Robotic Bariatric Surgery in Patients with BMI > 50 kg/m²: a Systematic Review and Meta-Analysis

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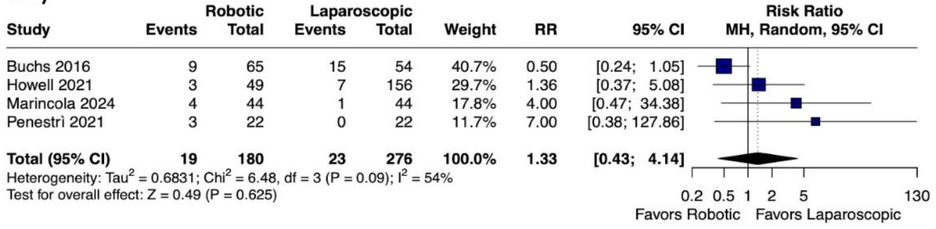
Background

Bariatric surgery poses a challenge in patients with BMI > 50 kg/m². The current literature lacks sufficient data comparing robot-assisted and laparoscopy in this population. This systematic review aims to evaluate the effectiveness and safety of robotic bariatric surgery in patients with a BMI > 50 kg/m².

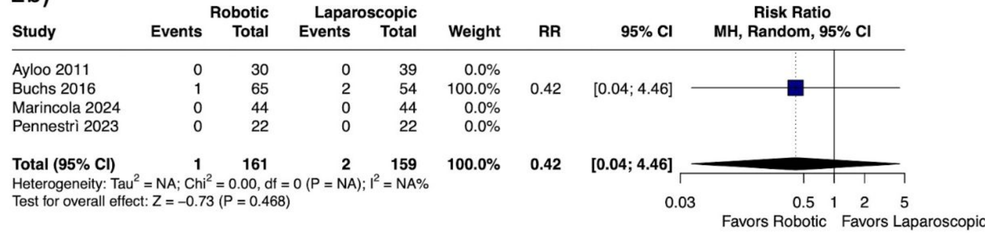
Methods

PubMed, Cochrane Central and EMBASE were searched for studies comparing robotically-assisted and laparoscopic bariatric surgery in patients with BMI > 50 kg/m² from inception until May 2024. We included all robotic bariatric techniques as the intervention group. Studies lacking control groups or having overlapping populations were excluded. Our outcomes were mean operative time, postoperative and intraoperative complications, reoperation, conversion to open, surgical site infection, anastomotic leak, length of hospital stay (LOS) and mortality.

2a)



2b)



Robotic bariatric surgery demonstrated comparable postoperative and intraoperative outcomes to laparoscopic bariatric surgery, with no significant increase in complications

Scan for more details and references

Results

The robot platform use significantly increased the operative time (MD = 31.9 minutes; 95% CI 2.8; 61; p = 0.032). However, there were no statistically significant differences observed in: postoperative or intraoperative complications (RR = 1.3; 95% CI 0.4; 4.1; p = 0.6, RR = 0.4; 95% CI 0.04; 4.46; p = 0.4); reoperation rates (RR = 0.9; 95% CI 0.4; 1.9; p = 0.8); conversion to open (RR = 0.8; 95% CI 0.2; 3.6; p = 0.8); surgical site infection (RR = 1.1; 95% CI 0.8; 1.6; p = 0.5); anastomotic leak (RR = 0.9; 95% CI 0.09; 9.1; p = 0.9); length of hospital stay (MD = -0.07; 95% CI -0.6; 0.4; p = 0.7) and mortality (RR = 0.7; 95% CI 0.3; 1.7; p = 0.4).

Conclusion

Our analysis suggests that robotic bariatric surgery in patients with BMI > 50 kg/m² extends the operative time with no differences in postoperative or intraoperative complications, reoperation rates, conversion to open, surgical site infection, anastomotic leak, LOS and mortality. Future prospective studies should prioritize investigating long-term outcomes and cost-effectiveness to enhance clinical decision-making for this patient demographic.