HIGH RISK PATIENTS: CIRRHOSIS, CLASS V OBESITY (BMI > 60), HEART FAILURE, RENAL FAILURE: SYSTEMATIC REVIEW FOR NEW IFSO/ASMBS GUIDELINES

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IFSO
NAPOLI
2023

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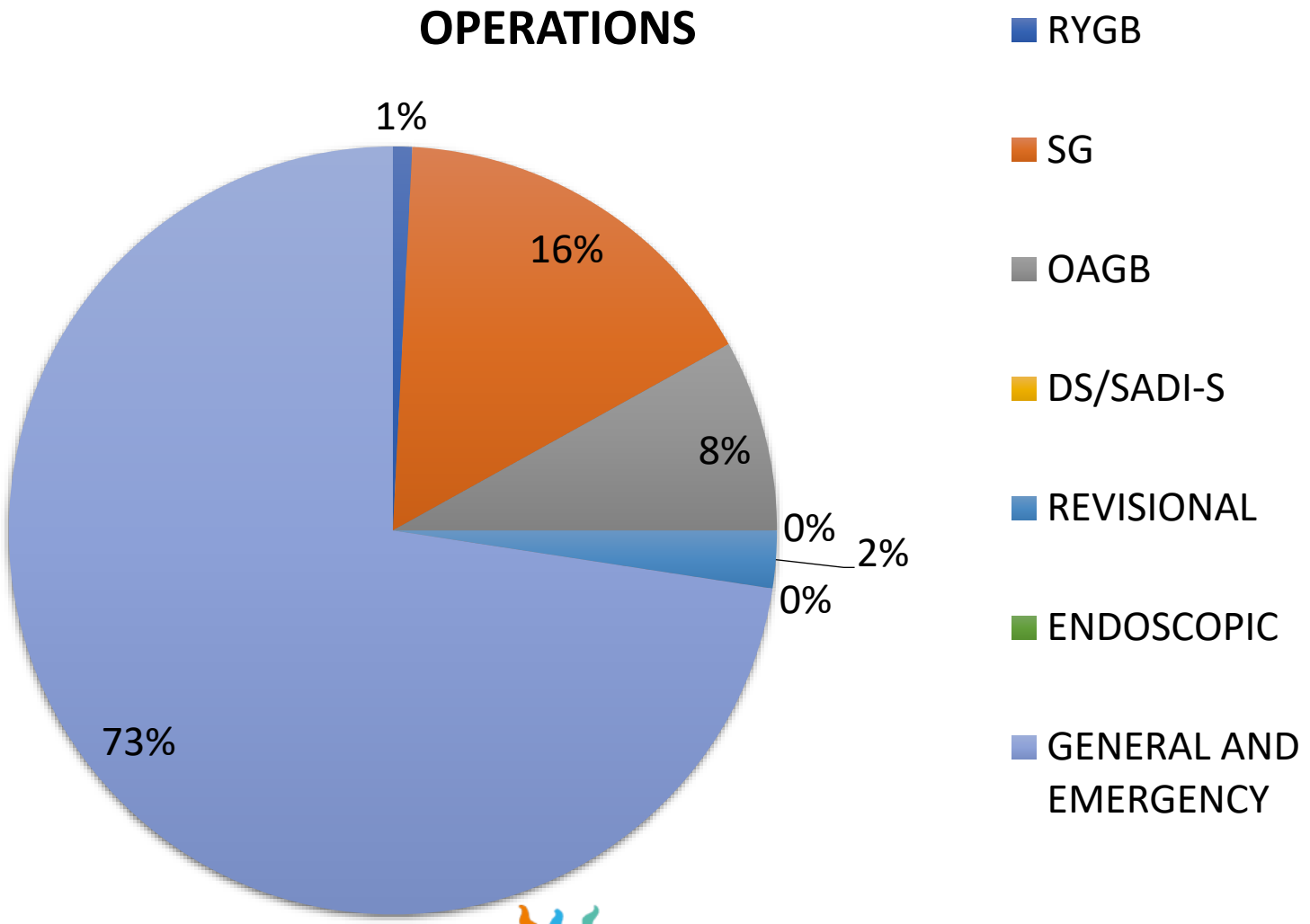

