



Systematic Review

Search Strategy

Review title: Hypoglycemia rates and glycemic hormonal response after laparoscopic Roux-en-Y gastric bypass versus sleeve gastrectomy. A meta-analysis of comparative studies.

Review team:

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The search strategy will be conducted by Sotirios Artsitas, Dimitrios Artsitas, and Spyridon Smparounis. Dimitrios Theodorou and George C. Zografos hold a supervisory position during the formulation of the strategy. The latter will be updated as needed based on database-specific, language or other requirements within the following databases:

- MEDLINE (PubMed)
- Cochrane Central Register of Controlled Trials (CENTRAL)
- Google Scholar (Google LLC)
- Scopus (Elsevier B.V.)
- ScienceDirect (Elsevier B.V.)

For non-indexed conference proceedings, the review team will search relevant conference proceedings announcements and websites. Additionally, the review team will hand-search bibliographies of relevant randomized controlled trials (RCTs), non-randomized observational comparative studies, systematic reviews, narrative reviews, and meta-analyses found, as well as relevant citations bibliographies of the articles included in the review. For maximum transparency regarding the literature search process, all results in references will be integrated and analyzed within "Sysrev" online platform framework (<https://sysrev.com>).

Undoubtedly, contemporary bariatric surgery (BS) is widely regarded as the most effective measure for achieving sustained reduction in excessive body weight. Two of the most common surgical approaches include laparoscopic Roux-en-Y gastric bypass (RYGB) and laparoscopic sleeve gastrectomy (LSG), both of which have shown remarkable outcomes in addressing complications associated with morbid obesity and regulating type 2 diabetes. Nevertheless, bariatric surgery, in addition to its numerous benefits, is not without complications. The most frequent ones involve postoperative leaks due to suture line breakdown, hemorrhage, nutritional deficiencies, and weight regain. Recently, postprandial hypoglycemia has emerged as one of the significant yet often underreported complications of BS. Its significance lies in the manifestation of multiple hypoglycemic episodes occurring after six months from the surgical intervention, most of which go subclinical. Postoperative hypoglycemia following weight loss surgery is believed to be responsible for a multitude of observed events, such as syncope, palpitations, dizziness, headaches, increased appetite, suicidal ideation, impaired reflexes leading to traffic accidents, and more.

In this study, our primary focus is to investigate the comparative impact of postoperative hypoglycemia in the context of RYGB versus LSG. Our analysis will encompass all currently available diagnostic procedures, including the use of questionnaires, the mixed meal tolerance test (MMTT), the oral glucose tolerance test (OGTT), and continuous glucose monitoring (CGM). In addition to the above, we intend to explore any differences between the above approaches in terms of hormonal responses related to the regulation of blood sugar levels. Specifically, we will compare insulin and plasma glucose levels at different time points and in the form of stimulation from baseline. In our conclusions, we anticipate presenting the pathophysiological differences that exist between RYGB and LSG in order to appropriately interpret any disparities observed in the incidence of postoperative hypoglycemia.

We will not include or exclude studies based on the length of the studies, patient populations under comparison, follow-up periods or publication dates, and only content published or available in English will be included. Bibliographic data from systematic reviews, meta-analyses, as well as narrative reviews will be utilized appropriately. However, the above will not be included in the final sample of studies from which the necessary quantitative data will be extracted. Inclusion of studies involving specialized patient populations, such as exclusively female patients and adults diagnosed with type 2 diabetes, is warranted due to the scarcity of comparative data within the international literature. To ensure the content accurately reflects research reported within the review's proposed timeframe, monthly search alerts will be established for each database and monitored after the initial search, and eligible articles will be added to our review through the data extraction phase. For the thorough control of the above process, records of reviewed references will be kept, which will be compiled monthly in "Sysrev".

MEDLINE (PubMed)	
1	(hypoglycemia[Title/Abstract])
2	(gastric bypass[Title/Abstract])) AND (sleeve gastrectomy[Title/Abstract])
3	#1 AND #2
CENTRAL (Cochrane Central Register of Controlled Trials)	
4	(hypoglycemia):ti,ab,kw AND (sleeve gastrectomy):ti,ab,kw
5	(hypoglycemia):ti,ab,kw AND (gastric bypass):ti,ab,kw
6	#4 AND #5
Google Scholar (Google LLC)	
7	allintitle: hypoglycemia
8	allintitle: gastric, bypass
9	allintitle: sleeve, gastrectomy
10	#7 AND #8 AND #9
Scopus (Elsevier B.V.)	
11	TITLE (hypoglycemia AND gastric bypass AND sleeve gastrectomy)
12	ABSTRACT (hypoglycemia AND gastric bypass AND sleeve gastrectomy)
13	#11 OR #12
ScienceDirect (Elsevier B.V.)	
14	Title: hypoglycemia AND gastric bypass AND sleeve gastrectomy
15	Abstract: hypoglycemia AND gastric bypass AND sleeve gastrectomy
16	#14 OR #15