Bariatric surgery is effective and safe in patients over 55: a systematic review and meta-analysis

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CRD summary
The review concluded that bariatric surgery for patients aged 55 years or older achieved weight loss and reduction in co-morbidities and mortality comparable with the general bariatric surgery population. Given the unknown quality and observational design of the included studies, and the lack of reporting of review methods, the reliability of the authors’ conclusion is uncertain.

Authors' objectives
To evaluate the effectiveness and safety of bariatric surgery in patients aged over 55 years.

Searching
MEDLINE, EMBASE and The Cochrane Library were searched from 1990 to December 2010. Search terms were reported. Only studies published in English were included.

Study selection
Experimental studies of laparoscopic bariatric surgery that reported a minimum of six months follow-up for more than 10 patients aged 55 or older were eligible for inclusion.

Most of the included studies were conducted in the USA or Europe. Included patients underwent either laparoscopic Roux-en-Y gastric bypass or laparoscopic adjustable gastric banding or a combination of these techniques. Patient ages ranged from 55 to 83 years. Average preoperative body mass index ranged from 42.2 to 50.2 kg/m2. Most participants were female (where reported). Comorbidities included diabetes, hypertension, joint pain, lipid abnormality and obstructive sleep apnoea. Outcomes were postoperative excess weight loss, postoperative status of co-morbidities, and mortality up to 30 days.

The authors did not state how many reviewers selected studies for inclusion.

Assessment of study quality
The authors did not state that they assessed study quality.

Data extraction
Data were extracted on proportions of post-operative excess weight loss, mortality and comorbidities.

The authors did not state how many reviewers extracted data.

Methods of synthesis
Data were pooled in a meta-analysis using a random-effects model. Analyses were conducted separately for each surgery type and at each point of follow-up.

Separate analyses were conducted for younger versus older patients for comorbidity improvements, cure and mortality.

Publication bias was assessed using visual inspection of plots.

Results of the review
Eighteen non-randomised observational studies (1,239 patients) were included in the review. Nine studies were conducted prospectively and six had a control arm (younger patients compared with older patients).

Weight loss: There were significant reductions in excess weight loss for both laparoscopic Roux-en-Y gastric bypass or laparoscopic adjustable gastric banding at six months and 12 months. However, there was a greater reduction in excess weight loss for laparoscopic Roux-en-Y gastric bypass (54.8%, 95% CI 49.5 to 60.1; four studies) than laparoscopic...
adjustable gastric banding (30%, 95% CI 27.1 to 32.9; two studies) at six months and for laparoscopic Roux-en-Y gastric bypass (72.6% 95% CI 63.0 to 82.3; six studies) than laparoscopic adjustable gastric banding (39.1%, 95% CI 25.5 to 52.8; four studies) at 12 months.

30-day mortality: There were three deaths (0.25%) in three days in the total population of 1,206 participants. Laparoscopic adjustable gastric banding reported fewer deaths (one death; 0.18%, 95% CI 0.05 to 1.02) than laparoscopic Roux-en-Y gastric bypass (two deaths; 0.30%, 95% CI 0.37 to 1.09).

Co-morbidity outcomes: Laparoscopic Roux-en-Y gastric bypass reported high cure and improvement rates for diabetes (all types), hypertension, lipid abnormality, obstructive sleep apnoea and joint disease. Laparoscopic adjustable gastric banding reported lower cure rates than laparoscopic Roux-en-Y gastric bypass for diabetes (all types), hypertension, and lipid abnormality, and lower improvement rates for hypertension (other outcomes were not reported).

Age-related outcomes: Six studies that compared younger (<55 years, 7,411 patients) with older (≥55 years, 431 patients) groups of patients reported significantly higher mortality for older patients, but comparable cure rates for hypertension, diabetes, sleep apnoea and lipid abnormalities between older and younger patients (details reported in the paper).

Authors’ conclusions
Bariatric surgery for patients aged 55 years or older achieved weight loss and reduction in co-morbidities and mortality comparable with the general bariatric surgery population.

CRD commentary
The review question was clear with defined inclusion criteria. Several relevant sources were searched but exclusion of non-English studies meant some data may have been missed. It was unclear whether appropriate methods were used to reduce reviewer error and bias throughout the review.

Study quality was not assessed, which made it difficult to determine the reliability of the evidence presented. All the studies appeared to be observational in design, so liable to multiple biases. Statistical heterogeneity was not formally assessed and there appeared to be differences between the studies for measurement and categorisation of outcomes. As the authors acknowledged, most of the evidence was derived from subgroup analyses of larger datasets and most of the included data contained fewer than 100 patients. The only comparative studies were those of younger versus older patients. The authors stated that reporting of data within the studies was poor.

The reliability of the authors’ conclusions is uncertain given the lack of study quality assessment, the lack of reporting of review methods, and the observational design of most of the included studies.

Implications of the review for practice and research
Practice: The authors stated that based on the findings, patients should not be denied bariatric surgery on the basis of age alone.

Research: The authors stated there was a need for randomised controlled trials to evaluate surgery with best medical/lifestyle therapy for patients aged 55 or older. Future studies should include long-term outcomes such as mortality, weight loss and comorbidity improvement, and they should be stratified by age. Standardisation in the reporting of bariatric surgery outcomes was required to enable future pooling.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.