- 100 SG, 50 OAGB, 5 RYGB, 15 REVISIONAL
- (> 500 GENERAL AND EMERGENCY SURGERY PROCEDURES)

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Obesity Surgery, 1, 257–265

National Institutes of Health Consensus Development Conference Draft Statement on Gastrointestinal Surgery for Severe Obesity 25–27 March 1991

ELSEVIER

Check for updates

SURGERY FOR OBESITY AND RELATED DISEASES

Surgery for Obesity and Related Diseases 18 (2022) 1345–1356

Original article

2022 American Society for Metabolic and Bariatric Surgery (ASMBS) and International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO): Indications for Metabolic and Bariatric Surgery

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IFSO/ASMBS → THREE CATEGORIES OF HIGH RISK PATIENTS:

- **BMI > 60 (CLASS V OBESITY)**
- **CIRRHOSIS**
- **HEART FAILURE**

- Carefully selected individuals considered higher risk for general surgery may benefit from MBS.

Dan Eisenberg et al. / Surgery for Obesity and Related Diseases 18 (2022) 1345–1356

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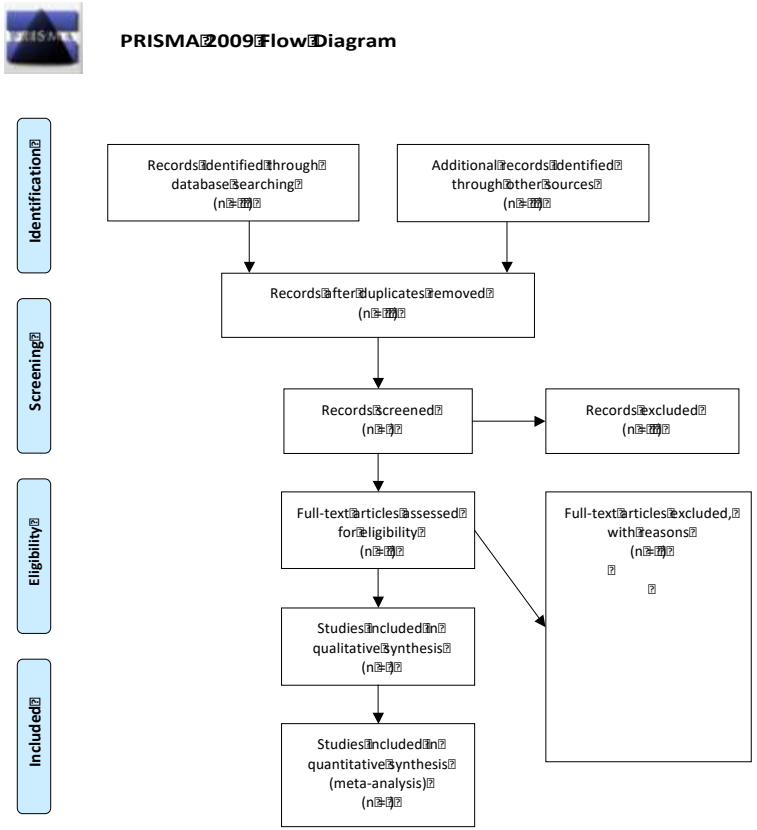
TASK: SYSTEMATIC REVIEW OF LITERATURE, ACCORDING TO **PRISMA**, TO **METHODOLOGICALLY SUPPORT** NEW IFSO/ASMBS INDICATIONS.

