

Case made for metabolic bariatric-surgery eligibility criteria

PDMS

Vienna, Austria - Adding to abundant evidence that in the obese, bariatric surgery can [improve markers of cardiovascular risk](#), including measures of diabetes and the metabolic syndrome, several studies suggest that such metabolic responses have little to do with initial body-mass index (BMI). With a BMI ≥ 40 now usually recommended for bariatric-surgery eligibility or a BMI as low as 35 if there are CV risk factors or advanced diabetes, some in the field wonder whether those criteria are so restrictive that they exclude many patients who could benefit from the procedure.

"Bariatric surgery was initially intended to cause weight loss in severe obesity, and that was considered to be a health benefit in itself," **Dr Philip Schauer** (Cleveland Clinic, OH) told [heartwire](#). But today, in patients who also have diabetes, "we're dealing with a different goal. Particularly with diabetics with a lower BMI, weight loss is a secondary issue. The primary issue is better glycemic control, controlled blood pressure, and control of lipids. The problem is that the bariatric eligibility criteria are based on BMI," He added, "It turns out that the majority of diabetics in the US [have BMI] between 25 and 35, so they are not eligible for surgery based on existing criteria."

Whether specific metabolic criteria should help guide selection for bariatric surgery received plenty of attention at the recent [Prediabetes and the Metabolic Syndrome \(PDMS\) 2013 Congress](#). Here, investigators from the >3000-patient prospective case-matched [Swedish Obese Subjects](#) study [[1](#),[2](#)], launched >20 years ago, showed that their patients who didn't fulfill today's BMI eligibility criteria, compared with those who did, reaped similar CV and metabolic benefits. And while baseline BMI bore no relationship to bariatric-surgery response, baseline insulin levels independently predicted mortality and CV events.

In SOS, [heartwire](#) has previously reported, obese patients who underwent bariatric surgery showed dramatically less incident diabetes over 15 years; the trial helped establish the procedure as more than simply a weight-loss treatment.

Also at the PDMS sessions, a smaller, more contemporary study of about 400 patients suggested that bariatric surgery could not only induce diabetes remission, it could also eliminate prediabetes in patients meeting its criteria at the time of surgery [[3](#)]. The finding suggests that a presence of prediabetes may well be enough to justify the surgery in patients with lower BMIs.

"Eligible" and "noneligible" patients gain

SOS investigator **Dr Kajsa Sjöholm** (Gothenburg University, Sweden) broke down the trial's outcomes, in this case whether it prevented diabetes, by whether or not patients met current bariatric-surgery eligibility criteria. As no such accepted criteria existed when the trial started, she reported, 5.8% of its patients, ultimately, were ineligible by today's recommendations by having a BMI of 35 to <40 in the absence of comorbidities (type 2 diabetes, hypertension, or dyslipidemia) or a BMI <35.

The 3814 "eligible" patients and the 233 "ineligible" ones showed statistically similar changes in metabolic and cardiovascular risk factors over 15 years, including similarly significant improvements in weight, lipids, systolic and diastolic blood pressure, glucose, and insulin levels, Sjöholm reported. Further, the rate of incident diabetes among those getting surgery vs no surgery dropped significantly in both the "eligible" and "ineligible" groups. The adjusted hazard ratios (HR) were 0.27 (95% CI 0.22-0.33, $p < 0.001$) and 0.33 (95% CI 0.13-0.82, $p = 0.017$), respectively.

"Our results suggest that among obese individuals, strict BMI cutoffs are of limited use for bariatric-surgery prioritization," she said. "And as long as we use current eligibility criteria, some patients with high risk of future metabolic disease may not qualify for bariatric surgery."

During the question-and-answer period, Schauer, the session moderator, asked Sjöholm whether the BMI cutoff for eligibility should be lowered, and specifically—if metabolic improvement is the goal—whether surgery could sometimes be offered even if BMI is in the normal range.

Currently, she said, "I believe you should still be obese to have surgery." But SOS suggests that metabolic markers, like fasting glucose or serum insulin levels, may represent better criteria for selecting patients for the procedure.

"Think about modifying the selection criteria"

Serum insulin as a potential predictor of bariatric-surgery outcomes was the focus of an SOS presentation from **Prof Lena Carlsson** (University of Gothenburg, Sweden), who is the study's current principal investigator. She agreed with Sjöholm, also stopping short of advocating bariatric surgery for the nonobese. But, she said, "I think it's time we start thinking about modifying the selection criteria to also include some metabolic markers."

