INPLASY

Comparison of Different Revisional Surgeries After Sleeve Gastrectomy: A Network Meta-Analysis

INPLASY202460084

doi: 10.37766/inplasy2024.6.0084

Received: 22 June 2024

Published: 22 June 2024

Małczak, P; Shim, SR; Wysocki, M; Rymarowicz, J; Wierdak, M; Pędziwiatr, M; Major, P.

Corresponding author:
Piotr Małczak

pmmalczak@gmail.com

Author Affiliation:
Jagiellonian University Medical College, Cracow, Poland.

ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202460084

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 22 June 2024 and was last updated on 22 June 2024.

INTRODUCTION

Review question / Objective P: patients who underwent sleeve gastrectomy and need another surgery; I: revisional bariatric surgery; C: revisional bariatirc surgery; O: excess weight loss%, total weight loss%, morbidity.

Rationale Sleeve gastrectomy (SG) is currently the most commonly performed bariatric surgery worldwide, accounting for more than 60% of bariatric procedures, and its prevalence continues to rise annually. Despite its popularity and effectiveness, a significant proportion of patients—over 20% according to the literature—require revisional surgery. There are many possible choices for revision and currently theres is no consensus which method is preferable.

Condition being studied Obesity is a worldwide epidemy. Currently the only availabe method allowing for long-term weight loss is bariatric surgery. However sometimes patients require multiple interventions.

METHODS

Search strategy ((Revision* adj surg*) or revision*) (LSG or (sleev* adj gastrectomy*) or SG. (complication* or morb* or (weight adj loss)) Database: OVID Medline, Pumbed, Embase, Scopus.

Participant or population Patients after sleeve gastrectomy who are qualified for revisional bariatric surgery.

Intervention Any surgical intervention other than endoscopic which is considered as bariatric

proecudure which includes: re-sleeve gastrectomy, Roux-Y gastric bypass, single anastomosis duodeno-ileal bypass, duodenal swithc, one anastomosis gastric bypass.

Comparator Any surgical intervention other than endoscopic which is considered as bariatric proecudure which includes: re-sleeve gastrectomy, Roux-Y gastric bypass, single anastomosis duodeno-ileal bypass, duodenal swithc, one anastomosis gastric bypass.

Study designs to be included Randnomized and non-randomized studies comparing at least 2 different surgical interventions.

Eligibility criteria - 2 different surgical interventions
- excess weight loss with standard deviation or total weight loss with standard deviation or moribidity
- follow up period present.

Information sources Electronic databases, contact with authors, trial registers.

Main outcome(s) Excess Weight loss - presented as mean difference with 95% Credible Interval.
Total Weight loss - presented as mean difference with 95% Credible I.

Quality assessment / Risk of bias analysis Quality of non-RCT studies was assessed using NewCastle-Ottawa Scala
RCT studies were assessed using Risk of Bias (RoB 2.0) by Cochrane Collaboration**.**

Strategy of data synthesis Baysesian Network Meta-Analysis was carried out to assess pooled data.
For Bayesian NMA, specific graphical analysis was completed using the “gemtc” package in R software v.4.3.1 (R Foundation for Statistical Computing). To compare the six included revisional surgeries after SG, the simulation was conducted by putting the prior distribution and probability into the Markov Chain Monte Carlo (MCMC). After that, the optimal convergence model was selected by reviewing the trace plot, normal distribution plot, and the MCMC standard error of the generated posterior distribution. Through this, the posterior probability of the effect sizes of each treatment could be calculated. A consistency test between direct and indirect comparisons was performed through Node-splitting assessments.
In the Bayesian approach, the optimal probability of individual surgeries being selected can be obtained using the generated posterior distribution, which represents a kind of priority between treatments as a Surface Under the Cumulative Ranking Curve (SUCRA); the larger the SUCRA value, the higher the rank of the intervention[. The analysis pooled the MDs or ORs and 95% Credible Intervals (CrI). A two-sided P-value of ≤0.05, or not containing a null value (MD = 0 or OR = 1) within the 95% CrIs were considered statistically significant.

Subgroup analysis A subgroup analysis was performed for 12-month follow up as a sensitivity test.

Sensitivity analysis A subgroup analysis was performed for 12-month follow up as a sensitivity test.
Since the main analysis involved all studies with various follow-up periods.

Language restriction No.

Country(ies) involved Poland, South Corea.

Keywords revisional bariatric surgery; sleeve gastrectomy; RBS; SG; network meta-analysis; NMA.

Dissemination plans Results will be published in a peer-reviewed journal with Impact Facfotr.

Contributions of each author
Author 1 - Piotr Małczak - Manuscript draft, data preparation.
Email: pmmalczak@gmail.com
Author 2 - Sung Shim - Statistical analysis.
Email: sungryul.shim@gmail.com
Author 3 - Michał Wysocki - Selection criteria, quality assesment.
Email: michal92wysocki@gmail.com
Author 4 - Justyna Rymarowicz - Data selection, data extraction.
Email: justyna.rymarowicz88@gmail.com
Author 5 - Mateusz Wierdak - Data selection, data extraction.
Email: wierdakmateusz@gmail.com
Author 6 - Michał Pędziwiatr - Data quality assesment.
Email: michal.pedziwiatr@uj.edu.pl
Author 7 - Piotr Major - Idea for the study, final manuscript revision.
Email: majorpiotr@gmail.com