Predictors of Early Postoperative Mechanical Ventilation in Laparoscopic Bariatric Surgery Patients

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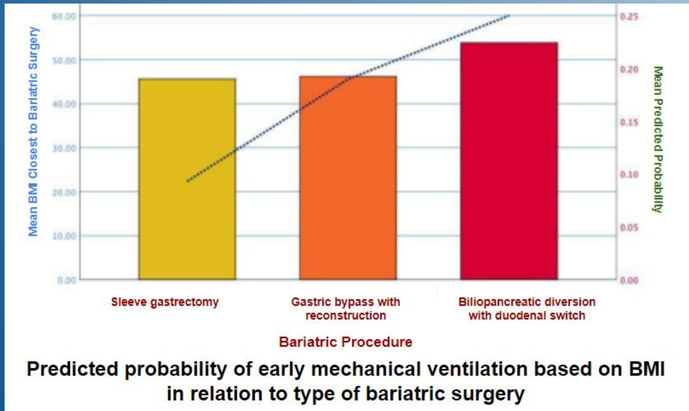
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INTRODUCTION

This study evaluates the factors associated with increasing the risk of MV for > 48 hours in the first 30 postoperative days after laparoscopic bariatric surgery.

METHODS

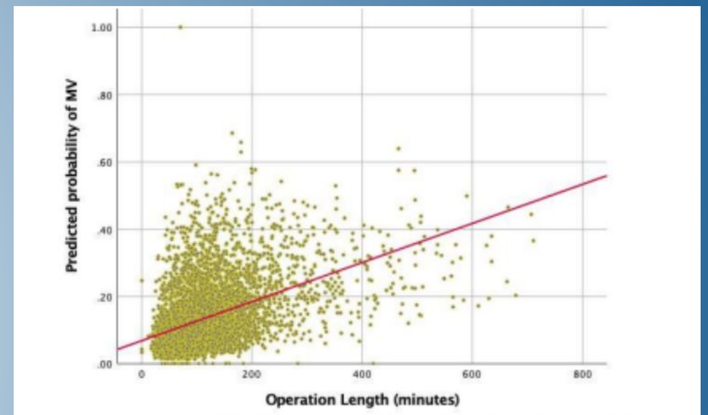
- All laparoscopic or robotic bariatric surgery cases reported to MBSAQIP for the years 2015 to 2020 (n = 966,840).
- Cases that required MV for > 48 hours in the first 30 days postoperatively (n = 756) were matched with cases that did not require MV (n = 4,674) using propensity score matching with 0.2 propensity score tolerance.
- Binary logistic regression used to determine if any of the 36 factors included in the study were associated with MV.
- Predicted probability for each case during regression was captured for charting



Predicted probability of early mechanical ventilation based on BMI in relation to type of bariatric surgery

RESULTS

Pre-operative factor	Odds Ratio	Confidence interval	*p-value*
DS (vs SG)	1.92	1.23-2.99	.004
GB (vs SG)	1.78	1.45-2.17	< .001
Previous foregut surgery	1.32	1.03-1.69	.029
Smoking within one year	1.32	1.01-1.72	.046
Age	1.03	1.02-1.03	< .001
BMI closest to surgery	1.02	1.01-1.03	< .001
Preoperative hematocrit level	1.01	1.002-1.02	.012
Operation length	1.001	1.001-1.002	.042
Intraoperative cardiac arrest	2.01	1.52-2.67	< .001



Simple scatter with fit line of predicted probability of MV by operation length

CONCLUSION

Regardless of gender, older patients who smoke, had previous foregut surgery, higher BMI, undergoing laparoscopic gastric bypass or biliopancreatic diversion with duodenal switch are at increased risk of requiring MVfor > 48 hours in the early postoperative period. Surgeons should consider these factors when planning for bariatric surgery.

BMI - Body mass index, DS - Biliopancreatic Diversion with duodenal switch, GB - Gastric bypass, MBSAQIP - Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program, MV - Mechanical ventilation, SG - Sleeve gastrectomy