

Mastery in bariatric surgery: The long-term surgeon learning curve of roux-en-y gastric bypass

Aristithes G. Doumouras, MD MPH^{1,2}, Fady Saleh, MD, MPH², Sama Anvari², Scott Gmora, MD^{1,2}, Mehran Anvari MD, PhD^{1,2}, Dennis Hong, MD, MSc^{1,2}

¹ Department of Surgery, McMaster University, Hamilton, Ontario, Canada

² Division of General Surgery, St. Joseph's Healthcare, Hamilton, Ontario, Canada

Background: Gastric bypass is an important public health procedure but it is difficult to master with little data about how surgeon cumulative volume affects outcomes longitudinally. To determine the effect of cumulative volume on all-cause morbidity and operative time.

Methods: This was a longitudinal study of 29 surgeons during the first 6 years of performing bariatric surgery in a high volume, regionalized center of excellence system. Cumulative volume was determined using date and time of the procedure. Cumulative volume was analyzed in blocks of 75 cases. The main outcome of interest was all-cause morbidity during the index admission and the secondary outcome was operative time.

Results: Overall, 11,684 gastric bypasses were performed by 29 surgeons at 9 centers of excellence. The overall morbidity rate was 10.1% and short-term outcomes were related significantly to cumulative volume. Perioperative risk plateaued after approximately 500 cases and was lowest for surgeons who had completed more than 600 cases (OR0.53 95%CI 0.26-0.96 p=0.04) compared

to the first 75 cases. Operative time also stabilized after approximately 500 cases, with an operative time 44.7 minutes faster than surgeons in their first 75 cases (95%CI 37.0-52.4 p<0.001).

Conclusion: This study demonstrated the clear, substantial influence of surgeon cumulative volume on improved perioperative outcomes and operative time. This finding emphasizes role of the individual surgeon in perioperative outcomes and that the true learning curve needed to master a complex surgical procedure such as gastric bypass is longer than previously thought, in this case requiring approximately 500 cases to plateau.