Venous Outcomes after Metabolic and Bariatric Surgery in Patients with History of Deep Vein Thrombosis - An MBSAQIP Perspective

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Background

- The relationship between obesity and deep vein thrombosis (DVT) is well-established, as chronic inflammation, altered cytokine profiles, and impaired perfusion physiology increase the risk of thrombosis. Metabolic and bariatric surgery (MBS) is an effective treatment for severe obesity, but it carries a significant risk of perioperative venous complications. These include venous thromboembolic events (VTEs) and pulmonary emboli (PE), which increase perioperative morbidity and mortality. Although history of DVT may further increase the risk of complications, the impact of such thrombosis on postoperative outcomes is worthy of investigation. This study aims to investigate the venous outcomes after MBS in patients with a history of DVT.

Methods – Statistical Analysis

- To investigate the impact of history of DVT on postoperative outcomes following MBS, a retrospective analysis was conducted using the MBSAQIP 2015-2018 participant usage file (PUF) database. A logistic regression test was performed to identify independent predictors of venous complications, including pulmonary emboli (PE) and venous thromboembolic events (VTE), as well as 30-day mortality after bariatric surgery in patients with a history of DVT.

Results

Table 1. Independent Risk Factors of PE

Risk Factor	Odds Ratio (OR)	P-value (P)	95% Confidence Interval (CI)
Male Gender	1.8	0.032	1.052 - 3.063
Smoking	1.96	0.044	1.018 - 3.760

Results

- Out of 760,076 patients, 13,104 had history of DVT, and these patients had a significantly higher incidence of postoperative venous complications, including VTE (OR=6.76; P<0.001) and PE (OR=4.61; P<0.001), as well as an increased risk of mortality (OR=4.09; P<0.001; CI 95=3.136-5.349). Regression tests revealed that male gender (OR=1.8; P=0.032; CI 95=1.052-3.063) and smoking (OR=1.96; P=0.044; CI 95=1.018-3.760) were associated with increased risk of PE. Hyperlipidemia (OR=0.463; P=0.015; CI 95=0.248-0.862) was associated with reduced risk of PE. An inferior vena cava filter did not show a statistically significant prophylactic benefit against PE (P>0.05). In addition, inferior vena cava filter for VTE (OR=1.57; P=0.032; CI 95=1.039-2.366) and therapeutic aspirin use in the preoperative period (OR=1.39; P=0.003; CI 95=3.136-5.349) were associated with increased risk. Coronary interventions (OR=0.468; P=0.026; CI 95=0.239-0.915) were found to be associated with reduced risk.

Conclusions

- In the preoperative period, patients with a history of DVT have an increased risk of mortality and venous complications. Considering the independent predictors for venous complications, it is seen that the effectiveness of prophylactic IVC filters and aspirin use should be discussed in a multidisciplinary environment and with the patients to ascertain their risk to benefit ratio and prevent unnecessary interventions.