glucose (FBG) ≥ 126 mg/dl, or positive glucose tolerance test were identified and studied. **Results:** Out of 2263 non-diabetic patients at the time of bariatric surgery, 11 patients had new-onset diabetes in the median follow-up time of 9 years (interquartile range [IQR], 4–12). Bariatric procedures performed were Roux-en-Y gastric bypass ($n = 7$), adjustable gastric banding ($n = 3$), and sleeve gastrectomy ($n = 1$). The median interval between surgery and diagnosis of diabetes was 6 years (IQR, 2–9). At the last follow-up, the median HbA1c and FBG values were 6.3% (IQR, 6.1–6.5) and 95 mg/dl (IQR, 85–122), respectively. Possible etiologic factors leading to diabetes were weight regain to baseline ($n = 6$, 55%), steroid-induced after renal transplantation ($n = 1$), pancreatic insufficiency after pancreatitis ($n = 1$), and unknown ($n = 3$). **Conclusion:** De novo diabetes after bariatric surgery is rare with an incidence of 0.4% based on our cohort. Weight regain was common ($> 50\%$) in patients who developed new-onset diabetes suggesting recurrent severe obesity as a potential etiologic factor. All patients had good glycemic control (HbA1c $\leq 7\%$) in the long-term postoperative follow-up.

Keyword: Bariatric surgery; Obesity; Glucose; Glycated haemoglobin; Type 2 diabetes; Gastric bypass; Sleeve gastrectomy