

New scoring system predicts likelihood of diabetes remission after weight-loss surgery

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US scientists have developed a simple scoring system (DiaRem), based on four readily available preoperative patient characteristics, that can predict which candidates for gastric bypass surgery are likely to achieve diabetes remission within five years.

"Our novel DiaRem score will give patients and [physicians](#) a scientifically valid way of assessing the merits of gastric [bypass surgery](#) for treating diabetes and deciding whether additional measures should be taken to improve the odds of remission", explains lead author George Argyropoulos from the Geisinger Health System, Danville, PA, USA, in *The Lancet Diabetes & Endocrinology*.

Roux-en-Y [gastric bypass](#) (RYGB) is used to help people who are [morbidly obese](#) lose weight. As a side effect, it has been shown to resolve or improve type 2 diabetes in roughly 60% of patients. It may also be useful to treat diabetes in people who are not morbidly obese. But, currently there is no accurate method to determine which patients have the greatest likelihood of remission after surgery.

To create the [scoring system](#), the researchers retrospectively analysed the outcomes of 690 obese patients with type 2 diabetes who underwent RYGB between 2004 and 2011 at the Geisinger Health System Clinic in Danville (PA, USA), of whom 463 (63%) achieved partial or complete remission.

Multiple logistic regression models considered 259 clinical variables to

identify independent predictors of early remission (beginning within the first 2 months after surgery and lasting a minimum of 12 months) and late remission (beginning more than 2 months after surgery and lasting at least another 12 months).

Patients were assigned a weighted DiaRem score (ranging from 0 to 22) based on four factors that were independently predictive of remission—insulin use, age, haemoglobin A1c concentration (HbA1c; a measure of blood sugar), and type of anti-diabetic drugs. DiaRem scores were derived by assigning a certain number of points to each of the four factors.

The researchers found that patients with a low DiaRem score had the highest chance of remission after surgery, while those with a higher score were less likely to achieve remission.

"For example, an individual with a BMI of 39 kg/m² [morbidly obese] and a DiaRem score of 22 could benefit from RYGB surgery in terms of weight loss, but would have low probability of diabetes remission", explains Argyropoulos.

The performance of the score was validated in two independent cohorts totalling 389 patients based on diabetes remission at 14 months. As in the primary cohort, the proportion of [patients](#) achieving remission was highest for the lowest scores and lowest for the highest scores.

According to Argyropoulos, "Our score is robust with various definitions of [diabetes](#) remission (complete, partial, or a combination) and also predicts the probable improvement in glycaemic control after RYGB surgery."

Writing in a linked Comment, Dimitri J. Pournaras and Carel W. le Roux from Imperial College London, UK say, "The DiaRem score could

help with selection of appropriate treatment and management of expectations held by both the patient and the multidisciplinary team involved in the patient's care. Additionally, it could scientifically improve the comparison of different surgical procedures by allowing appropriate stratification of probability of [remission](#). However, further prospective studies are needed to validate these potential uses. Future research in this area will increase the accuracy of outcome predictions in different populations, age groups, and interventional approaches. This research could even challenge present guidelines for provision of weight-loss surgery, which mostly depends on BMI [body mass index]."

More information: [www.thelancet.com/journals/lan ...](http://www.thelancet.com/journals/lan...)
 [\(13\)70070-6/abstract](http://www.thelancet.com/journals/lan...)

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