

Laparoscopic gastric band surgery was more effective than an intensive nonsurgical intervention for weight loss in mild-to-moderate obesity

O'Brien PE, Dixon JB, Laurie C, et al. Treatment of mild to moderate obesity with laparoscopic adjustable gastric banding or an intensive medical program: a randomized trial. *Ann Intern Med.* 2006;144:625-33.

Clinical impact ratings: GIM/FP/GP ★★★★★☆ Endocrinology ★★★★★☆

QUESTION

In patients with mild-to-moderate obesity, is laparoscopic gastric band (LGB) surgery more effective than a nonsurgical diet and lifestyle intervention for promoting weight loss?

METHODS

Design: Randomized controlled trial.

Allocation: Concealed.*

Blinding: Unblinded.*

Follow-up period: 2 years.

Setting: A community clinic, clinics in a university department of surgery, and a private community hospital in Australia.

Patients: 80 patients 20 to 50 years of age (mean age 41 y, 76% women) who had body mass index (BMI) 30 to 35 kg/m²; obesity-related comorbid conditions (≥ 1 of gastroesophageal reflux disease, hypertension, dyslipidemia, diabetes, or obstructive sleep apnea); psychosocial conditions; or severe physical limitations and had attempted to lose weight in the past 5 years. Exclusion criteria included contraindications to treatment or bariatric surgery.

Intervention: Laparoscopic adjustable gastric band surgery (LAP-BAND system, INAMED Health, Santa Barbara, CA, USA) ($n = 40$) or a nonsurgical intervention based on behavioral modification, very-low-calorie diet, and pharmacotherapy with education and support ($n = 40$). The nonsurgical intervention comprised an intensive period of very-low-calorie diet (500 to 550 kcal/d) of 1 to 3 packets of Optifast (Novartis, Fremont, MI, USA) per day for 3 months, followed by a combination of some very-low-calorie

meals and 120 mg of orlistat before higher-calorie meals for 1 month, and 120 mg of orlistat before all meals for the next 2 months. After the intensive period, patients continued to take very-low-calorie meals or orlistat as tolerated. All patients were encouraged to follow good eating habits and exercise for ≥ 200 min/wk.

Outcomes: Change in absolute weight and BMI, and $> 50\%$ excess weight loss. Secondary outcomes were improvement of the metabolic syndrome, quality of life, and adverse events.

Patient follow-up: 90% (intention-to-treat analysis).

MAIN RESULTS

Patients in the LGB group had greater mean decreases in absolute weight and BMI, and greater percentage of excess weight lost than did patients in the nonsurgical group (Table).

Prevalence of the metabolic syndrome decreased to a greater degree among LGB patients (Table). LGB patients also had greater improvement in quality of life (function, vitality, and mental health). Groups did not differ in frequency of adverse events.

CONCLUSION

In patients with mild-to-moderate obesity, laparoscopic gastric band surgery was more effective than a nonsurgical diet and lifestyle intervention for weight loss and improvement of the metabolic syndrome and in quality of life.

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*See Glossary.

Laparoscopic gastric band (LGB) surgery vs a nonsurgical diet and lifestyle intervention for mild-to-moderate obesity at 2 years†

Outcomes	Mean decrease from baseline		Difference in change between groups (95% CI)
	LGB	Nonsurgical	
Absolute weight loss (kg)	20.5	6.1	14.4 (11.6 to 18.9)
Body mass index (kg/m ²)	7.3	2.0	5.3 (4.9 to 5.7)‡
	Event rates		RBI (CI)
> 50% excess weight loss	85%	26%	228% (91 to 525)
			NNT (CI)
			2 (2 to 3)
			RRR (CI)
The metabolic syndrome	2.7%	24%	89% (40 to 98)
			5 (3 to 14)

†Abbreviations defined in Glossary; RBI, RRR, NNT, and CI calculated from data in article.

‡CI calculated from data in article based on longitudinal analysis using a mixed-effects model.

COMMENTARY

In the trial by O'Brien and colleagues, LGB surgery reduced weight and improved quality of life in a small, highly selected population of mildly obese patients. It is notable that the study enrolled patients with lower BMI than that recommended for surgical intervention. The 2-year reductions in weight were clinically significant; lesser weight reductions (with nonsurgical interventions) in overweight and mildly obese patients have previously been shown to lead to fewer obesity-related comorbid conditions (1). However, the results of this study cannot necessarily be generalized to all mildly obese patients and bariatric surgical centers.

Bariatric surgery is the most effective long-term method to reduce weight and such comorbid conditions as type 2 diabetes and sleep apnea (2). However, surgery is clearly not a realistic solution for the estimated 300 million people affected by obesity worldwide. Unlike lifestyle modification, bariatric surgery is not universally accessible and involves the costs and potential complications of a surgical procedure. Such procedures are riskier in older patients, in patients with comorbid

conditions, and in centers with limited caseloads and experience.

More effective nonsurgical interventions are required; surgery remains a treatment for selected, refractory cases at present. Several other issues require clarification. Should surgical eligibility continue to be indexed to the BMI or rather be more reflective of underlying risks and potential benefits? When does the benefit-risk ratio of surgery become favorable? Which subgroups benefit most from surgical intervention? Are current procedures cost-effective? Further research is required to determine how best to maximize the benefit and minimize the risk associated with bariatric procedures.

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References

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