EXCLUSION CRITERIA

a) Paper not in english language
b) Not available full text
c) Letter to the Editor
d) Follow up less than 12 months
e) Number of patients less than 15
f) Descriptive article
g) Articles before year 2000



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

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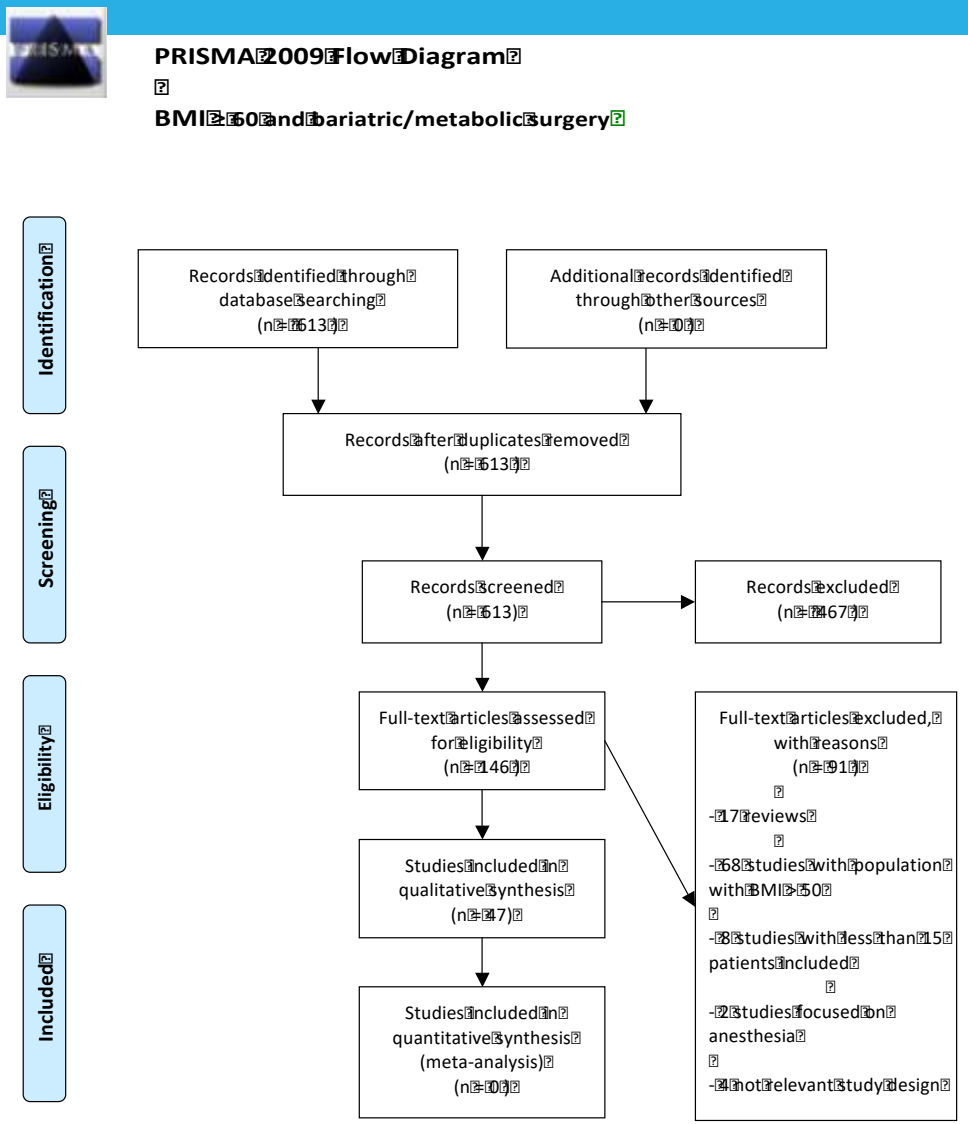
BMI > 60

MBS should be considered as a preferred method to achieve clinically significant weight loss in patients with extreme BMI.

