Prior Venous Thromboembolism Increases the Risk of Periprosthetic Joint Infection Following Total Knee Arthroplasty

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BACKGROUND

- Venous thromboembolism (VTE) is a serious complication following total knee arthroplasty (TKA), and a history of VTE is a recognized risk factor for subsequent thromboembolic events.
- However, the effect of the timing of a prior VTE relative to TKA on postoperative complications remains unclear.
- **Purpose: To evaluate the association between prior VTE timing and postoperative DVT, pulmonary embolism (PE), readmission, and periprosthetic joint infection (PJI) following primary TKA.**

METHODS

- Retrospective cohort study using a large national database of patients undergoing primary TKA.
- Patients with prior VTE were stratified by the interval from VTE to TKA: 0–3, 3–6, 6–12, 12–18, 18–24 months, and yearly intervals up to 5 years.
- Propensity-score matching (1:1) controlled for demographics and comorbidities.
- The matched cohort included 22,447 patients with prior VTE and matched controls.
  - Outcomes included 90-day postoperative DVT, PE, hospital readmission, and 2-year PJI. Chi-square and Welch t-tests were used for statistical analysis.

RESULTS

- Prior VTE was associated with markedly increased 90-day thromboembolic complications following TKA.
- The risk of postoperative VTE increased as the VTE-to-surgery interval shortened, with the highest rates following a recent 0–3 month VTE.
- Prior VTE was also associated with increased 2-year PJI risk (2.4% vs. 1.8%; OR 1.3 [95% CI, 1.2–1.5]).

Postoperative Outcome	Prior VTE vs. Control	Odds Ratio (95% CI)
90-Day DVT	13.2% vs. 1.5%	10.0 (8.9–11.2)
90-Day PE	1.8% vs. 0.2%	9.2 (6.7–12.5)
2-Year PJI	2.4% vs. 1.8%	1.3 (1.2–1.5)

CONCLUSION

- Prior VTE significantly increased the risk of 90-day DVT, 90-day PE, and 2-year PJI following primary TKA.
- The risk of postoperative VTE was greatest when the interval between the prior VTE and TKA was shortest.
- Patients with a recent history of VTE represent a particularly high-risk population when considering elective TKA.