



Does perioperative blood transfusion increase the risk of venous thromboembolism after radical cystectomy?

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Abstract : Radical cystectomy (RC) is associated with significant morbidity including perioperative blood transfusion. The aim of this study was to study the relationship between perioperative blood transfusion and the development of venous thromboembolism (VTE) after RC.

Objective :

The aim of our study evaluate predictive factors of development of venous thromboembolism(VTE) after radical cystectomy (RC) .

Methods:

All patients who underwent open RC between January 2006 and December 2021 at our institution were retrospectively reviewed.

Patient with a history of prior VTE, those taking anticoagulation prior to surgery, patients with metastatic bladder cancer or with missing data were excluded.

A venous thromboembolism was defined as either a deep venous thrombosis or pulmonary embolism.

A total of 372 cases were enrolled in this study..

Patients who developed a VTE within 90 days after surgery were compared to those who did not. Logistic regression was performed to assess the association between covariates and the probability of VTE within 90 days after surgery.

The variables included in the multivariate analysis were selected based on the univariate analysis and on an a priori basis and included blood transfusion, age, BMI, Charlson score, smoking status, pathologic tumor stage, pathologic nodal stage and operative time.

Results :

There was no significant difference in age, sex, race, Charlson score, clinical stay, BMI.

Patient who developed a VTE experienced a longer mean operative time, more adverse pathology and received a greater mean number of transfused units of blood

Variable	No VTE (n=330)	VTE(n=42)	P-value
Age (years)	63.24 ± 12.85	63.14 ± 13.15	0.96
Sex			
Male	248 (75.15%)	28 (66.67%)	0.30
Female	82 (24.85%)	14 (33.33%)	
Race			
MENA	287 (87.03%)	36 (85.71%)	0,86
Non MENA	43 (12.97%)	6(14,29%)	
Charlson Score	3.52 ± 1.77	3.86 ± 1.92	0.11
Clinical stay (days)	6.86 ± 5.91	8.10 ± 6.31	0.16
BMI	28.54 ± 5.12	28.02 ± 4.95	0.59
Smoking status			
Smoker	226 (68.48%)	30 (71.43%)	0.70
Non-smoker	104 (31.52%)	12 (28.57%)	
Pathologic tumor stage			
<pT3 and N0	230 (69.70%)	13 (31.02%)	
pT3 or node positive	100 (30.30%)	29 (69.05%)	0.005
Operative time (minutes)	311.50 ± 125.33	367.84 ± 144.97	0.01
Blood transfusion (units)	1.26 ± 2.15	2.42 ± 2.48	0,02

Table 1 : Results and significance of the studied variables .

On multivariable logistic regression, each unit of transfused blood given during a patient's hospital stay was significantly associated with development of VTE (OR 1.22, 95% CI 1.12-1.44), as was operative time (OR 1.47, 95% CI 1.16-1.88).

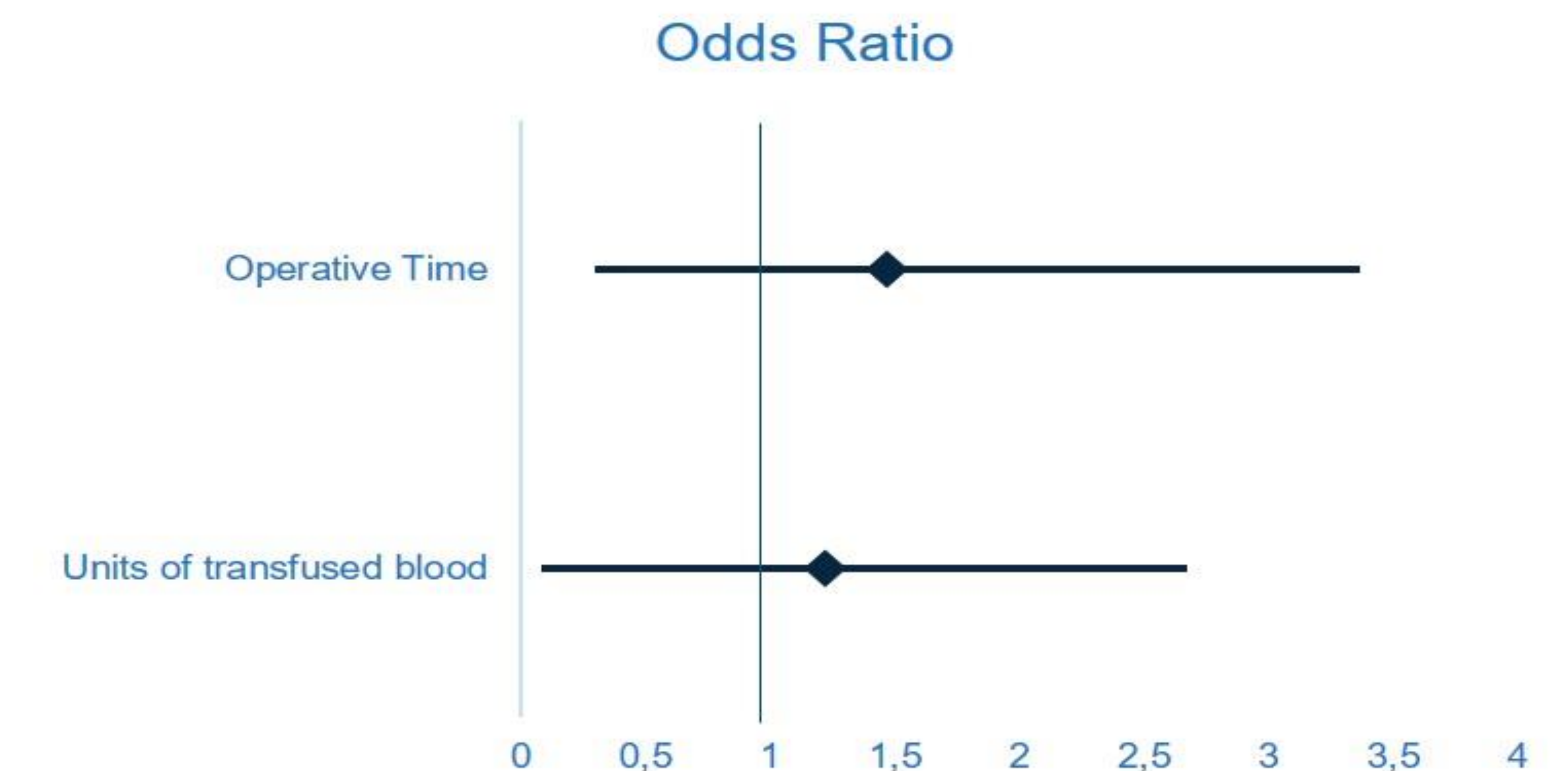


Fig 1 : Forest plot OR operative time and blood unit transfused

Conclusion :

The incidence of perioperative blood transfusion is significant at the time of radical cystectomy. This study demonstrates that blood transfusion was associated with an increased risk for developing the VTE.