SEARCH STRATEGY

(BMI 60 OR "body mass index 60" OR super super obesity OR mega obesity) AND (bariatric surgery OR metabolic surgery OR gastric bypass OR sleeve OR gastric banding OR gastric balloon)



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- **47 PAPERS**
- NO RCT
- 25 COMPARATIVE: MBS IN SSO VS SO AND MO
- 9 COMPARATIVE: TECHNIQUES (LAGB, LSG, RYGB, OAGB)
- 4: DATA FROM METABOLIC AND BARIATRIC SURGERY ACCREDITATION AND QUALITY IMPROVEMENT PROGRAM (MBSAQIP) DATABASE.
- 12 STUDIES FOCUSED ON SAFETY AND FEASIBILITY WITH 30-DAYS F-UP (POPULATION 27960 BMI > 60).
- 35 STUDIES FOCUSED ON SAFETY, FEASIBILITY, AND MEDIUM TO LONG-TERM RESULTS (POPULATION 8426 BMI > 60).

Grade of Recommendation	Level of Evidence	Type of Study
A	1a	Systematic review of (homogeneous) randomized controlled trials
A	1b	Individual randomized controlled trials (with narrow confidence intervals)
B	2a	Systematic review of (homogeneous) cohort studies of "exposed" and "unexposed" subjects
B	2b	Individual cohort study / low-quality randomized control studies
B	3a	Systematic review of (homogeneous) case-control studies
B	3b	Individual case-control studies
C	4	Case series, low-quality cohort or case-control studies
D	5	Expert opinions based on non-systematic reviews of results or mechanistic studies

Evidence-Based Medicine, Stony Brook University Libraries, 14 March 2023

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RESULTS

- 8426 PATIENTS
  - MEAN FOLLOW-UP: 28 months (SD 16.21)
  - MEAN PREOPERATIVE BMI: 66.64 (SD ± 3.05)
  - MEAN **%EBMIL**: 51.5% (SD 16) AND MEAN **ΔBMI**: 21.64 (SD 7.16)
  - COMORBIDITIES RESOLUTION: DM 67.35% (SD 24.79), HT 54.01% (SD 15.93) , DL 70.95% (SD 10.31) , OSA 63.61% (SD 21.51)
- 36168 PATIENTS: OVERALL EARLY COMPLICATIONS: 4.99%, OVERALL REOPERATION RATE 3.23%, OVERALL MORTALITY 0.16%
- 942 PATIENTS: LONG TERM COMPLICATION: 13.5%
- 2322 PATIENTS **BMI > 70**: MORTALITY 0.4%, SEPSIS 1.1%, REOPERATION RATE 2.9%

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CONCLUSIONS

DATA FROM SYSTEMATIC REVIEW **SUPPORT** IFSO/ASMSBS **INDICATIONS** FOR MBS IN PEOPLE WITH BMI > 60.

RECOMMENDATION:

- *MBS IS EFFECTIVE IN PATIENTS WITH BMI > 60*
- *MBS IS SAFE IN PATIENTS WITH BMI > 60, WITH ACCEPTABLE HIGHER RATE OF EARLY AND LATE COMPLICATIONS*
- *MBS APPEARS SAFE IN PATIENTS WITH INITIAL BMI ≥ 70, WITH ACCEPTABLE INCREASED RISK OF COMPLICATIONS*

