



Effect of Bariatric Surgery Versus Intensive Medical Management on Diabetic Ophthalmic Outcomes

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Rishi P. Singh,¹ Richard Gans,¹
Sangeeta R. Kashyap,²
Rumneek Bedi,¹ Kathy Wolksi,⁴
Stacy A. Brethauer,³ Steven E. Nissen,⁵
Deepak L. Bhatt,⁶ and Philip Schauer³

Glycemic control improves immediately after gastric bypass in patients with type 2 diabetes mellitus (T2DM) (1). The American Diabetes Association defines complete remission of diabetes as a return to normal glucose levels ($HbA_{1c} < 6\%$, fasting glucose < 5.6 mmol/L) without glucose-lowering medication for at least 1 year after bariatric surgery (2). Prior studies have indicated that a rapid improvement in glycemic control is known to worsen diabetic retinopathy in cases of intense insulin control (3). However, few studies have examined whether undergoing bariatric surgery would significantly alter the prognosis of diabetes microvascular complications in patients with T2DM.

The Surgical Therapy and Medications Potentially Eradicate Diabetes Efficiently (STAMPEDE) trial observed the effect of bariatric surgery versus intensive medical management on patients with diabetes and examined the ophthalmic outcomes at 2 years (4). This was a prospective, randomized, non-blinded clinical trial that enrolled 150 patients with the primary outcome of examining the efficacy of intensive medical therapy alone versus surgical management with either Roux-en-Y gastric bypass or sleeve gastrectomy for the

management of T2DM. As a secondary end point of the trial, patients were assessed with biomicroscopic fundus exam by two ophthalmologists at baseline and at year 2 for the level of retinopathy.

There was a statistically significant difference in mean change in HbA_{1c} values between the medical therapy (-1.1) and surgical (-2.8 in gastric bypass, -2.7 in sleeve gastrectomy) groups ($P < 0.001$) at 2 years. The study results demonstrated that bariatric surgery (Roux-en-Y gastric bypass or sleeve gastrectomy) did not appear to worsen or improve retinopathy outcomes at 2 years over intensive medical management ($P = 0.84$), and a majority, 86.5%, of patients within all treatment groups had no change in retinopathy scoring. Additionally, there was no significant change in logMar visual acuity from baseline among the treatment arms ($P > 0.05$), as the mean baseline and 2-year visual acuity were the same in all three groups (logMar 0, Snellen equivalent 20/20).

The current study is the first of its nature to document intensive medical management and bariatric surgery's microvascular effect on diabetic retinopathy with a large population of diabetic patients. Currently, there is a lack of ophthalmology screening

protocols or a formulated consensus on how to best manage diabetic patients who have undergone bariatric surgery. Results of this study indicate that bariatric surgery and intensive medical therapy patients are not free from the microvascular complications of diabetic retinopathy. Given the increasing volume of diabetic patients being referred for bariatric surgery, there needs to be greater emphasis on figuring out how to best manage these patients on a long-term basis in order to alleviate end organ damage. While this study indicates that there was no significant change in diabetic retinopathy scoring at year 2 from baseline within and between each cohort, the study reinforces the importance of timely ophthalmic exams even with patients who significantly reduce their HbA_{1c} levels for the detection and management of retinopathy.

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¹Cole Eye Institute, Cleveland Clinic, Cleveland, OH

²Department of Endocrinology, Cleveland Clinic, Cleveland, OH

³Bariatric & Metabolic Institute, Cleveland Clinic, Cleveland, OH

⁴Cleveland Clinic Coordinating Center for Clinical Research, Cleveland, OH

⁵Heart and Vascular Institute, Cleveland Clinic, Cleveland, OH

⁶Brigham and Women's Hospital Heart and Vascular Center and Harvard Medical School, Boston, MA

Corresponding author: Rishi P. Singh, drrishisingh@gmail.com.

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of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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