



**Title** Laparoscopic Adjustable Gastric Banding for the Treatment of Clinically Severe (Morbid) Obesity in Adults: An Update

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### Aim

To examine the research on whether laparoscopic adjustable gastric banding (LAGB) is a safe and effective procedure compared with open and/or laparoscopic Roux-en-Y gastric bypass (LRYGB) and laparoscopic vertical banded gastroplasty (LVBG), especially in the longer term ( $\geq 5$  years), for adult patients with clinically severe obesity.

### Conclusions and results

Three health technology assessment (HTA) reports and 18 published primary studies, including 1 randomized controlled trial (RCT) comparing LAGB with LVBG, 3 nonrandomized studies comparing LAGB with LRYGB, and 14 case series met the inclusion criteria. Results from the RCT and 2 single-center comparative studies suggested significantly shorter operating time and length of stay (LOS) with LAGB compared with LVBG or LRYGB. Short-term mortality rates after LAGB, LVBG, and LRYGB were similar. Significantly higher long-term postoperative complications and reoperations after LAGB raised safety concerns in severely obese patients. Although LOS was shorter with LAGB, late complications (reoperation) could increase hospital days. LAGB appeared to produce significant weight loss in severely obese patients. However, LAGB appeared to be less effective than LRYGB, with mean percent excess weight loss (%EWL) less than 50% at up to 2-year followup for patients with a wide range of preoperative BMIs (27 kg/m<sup>2</sup> to 81 kg/m<sup>2</sup>). LAGB also appeared to be less effective than LVBG, with mean %EWL less than 50% at 3-year followup for patients with preoperative BMIs from 40 kg/m<sup>2</sup> to 50 kg/m<sup>2</sup>. Two large case series showed that weight loss after LAGB gradually increased with careful band adjustment, reaching 47% to 54% EWL over 1 to 5 years after surgery. Improvements in comorbidities and quality of life (QoL) were reported inconsistently. LAGB improved certain comorbidities (eg, diabetes and hypertension) and QoL. LRYGB appeared to improve comorbidities more profoundly. RYGB patients tended to report higher scores on QoL measures than did LAGB or VBG patients. Nutritional deficiencies after bariatric

surgery was a particular concern with RYGB, but most studies did not mention this outcome. Although this report intended to look at long-term ( $>5$  years) safety and efficacy of LAGB, the weak evidence does not permit conclusions. Based on the evidence, guidelines, and position statements, all bariatric surgeries are effective in treating morbid obesity, but differ in the degree of weight loss and range of complications.

### Recommendations

The evidence supports the current practice (RYGB or VBG) for treating clinically severe obese patients in Alberta. There is an opportunity to establish a registry to collect data on patient characteristics and link these data to outcome measures to answer questions of clinical safety and efficacy of various bariatric surgery techniques beyond 5 years.

### Methods

Systematic reviews, HTAs, clinical guidelines, and primary studies were identified by systematically searching the Cochrane Library, National Health Service Centre for Reviews and Dissemination database (Economic Evaluation Database, HTA, Database of Abstracts of Reviews of Effects), PubMed, EMBASE, Web of Knowledge, and relevant library collections, practice guidelines, evidence based resources, and other HTA agency resources from 2000 to March 2005 (systematic reviews, HTAs, clinical guidelines) and from 2002 to March 2005 (primary studies). Searching was limited to English language, human studies in adults.

### Further research/reviews required

The greatest needs are for long-term studies (with systematic surveillance and minimal loss to followup) that better define long-term weight loss, improvement in comorbidities and QoL, and complications following LAGB compared with LRYGB and LVBG. Future research needs to classify patients by their preoperative BMIs and analyze subgroup results for each class of obesity (WHO/Canada body-weight classifications). The main issue is to identify which patient group is most appropriate for which bariatric procedure.

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