GRADE B, LEVEL OF EVIDENCE 2B/3B

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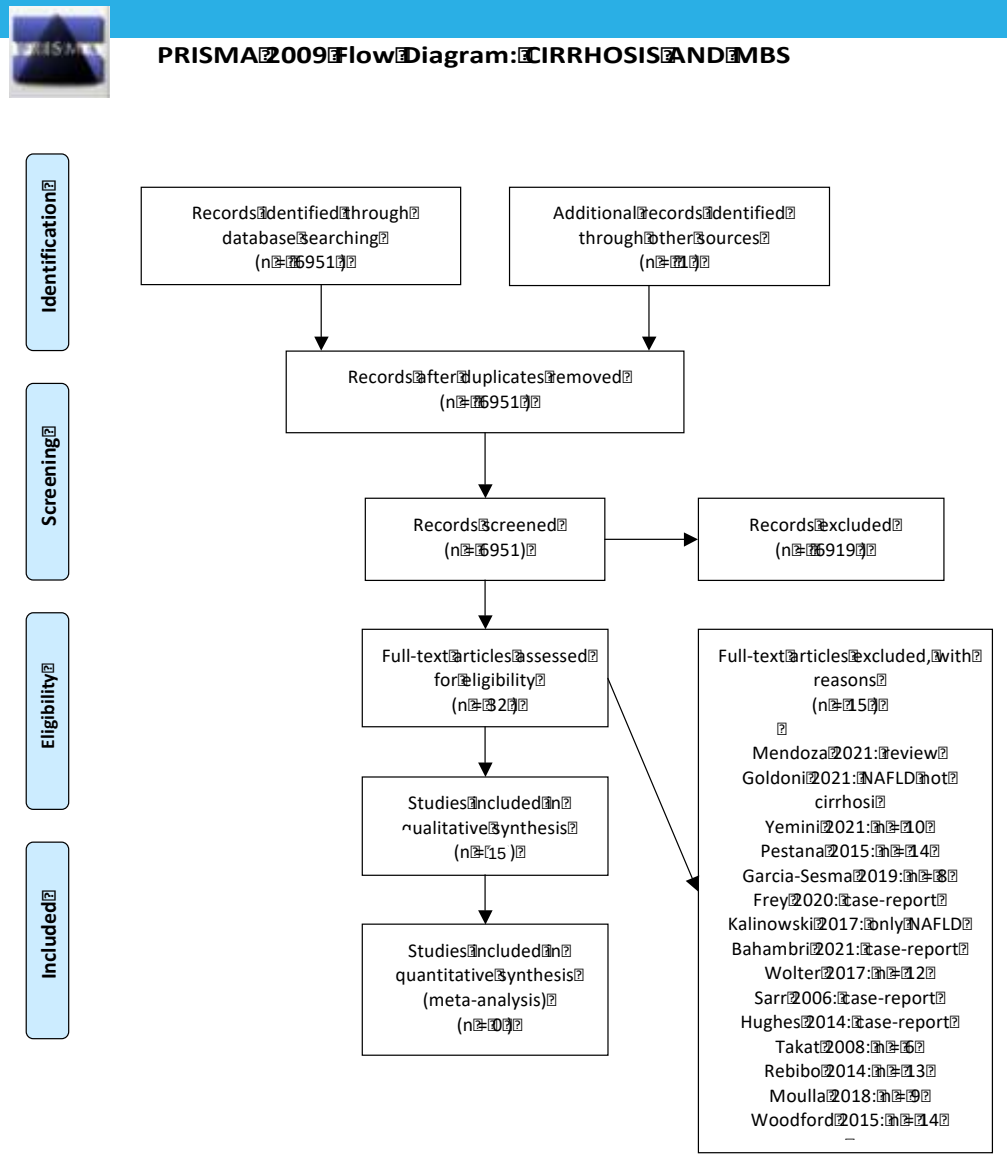
CIRRHOSIS

The patient with obesity and compensated cirrhosis is at higher risk for perioperative mortality following MBS, but the risk remains small (<1%) and the benefits significant [94,96,97]. There is a paucity of data on surgical outcomes in patients with clinically significant portal hypertension [98]. Careful patient selection and consideration of choice of surgical procedure are important to ensure best outcomes.

