Impact of bariatric surgery on type 2 diabetes in morbidly obese patients and its correlation with pre-operative prediction scores

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Abstract

Background: Bariatric surgery, besides causing significant weight reduction, leads to improvement in type 2 diabetes mellitus (T2DM). However, there is a scarcity of data on the prediction of diabetes resolution in non-Western population.

Objective: To evaluate the impact of bariatric surgery on T2DM and to assess the accuracy of pre-operative scoring systems in predicting remission.

Study Setting: A tertiary care academic centre, India.

Methodology: We used a retrospective cohort of all diabetic patients ($n = 244$) who underwent bariatric surgery at our centre in the past 10 years. The cohort was followed up for diabetes remission, and pre-operative scoring systems were analysed against the observed results.

Results: Of 244 patients, we were able to contact 156 patients. The median period of follow-up was 38 months. The mean body mass index (BMI) of the study group decreased from 45.4 to 33.4 kg/m^2 (%excess BMI loss = 61.2%). The number of patients dependent on oral anti-diabetic pharmacotherapy and on insulin decreased from 133 (85.3%) to 40 (25.6%) and from 31 (19.9%) to 7 (4.5%), respectively. Remission was analysed for 96 patients, who submitted complete biochemical investigations. The median follow-up period for this sub-cohort was 36 months. 38 (39.6%) patients were in complete remission, 15 (15.6%) patients in partial remission and 34 (38.5%) patients showed an improved glycaemic control. The three pre-operative scores, Advanced-DiaRem, DiaRem and ABCD, showed predictive accuracies of 81.1%, 75.6% and 77.8%, respectively.

Conclusions: Besides leading to excess BMI loss of 61.2%, bariatric surgery also resulted in diabetes remission in 55.2% of the patients. Amongst various pre-operative scores, Advanced-DiaRem has the highest predictive accuracy for T2DM remission.

Keywords: Bariatric surgery, diabetes remission, Indian, morbid obesity, non-Western, scoring

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