

Sight Threatening Diabetic Retinopathy in Patients with Type 2 Diabetes Undergoing Bariatric Surgery

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Aims: The impact of bariatric surgery on the progression of diabetic retinopathy (DR) is unclear. We aimed to assess the progression to sight threatening DR (STDR) in patients with type 2 diabetes (T2D) who underwent bariatric surgery. A secondary aim was to compare the progression to STDR in those who underwent bariatric surgery versus patients who received routine care.

Methods: A retrospective analysis of patients with T2D who underwent bariatric surgery between January 2005 and December 2012 at a single bariatric centre in the UK. Patients were included in the analysis if they attended retinal screening within a year prior to surgery (baseline) and at least once post-surgery. DR was assessed using 2X45 degrees retinal images per eye obtained from the retinal screening programme. STDR was defined as the presence of pre-proliferative/proliferative DR or maculopathy. The comparator group of patients with T2D who received routine care was obtained from our well characterised database of patients with T2D who attended the same centre.

Results: 152 patients were included in this analysis (mean age 50.7 ± 8.2 years, baseline BMI 49.0 ± 7.3 kg/m², 37.5% were men). The median (IQR) follow up post-surgery was 3.0 (1.0-4.0) years. Bariatric surgery resulted in significant improvements in HbA1c ($8.01 \pm 1.95\%$ vs. $7.06 \pm 2.01\%$, $p < 0.001$) and weight (135.7 ± 25.3 vs. 109.6 ± 26.6 , $p < 0.001$). At baseline 7.2% had STDR and 70.4% had no DR. In patients without STDR at baseline, 5.7% developed STDR during follow up. In the 65 patients who had diabetes remission after surgery (HbA1c $< 6.5\%$ at follow up), only 2 progressed to STDR, while out of the 87 patients with persistence of glycaemic abnormalities 6 patients progressed to STDR. STDR progression was non-significantly lower in patients who underwent bariatric surgery compared to those who received routine care (4.1% vs. 3.3%, $p = 0.8$).

Conclusions: There were no major changes in DR status post bariatric surgery. Progression was unrelated to change in HbA1c, weight or diabetes status as well as type of bariatric procedure.