SEARCH STRATEGY

(cirrhosis OR NAFLD OR NASH OR fibrosis OR liver decompensation OR hepatocellular carcinoma OR portal hypertension) AND (bariatric surgery OR gastric bypass OR sleeve)



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- **15 PAPERS**
- NO RCTS
- ONE COMPARATIVE: MBS IN NAFLD VS MBS IN CIRRHOSIS
- THREE COMPARATIVE: MBS IN COMPENSATED VS DECOMPENSATED CIRRHOSIS
- ONE COST-EFFECTIVNESS
- TWO: DATA FROM NATIONAL DATABASE (NATIONAL INPATIENT SAMPLE DATABASE)
- ONE MULTICENTRIC OBSERVATIONAL

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A	1b	Individual randomized controlled trials (with narrow confidence intervals)
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RESULTS

- POPULATION: 7646
- MEAN FOLLOW-UP: 27.4 months (SD 16.21)
- MEAN PREOPERATIVE BMI: 44.5 (SD 3.8)
- MEAN POSTOPERATIVE **BMI**, **Δ BMI**, **%EBMIL** AND %**EWL**: 35.8, 8.7, 44.61%, 66%
- EARLY MORTALITY: 0.6-0.8% IN COMPENSATED CIRRHOSIS **VS** 19.4-22.1% IN DECOMPENSATED CIRRHOSIS
- EARLY COMPLICATIONS: 1.4 % IN COMPENSATED CIRRHOSIS **VS** 14.1% IN DECOMPENSATED CIRRHOSIS
- RYGB HIGHER RISK OF COMPLICATIONS AND LIVER DECOMPENSATION VS SLEEVE
- LIVER FUNCTION REPORTS: IMPROVEMENT, NO CHANGES, WORSENING (3 STUDIES, 3 DIFFERENT OUTCOMES)
- MELD: IMPROVED IN TWO STUDIES, WORSENED IN THRRE STUDIES

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CONCLUSIONS

DATA FROM SYSTEMATIC REVIEW **SUPPORT** IFSO/ASMSBS **INDICATIONS** FOR MBS IN CIRROHSIS.

RECOMMENDATION:

- *MBS IS EFFECTIVE IN PATIENTS WITH COMPENSATED CIRRHOSIS, WITH ACCEPTABLE PERIOPERATIVE MORBIDITY AND MORTALITY*
- *MBS IN DECOMPENSATED CIRROHOSIS IS ASSOCIATED WITH HIGHER RISK OF PERIOPERATIVE COMPLICATIONS AND MORTALITY*
- *CIRRHOTIC PATIENTS SHOULD UNDERGO MBS AFTER RISK ASSESSMENT AND ONLY IN HIGH-VOLUME CENTERS*
- *THE RISK OF POSTOPERATIVE LIVER DECOMPENSATION IS LOW, BUT SHOULD BE CALCULATED*
- *SLEEVE GASTRECTOMY MIGHT BE ASSOCIATED WITH LOWER PERIOPERATIVE RISK AND MORTALITY IN COMPARISON TO RYGB*

