



## Robotic Surgery Results in Better Outcomes in Gastric Bypass but not Sleeve Gastrectomy or Revisions: MBSAQIP database analysis for the years 2015-2018

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### Abstract:

**Introduction:** Obesity is a major health concern in the US and also worldwide. Bariatric surgery is the only safe and effective treatment for obesity. The use of robotic surgery in bariatric patients is controversial. The objective of this study is to evaluate the outcome of robotic surgery in bariatric patients based on the largest bariatric specific database in the US, namely MBSAQIP (Metabolic and Bariatric Surgery Accreditation and Quality Improvement project).

**Methods:** Using the PUF (Public Utility File) provided by MBSAQIP for the years 2015 to 2018 we selected all primary gastric bypass patients (RYGB), sleeve patients (SG) and revisions (REV) and divided them into two groups: Robotic (R-) and Laparoscopic (L-). We then performed a propensity score matching for all three categories based on 12 significant preoperative risk factors and both groups were then compared using separate chi square tests, Cochran-mantel-Haenszel (CMH) tests, separate t-tests for proportions and Mann Whitney rank sums test as indicated. Primary outcomes included SAE (Serious Adverse Events), OSI (Organ Space Infection), bleeding and reoperation, intervention and drain present at 30 days. Secondary outcomes included operation length, hospital stay, 30 day readmission rate, conversion to open and 30 day mortality rate. **Results:** Primary R-RYGB had a significantly lower incidence of SAE and bleeding (2.0% and 0.7% for R-RYGB vs 2.4% and 1.3% for L-RYGB,  $p < 0.05$ ) but higher incidence of 30 day reoperation compared to L-RYGB (2.7% vs 2.3%,  $p < 0.05$ ). Primary R-SG, however, were found to have a higher incidence of drain and intervention at 30 days compared to L-SG (0.3% and 1.1% for R-SG vs 0.2% and 0.9% for L-SG respectively,  $p < 0.05$ ). R-RYGB had a lower length of hospital stay compared to L-RYGB (1.98 vs 2.02 days) but higher readmission rates (7.1% vs 5.8%). R-SG had a longer hospital stay and higher readmission rates compared to L-SG (1.63 vs 1.57 days and 3.5% vs 3.2% respectively,  $p < 0.05$ ). R-REV



had a significantly higher 30 day reoperation rate compared to L-REV (8.2% vs 6.0%,  $p < 0.05$ ).

**Conclusion:** The use of robotic surgery in bariatric patients is a controversial topic due to safety concerns and lack of cost and clinical outcome data. Our analysis based on the MBSAQIP PUF between 2015 and 2018 demonstrated a benefit in gastric bypass patients but not sleeve or revision patients. Randomized controlled trials are needed to further clarify the benefit of robotic surgery in bariatric patients.

### Biography:

Maher El Chaar is the Fellowship Director of Bariatric and Robotic Surgery at St Luke's University Hospital and Health Network and the co-medical director of the St Luke's Weight Management Center. Dr. El Chaar is also a diplomat of the American Board of Obesity Medicine.

### Publication of speakers:

1. King, Keith & Galvez, Alvaro & Stoltzfus, Jill & Claros, Leonardo & El Chaar, Maher. (2020). Correction to: Cost Analysis of Robotic Roux-en-Y Gastric Bypass in a Single Academic Center: How Expensive Is Expensive?. *Obesity Surgery*. 10.1007/s11695-020-04897-3. Yogi, Dr & Mahi, Dr & Lokhande, Dr. (2020). Evaluation of short term complications following use of retrograde intramedullary femoral interlocking nail for fractures of distal femur. *International Journal of Orthopaedics Sciences*. 6. 149-152. 10.22271/ortho.2020.v6.i3c.2194.

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