Venous thromboembolism (VTE) such as pulmonary embolism (PE) or deep venous thrombosis (DVT) are often seen with advanced malignancy. Presence of bland IVC or renal vein thrombus at the time of nephrectomy for renal cancer is associated with worse outcomes. Impact of VTE at time of nephrectomy remains to be understood. We evaluated the complications, costs, and mortality associated with VTE at time of nephrectomy.

Patients & Methods

Database: Premier Healthcare database
Inclusion: patients undergoing elective radical (RN) or partial nephrectomy (PN) for renal mass
Exclusion: patients with renal vein thrombus and/or IVC thrombus
n: 122,342 patients
Subgroups: with or without VTE
Endpoints: 90-day non-fatal Minor (Clavien 1-2) vs Major (Clavien 3-4) complication rates, Mortality rates, direct hospital cost (2019 $)
Analysis: multivariable logistic regression and quantile regression models adjusting for patient, hospital and surgical characteristics

Introduction

• Venous thromboembolism (VTE) such as pulmonary embolism (PE) or deep venous thrombosis (DVT) are often seen with advanced malignancy
• Presence of bland IVC or renal vein thrombus at the time of nephrectomy for renal cancer is associated with worse outcomes
• Impact of VTE at time of nephrectomy remains to be understood
• We evaluated the complications, costs, and mortality associated with VTE at time of nephrectomy

Results

• 83,692 patients underwent RN and 38,650 patients underwent PN
• Predicted probability of 90-day minor complications in patients with VTE is significantly higher than patients with no VTE (Figure 1)
  RN: 36.9% (+VTE) vs 22.5% (-VTE), p< 0.001
  PN: 34.2% (+VTE) vs 21.1% (-VTE), p< 0.001
• Predicted probability of 90-day major complications in patients with VTE is significantly higher than patients with no VTE (Figure 1)
  RN: 21.5% (+VTE) vs 5.0% (-VTE), p< 0.001
  PN: 10.6% (+VTE) vs 5.2% (-VTE), p< 0.001
• Predicted probability of 90-day mortality in patients with VTE is significantly higher than patients with no VTE (Figure 1)
  RN: 1.3% (+VTE) vs 0.3% (-VTE), p< 0.001
  PN: 2.6% (+VTE) vs 1.0% (-VTE), p< 0.001
• Predicted probability of 90-day median costs in patients with VTE is significantly higher than patients with no VTE
  PN: $19,338 (+VTE) vs $13,694 (-VTE), p< 0.001
  RN: $24,648 (+VTE) vs $13,951 (-VTE), p< 0.001

Conclusions

• VTE at the time of nephrectomy increases the risk of mortality
• VTE at the time of nephrectomy increases the cost of care

Discussion

• Given the increased risk of complications and mortality, patients with VTE at the time of nephrectomy should receive specific counseling and management to help mitigate complications and mortality

References


Figure 1: Predicted probability of complications for patients with VTE undergoing nephrectomy.