In her analysis, there were few baseline predictors of bariatric-surgery clinical outcomes in SOS, for the combined end point the investigators called "serious adverse events," which included death, MI, stroke, or cancer; all those events had been significantly reduced in the surgery group vs controls. BMI didn't predict clinical outcomes (interaction $p=0.499$), nor did waist/height ratio, triglycerides, HDL cholesterol, total cholesterol, diabetes or metabolic-syndrome status, blood glucose, or systolic or diastolic blood pressure.

However, high baseline insulin levels pointed to greater risk reduction from surgery (interaction $p=0.005$). The HR for the composite clinical end point was 0.76 (95% CI 0.65-0.89, $p=0.001$) for patients with greater than the mean of 17 mU/L and only 0.85 (95% CI 0.69-1.04, $p=0.109$) for those with levels <17 mU/L.

"It's a difficult question . . ."

By current criteria, the comorbidities that render someone with a BMI of 35 to 40 eligible for bariatric surgery include established diabetes but not prediabetes; perhaps that should change, said **Dr Johanna Maria Brix** (Rudolfstiftung Hospital, Vienna, Austria) at the PDMS sessions. She reported two-year bariatric-surgery outcomes for a cohort of 404 patients initially with a mean BMI of 41. Based on the experience, she said, "We think that prediabetes could or should also be a selection criterion for the necessity and prioritization of bariatric surgery."

Before surgery, the group's diabetes prevalence was 16.3%; 23.5% had prediabetes, and 60.2% had normal glucose-tolerance tests. Two years after surgery, those rates shifted to 2.2%, 3.7%, and 94.1%, respectively.

Session moderator Schauer asked Brix whether the findings suggest prediabetes by itself should qualify someone with a BMI of 35 to 40 or perhaps even BMI <35 for bariatric surgery. "It's a difficult question," she replied. "Being from internal medicine, I'm normally more restrictive about surgery procedures." But foremost, metabolic abnormalities that qualify someone for bariatric surgery shouldn't be limited to those indicating fully developed diabetes, she said. "You should start before," that is, the patient shouldn't wait for prediabetes to worsen into diabetes.

As to whether a patient with BMI <35 should qualify for the surgery, she said "We also think that BMI may not be the best criterion [for surgery eligibility]." One possibility, she speculated, would be to allow a BMI <35 if another metabolic measure indicates high risk, for example, a high waist-to-hip ratio. "But I know that would be difficult to incorporate in guidelines."

To **heartwire**, Schauer agreed that whether to recommend bariatric surgery for obese patients with prediabetes is controversial among endocrinologists, even though "surgery's been shown, particularly in the SOS study, to be extremely effective at preventing prediabetes from progressing to type 2 diabetes, which [otherwise] happens in almost 100% of patients, eventually, even when on medical therapy."

Less controversial in the field, according to Schauer, is whether to offer bariatric surgery to a patient who still has an HbA_{1c} >7% despite "fairly intensive medical therapy," he said. "It makes sense that if somebody's failing medical therapy, regardless of BMI, they should be considered for surgery."

Sources

1. Sjöholm K, Anveden A, Peltonen M, et al. Evaluation of current eligibility criteria for bariatric surgery: diabetes prevention and risk factor changes in the Swedish Obese Subjects (SOS) study. Prediabetes and the Metabolic Syndrome 2013 Congress; April 20, 2013; Vienna, Austria. Abstract 318.
2. Carlsson L, Peltonen M, Sjöholm K, et al. Baseline insulin levels predict the long term effects of bariatric surgery on serious events in Swedish obese subjects. Prediabetes and the Metabolic Syndrome 2013 Congress. April 19, 2013; Vienna, Austria. Abstract 493.
3. Brix J, Kopp H-P, Schernthaner GH, et al. High remission rate of prediabetes in patients after bariatric surgery. Prediabetes and the Metabolic Syndrome 2013 Congress; April 20, 2013; Vienna, Austria. Abstract 924.

Related links

- [Bariatric surgery in type 2 diabetes: Half in complete or partial remission at six years](#)
[Lipid/Metabolic > Lipid/Metabolic; Apr 25, 2013]
- [Gastric bypass moves "beyond the realms" of cosmetic surgery](#)
[Interventional/Surgery > Interventional/Surgery; Oct 23, 2012]
- [SOS: Bariatric surgery slashes development of diabetes](#)
[Interventional/Surgery > Interventional/Surgery; Aug 22, 2012]

Copyright ©1999-2012 theheart.org by WebMD. All rights reserved.

[Privacy policy](#)

info@theheart.org

