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INVITED COMMENTARY

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Venous thromboembolic disease (VTE), the term given when deep venous thrombosis (DVT) and pulmonary embolism (PE) present together, is a national health hazard. VTE accounts for an estimated 900,000 cases yearly, resulting in approximately 300,000 deaths annually. Thrombus in the vein leads to vein wall fibrotic injury and sets the stage for post-thrombotic syndrome, one of the major complications of DVT, or chronic thrombotic pulmonary hypertension, one of the major complications of PE.

Although many thrombotic events are spontaneous in the absence of malignancy, patients with tumors have a high incidence and risk of VTE in the early months after diagnosis, and these risks are further augmented with metastatic disease. VTE is a leading cause of death in cancer patients—the prothrombotic state of malignancy is complex and multifactorial. In the current article, De Martino et al establish that different malignancies have different thrombotic potential by using administrative data from the American College of Surgeons-National Surgical Quality Improvement Program and an analysis of >43,000 cancer patients.

Although this fact has been known, the unique feature of the current article is defined by the statement in the discussion that “variation in VTE risk among patients undergoing surgical resection may differ not only by cancer, but also by the associated resection magnitude.” Patients who underwent breast surgery,

gastrectomy, lung resection, prostatectomy, colectomy, pancreatectomy, esophagectomy, hysterectomy, hepatectomy, cystectomy, and nephrectomy were evaluated. Compared with breast resection, the authors found prostatectomy, colectomy, esophagectomy, hysterectomy, and hepatectomy had a greater than twofold odds ratio for DVT. Every operation evaluated, except esophagectomy, had increased odds for PE (with hysterectomy and cystectomy at very high risk, 5.5-fold and 6.4-fold odds ratio), and prostatectomy, esophagectomy, hysterectomy, and hepatectomy were associated with the development of VTE. One interesting finding was the difference among those procedures associated with DVT and not PE, and vice versa. Multivariate analysis also identified factors associated with DVT, PE, and VTE, with prolonged length of stay and wound infection associated with all three conditions.

As with any study based on administrative data, some of the details necessary for a full analysis are not available, and certain factors, such as prophylaxis use, are not available from the National Surgical Quality Improvement Program database. Nonetheless, this important study sets the stage for the development of further “prospective cohort studies . . . to validate risk of VTE in patients undergoing various cancer surgeries” and also suggests that studies to determine best prophylaxis use are indicated, potentially with different cancer resections requiring different prophylaxis strategies.