PATIENT FACTORS INDEPENDENTLY PREDICT SELECTION FOR PRIMARY ROBOTIC BARIATRIC SURGERY: AN MBSAQIP ANALYSIS OF 318,151 PATIENTS

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BACKGROUND AND STUDY DESIGN

- Adoption of robotic surgery has increased dramatically over the past decade, including in bariatric surgery
- Outcomes comparing bariatric and laparoscopic approaches continue to be debated, however little is known about patient factors responsible for the growing delivery of robotic bariatric surgery
- A better understanding of these factors will help to guide planning of bariatric delivery and resource allocation.



- A retrospective cohort study was conducted using data from the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) database.
- Patient population organized into two cohorts:

(1) Those who underwent primary robotic procedure

(2) Those who underwent conventional laparoscopic procedure

METHODS

Inclusion and Exclusion:

Only adult patients who underwent RYGB and SG were evaluated as these represent the majority of procedures performed.

Outcomes:

Primary - Identification of independent patient factors associated with selection for robotic surgery

Secondary - Comparison of rate and types of post-operative complications between the two groups.

Statistical Methods:

Bivariate analysis and multi-variable logistic regression modeling were conducted to characterize differences between the cohorts and identify independent patient predictors of robotic selection.

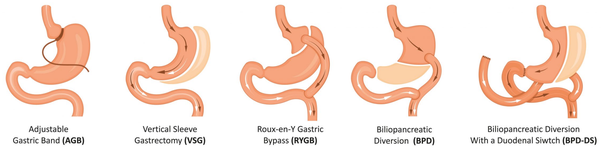
A multivariable logistic regression model was created for factors predictive of 30-day serious complications, including 30 day readmissions,

RESULTS

MBSAQIP
METABOLIC AND BARIATRIC SURGERY ACCREDITATION AND QUALITY IMPROVEMENT PROGRAM

RYGB and SG in 885 accredited centers in Canada and the USA (n= 318,151)

Robotic assisted bariatric surgery	Laparoscopic bariatric surgery
n= 65,951 (20.7%)	n=252,200 (79.3%)



Outcome Results:

Primary outcome analysis demonstrated patients undergoing robotic procedures were:

- Older (43.4 +/- 11.8 vs. 43.1 +/- 11.8; p<0.0001)
- Higher body mass index (BMI) (45.4 +/- 7.9 vs. 45.0 +/- 7.6; p<0.0001).
- Had higher rates of medical comorbidities including sleep apnea (38.0% vs. 36.8%, p<0.0001), hyperlipidemia (23.5% vs. 21.7%, p<0.0001), GERD (32.4% vs. 29.8%, p<0.0001), and medication-dependent diabetes (23.7% vs 22.6%; p < 0.0001).
- Robotic cases more likely to undergo RYGB (27.4% vs. 26.4%; p<0.001)

Secondary outcome analysis demonstrated patients undergoing robotic procedures had higher rates of 30-day serious complications (3.2% vs. 2.8% p<0.0001) including higher rates of 30-day readmission (3.3% vs. 2.8%, p<0.0001).

CONCLUSIONS

- After adjusting for comorbidities, independent predictors of robotic procedural selection include increased BMI, female sex, GERD, metabolic dysfunction, RYGB, black racial status, and reduced nutritional status
- Still no strongly contributing single patient factors predictive for robotic selection
- This suggests selection may be independent of patient factors and based instead on system factors such as robotic availability at individual centers or patient preference
- A more comprehensive understanding of patient factors fueling the adoption of robotic delivery is needed in order to better guide healthcare resources as the landscape of bariatric surgery continues to evolve.