GRADE B, LEVEL OF EVIDENCE 2B/3B

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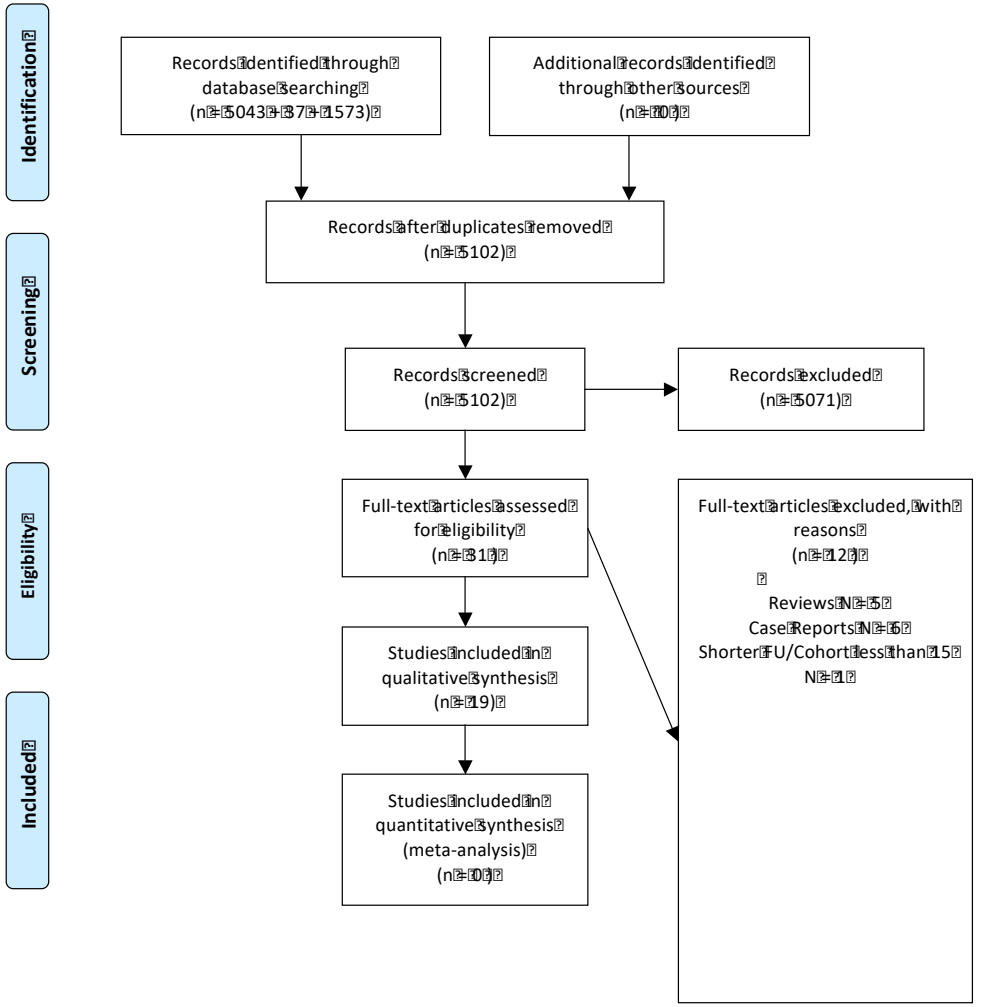
HEART FAILURE

There are increasing data to suggest that MBS can be a useful adjunct to treatment in patients with obesity and heart failure before heart transplantation or placement of a left ventricular assist device (LVAD), and performed with low morbidity and mortality [82,84,99]. The consequent improvement in obesity and associated co-morbidities improves overall health and can reduce the future risk associated with cardiac therapies. Furthermore, limited studies have shown that MBS in individuals with heart failure was associated with a significant improvement of left ventricular ejection fraction (LVEF), improvement of functional capacity, and higher chances for receiving heart transplantation

SEARCH STRATEGY

("heart failure") AND ("bariatric surgery"; OR "metabolic surgery"; OR "obesity surgery"; OR "sleeve gastrectomy"; OR gastric bypass OR gastric balloon)

PRISMA 2009 Flow Diagram: CIRRHOSIS AND MBS



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- **19 PAPERS**
- NO RCTS
- ALL RETROSPECTIVE
- 5 MATCHED COHORT (2 WITH PROPENSITY SCORE)
- 4 COMPARATIVE: MBS WITH HF/HD VS NON MBS WITH HF/HD
- 1 COMPARATIVE: MBS WITH HF/HD VS MBS WITHOUT HF/HD
- 1 COHORT: MBS WITH HF/HD AND WITHOUT HF/HD
- HETEROGENEITY

Grade of Recommendation	Level of Evidence	Type of Study
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RESULTS

