A novel scoring system for identifying patients at risk for venous thromboembolism undergoing diverticular resection: an American College of Surgeons-National Surgical Quality Improvement Program Study

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OBJECTIVE

A simple scoring system was specifically developed based on identified significant risk factors to predict the risk of VTE in patients undergoing diverticular colorectal resection.

METHODS

We conducted a retrospective review of patients in the American College of Surgeons National Surgical Quality Improvement Project database from 2006 to 2017 who underwent colorectal resection for diverticulitis. Patients with a primary indication for resection other than diverticulitis were excluded. Multivariate logistic regression modeling was conducted to determine the risk of VTE for each independent variable. A novel scoring system was developed, and a receiver-operating-characteristic curve was generated. A 7-point scoring system was developed using identified significant variables.

RESULTS

82,332 patients were included in the analysis after undergoing CRS for diverticulitis from 2006 to 2017. 1225 patients (1.49%) developed VTE within the 30-day perioperative Period. There were significant differences between VTE and non-VTE groups. Risk factors for the occurrence of VTE were entered into a stepwise multivariate logistic regression model.

Age greater than 65 years, ASA class 3–5, dependent functional status, preoperative steroid use, wound classification 3–5, presence of insulin dependent diabetes, and emergency surgery were significant independent predictors of VTE.

A risk score was developed based on the final logistic regression model using the method described by Sullivan et al.

Risk estimate = 1/1(1 + exp (−1 × (−4.3198 + 0.1506 × risk score)))

CONCLUSIONS

Patients undergoing CRS are at an increased risk to develop of VTE. Specifically, a subset of patients undergoing resection for diverticulitis are at an elevated risk and may warrant prolonged VTE prophylaxis. Utilization of this tailored scoring model could help identify at risk patients.

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INTRODUCTION

Following colorectal surgery, venous thromboembolism (VTE) is a serious complication occurring at an estimated incidence of 2–4%. There is a significant body of literature stratifying risk of VTE in specific populations undergoing colorectal resection for cancer or inflammatory bowel disease. There has been little research characterizing patients undergoing colorectal surgery for other indications, e.g., diverticulitis.

We hypothesize that there exists a subgroup of patients with identifiable risk factors undergoing resection for diverticulitis that has relatively higher risks for VTE.

REFERENCES

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