



COMMENT ON BRETHAUER ET AL.

Bariatric Surgery Improves the Metabolic Profile of Morbidly Obese Patients With Type 1 Diabetes. *Diabetes Care* 2014;37:e51–e52

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Recently, Brethauer et al. (1) reported that bariatric surgery improved HbA_{1c} in obese patients with type 1 diabetes. However, our data and existing literature demonstrate that improvement in glycemic control is not universal.

We reviewed case files of six obese female patients with type 1 diabetes who had bariatric surgery. Mean age was 36 ± 7.8 years, median duration of diabetes was 18 years (range 2–31), and median follow-up from surgery was 16 months (range 7–119). Baseline weight was 124.7 ± 15.7 kg and BMI was 46.4 ± 8.4 kg/m². Weight loss was 24.3 ± 1.9% of baseline and BMI reduction was 11.4 ± 2.7 kg/m².

There was no overall reduction in HbA_{1c} following surgery (8.1 ± 1.3% [65 ± 14 mmol/mol] at baseline vs. 8.2 ± 1.6% [66 ± 17 mmol/mol] at follow-up).

HbA_{1c} reduction occurred in only two cases. Case 1 (aged 38 years, 8 years diabetes duration, gastric bypass) had an HbA_{1c} decrease from 9.1 to 7.9% (76 to 63 mmol/mol) and case 2 (aged 41 years, 31 years diabetes duration, gastric banding) had an HbA_{1c} decrease from 8.5 to 6.6% (69 to 49 mmol/mol).

Case 3 (aged 24 years, 2 years diabetes duration, gastric banding) lost 21% of baseline weight (97 kg) at 11 months (BMI reduction 35.8 to 28.3 kg/m²). HbA_{1c} was 7% (53 mmol/mol) before and

6.5 and 7.4% (48 and 57 mmol/mol) 4 and 11 months after surgery, respectively. Total daily insulin dose was reduced from 86 to 51 units.

Case 4 (46 years, 22 years diabetes duration, gastric banding) lost 24% of baseline weight (117 kg) at 20 months (BMI reduction 36.5 to 27.8 kg/m²). HbA_{1c} was 7.2% (55 mmol/mol) before and 7.4–8.3% (57–67 mmol/mol) after surgery. Total daily insulin dose was reduced from 110 to 54 units.

Case 5 (38 years, 28 years diabetes duration, sleeve gastrectomy) lost 26% of baseline weight (136 kg) at 31 months (BMI reduction 54.5 to 40.5 kg/m²). HbA_{1c} was 9.9% (85 mmol/mol) before and 10.1–11.4% (87–101 mmol/mol) after surgery. Daily basal insulin dose was reduced from 46 to 25 units.

Case 6 (31 years, 13 years diabetes duration, sleeve gastrectomy) lost 24% of baseline weight (126 kg) at 9 months (BMI reduction 49.1 to 37.6 kg/m²). HbA_{1c} was 6.7% (50 mmol/mol) before and 7.8–8.3% (62–67 mmol/mol) after surgery. Daily basal insulin dose was reduced from 60 to 26 units.

Differences in patient characteristics and study design between studies may account for the reported differences in glycemic response. Seven of 10 patients in the Brethauer et al. (1) study had gastric bypass, making generalization regarding

restrictive techniques difficult. Their patients also had a higher presurgical HbA_{1c}, such that their postoperative HbA_{1c} remained higher than our presurgical HbA_{1c}.

The literature also supports variability of glycemic outcome. Of the studies quoted by Brethauer et al., we agree that two showed HbA_{1c} improvement in all patients (2,3). However, the third study reported that two of three patients experienced deterioration (4). Furthermore, another study reported HbA_{1c} deterioration in two of four patients (5).

The glycemic effect of weight loss from bariatric surgery in type 1 diabetes remains controversial. However, the observed reduction in insulin requirements suggests that improvement in insulin resistance remains important. Bariatric surgery may not lead to improved glycemic control in all obese patients with type 1 diabetes.

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