- POPULATION: 8732
- MEAN FOLLOW-UP: 40 months (SD 33.13)
- MEAN PREOPERATIVE BMI: 44.98 (SD 4.17)
- MEAN POSTOPERATIVE **BMI**, **Δ BMI, %EBMIL**: 33.76 (SD 3.76), 11.22, 56.15%
- EARLY MORTALITY: 0.15% (POPULATION PROPENSITY MATCHED) UP TO 10.3% (NOT PROPENSITY MATCHED)
- CARDIOPULMONARY **EARLY** COMPLICATIONS: **HIGHER** AFTER MBS IN HD/HF PATIENTS COMPARED TO THOSE NOT OPERATED: 1.2% VS 0.2% (PROPENSITY MATCHED) UP TO 9.78% (NOT PROPENSITY MATCHED)
- CARDIOPULMONARY **LATE** COMPLICATIONS: **LOWER** AFTER MBS IN HD/HF PATIENTS COMPARED TO THOSE NOT OPERATED: MACE 11.5% VS 19.6% (MEAN FOLLOW-UP 48 MONTHS).
- BRIDGE TO TRANSPLANT: AFTER MBS 76.2% PATIENTS HAD AN INCREASE OF AT LEAST 10% OF LVEF, 8% PATIENTS REMOVED FROM TRANSPLANT LIST, 9% LVAD REMOVED BEACUSE OF IMPROVEMENT OF LVEF.

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CONCLUSIONS

DATA FROM SYSTEMATIC REVIEW **SUPPORT** IFSO/ASMSBS **INDICATIONS** FOR MBS IN PATIENTS WITH HEART FAILURE.

RECOMMENDATION:

- *MBS IN OBESE PATIENTS WITH HF/HD IS EFFECTIVE*
- *MBS IN OBESE PATIENTS WITH HF/HD IS ASSOCIATED WITH ACCEPTABLE HIGHER PERIOPERATIVE RISK OF COMPLICATIONS (CARDIOPULMONARY)*
- *EFFECTS OF MBS REDUCE RISKS OF MI, HF OR MACE IN THE MEDIUM TO LONG TERM, COMPARED TO PATIENTS WITH OBESITY AND HF/HD NOT RECEIVING MBS*
- *EFFECTS OF MBS IMPROVE CHANCES OF RECEIVING HEART TRANSPLANTATION, UP TO BE REMOVED FROM TRANSPLANT LIST THANKS TO CARDIAC FUNCTION IMPROVEMENT*

GRADE B, LEVEL OF EVIDENCE 2B/3B

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RENAL FAILURE

Studies suggest that more than 50% of patients with end-stage renal disease (ESRD) and morbid obesity are able to be listed for kidney transplant within 5 years after MBS [79].

DATA FROM SYSTEMATIC REVIEW **SUPPORT** IFSO/ASMSBS **INDICATIONS** FOR MBS IN PATIENTS WITH RENAL FAILURE.

RECOMMENDATION:

- *MBS IS ASSOCIATED WITH ACCEPTABLE HIGHER RISKS OF COMPLICATIONS/MORTALITY IN PATIENTS WITH RENAL FAILURE*
- *MBS INCREASES POSSIBILITY OF BEING LISTED FOR KIDNEY TRANSPLANTATION IN MORE THAN 50% OF PATIENTS*

- **PRISMA**: 713 → 34 FULL TEXT FOR QUALITATIVE ANALYSIS
- 17 PAPERS: MBS BEFORE KIDNEY TRANSPLANT
- NO RCTS; 3853 PATIENTS
- MORTALITY 1 YEAR AFTER MBS 4.8%-7.56% (INCLUDING ESKD)
- 59.2% (SD 19.03) LISTED FOR TRANSPLANTATION; 33% (SD 21.51) OF ALL SUCCESSFULLY TRANSPLANTED
- MORTALITY IN WAITLISTED PATIENTS: 1.8%/YEAR AFTER MBS VS 7.3%/YEAR WITHOUT MBS

THANKS FOR YOUR ATTENTION!