Effect of Postoperative Hypertension on Postoperative Bleeding in Primary Bariatric Surgery Patients

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Introduction

• Postoperative hemorrhage occurs in 1-6% of bariatric surgery cases; considered rare yet significant.

• Studies suggest that increasing intraoperative SBP (systolic blood pressure) or MAP (mean arterial pressure) can reduce the risk of postoperative hemorrhage.

• While postoperative hypertension is known to increase bleeding in cardiovascular surgery, its impact on bariatric surgery outcomes remains unclear.

• Our research focuses on investigating the correlation between high blood pressure and the risk of postoperative bleeding in bariatric surgery.

Methods

• Electronic health records on laparoscopic Roux-en-Y gastric bypass (RYGB) and laparoscopic gastric sleeve (GS) surgeries at Houston Methodist Hospital were analyzed between 2016 and 2022.

• Patient demographics and outcomes were analyzed from MBSAQIP database.

• Python 3.8 and Stata 16 were used for data processing and statistical analysis.

• Pearson correlation conducted between postoperative SBP and hemoglobin changes.

• Performed univariate analysis on surgical outcomes by blood pressure.

• Statistical significance defined as p-values < .05 (two-sided).

Tables and Diagrams

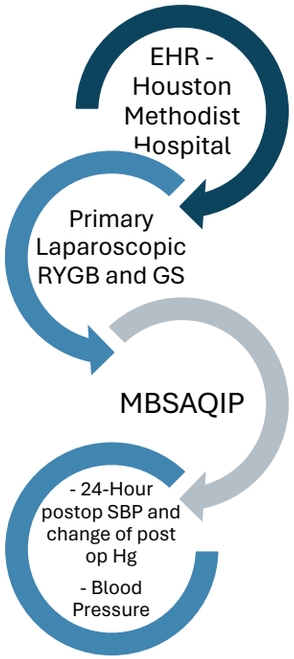




Table 1: Outcomes by Transfusion

Measurement	No Transfusion Mean (SD) (n=1577)	With Transfusion Mean (SD) (n=42)	P-Value
SBP Postoperative Max (mmHg)	167.69 (21.32)	167.40 (27.62)	0.948
SBP Postoperative >160 60min (%)	1.49 (1.78)	1.40 (1.42)	0.695

Table 2: Outcomes by Reoperation

Measurement	No Reoperation Mean (SD) (n=1590)	With Reoperation Mean (SD) (n=29)	P-Value
SBP Postoperative (mmHg)	167.64 (21.46)	169.69 (24.07)	0.653
SBP Postoperative >160 60min (%)	1.49 (1.77)	1.66 (1.45)	0.542

Table 3: Outcomes by Intervention

Measurement	No Intervention Mean (SD) (n=1603)	With Intervention Mean (SD) (n=16)	P-Value
SBP Postoperative (mmHg)	167.74 (21.51)	161.88 (19.76)	0.256
SBP Postoperative >160 60min (%)	1.49 (1.77)	1.25 (1.69)	0.577

The mean values at the "SBP >160 for 60 min" category represents the percentage of patients whose SBP remained above 160 mmHg for a continuous period of 60 minutes following surgery.

Results

•Analyzed 1619 primary bariatric surgeries: 789 RYGB and 830 GS with mean max SBP 167.68 mmHg.

•No significant decrease in hemoglobin levels with elevated SBP, diastolic BP, or MAP at 160, 170, 180, 190, 200 mmHg.

•Elevated BP did not increase transfusions or reoperations.

•No outcome differences between RYGB and GS procedures.

•Readmissions higher in patients with SBP >160mmHg (1.95% vs 1.47%, p=0.033).

•Postoperative interventions less likely with SBP >190 mmHg (0.19% vs 0%, p<0.001).

•Clinical relevance of SBP findings remains unclear.

Conclusion

• Postoperative elevated BP was not associated with increased transfusions or significant hemoglobin drops over 72 hours.

•Findings may reduce concerns of postoperative hypertension causing staple line bleeding.

•Persistently elevated BP requires treatment due to potential adverse effects.

•Recommends continued analysis on outcomes associated with elevated BP, including its role in early vs. delayed bleeding.