

# Effect of laparoscopic mini-gastric bypass for type 2 diabetes mellitus: comparison of BMI >35 and <35 kg/m<sup>2</sup>

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摘要

## Abstract

**BACKGROUND:** Laparoscopic gastric bypass resulted in significant weight loss and resolution of type 2 diabetes mellitus (T2DM). The current indication for bariatric surgery is mainly applied for patients with body mass index (BMI) >35 kg/m<sup>2</sup> with comorbidity status. However, little is known concerning T2DM patients with BMI <35 kg/m<sup>2</sup>. Recent studies have suggested that T2DM patients with BMI <35 kg/m<sup>2</sup> might benefit from gastric bypass surgery.

**METHODS:** From Jan 2002 to Dec 2006, 820 patients who underwent laparoscopic mini-gastric bypass were enrolled in a surgically supervised weight loss program. We identified 201 (24.5%) patients who had impaired fasting glucose or T2DM. All the clinical data were prospectively collected and stored. Patients with BMI <35 kg/m<sup>2</sup> were compared with those of BMI >35 kg/m<sup>2</sup>. Successful treatment of T2DM was defined by HbA1C <7.0%, LDL <100 mg/dl, and triglyceride <150 mg/dl. **RESULTS:** Among the 201 patients, 44 (21.9%) had BMI <35 kg/m<sup>2</sup>, and 114 (56.7%) had BMI between 35 and 45, 43 (21.4%) had BMI >45 kg/m<sup>2</sup>. Patients with BMI <35 kg/m<sup>2</sup> are significantly older, female predominant, had lower liver enzyme and C-peptide levels than those with BMI >35 kg/m<sup>2</sup>. The mean total weight loss for the population was 32.1, 33.4, 31.9, and 32.8% (at 1, 2, 3, 5 years after surgery), and percentage to change in BMI was 31.9, 34.2, 32.2, and 29.5% at 1, 2, 3, and 5 years. One year after surgery, fasting plasma glucose returned to normal in 89.5% of BMI <35 kg/m<sup>2</sup> T2DM and 98.5% of BMI >35 kg/m<sup>2</sup> patients (p=0.087). The treatment goal of T2DM (HbA1C <7.0%, LDL <150 mg/dl and triglyceride <150 mg/dl) was met in 76.5% of BMI <35 kg/m<sup>2</sup> and 92.4% of BMI >35 kg/m<sup>2</sup> (p=0.059).

**CONCLUSION:** Laparoscopic gastric bypass resulted in significant and sustained weight loss with successful treatment of T2DM up to 87.1%. Despite a slightly lower response rate of T2DM treatment, patients with BMI <35 still had an

acceptable DM resolution, and this treatment option can be offered to this group of patients.

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