The relative risk of VTE between these catheter types is not well defined. We report the rate of VTE in intensive care unit (ICU) medical patients receiving PICC, CVC, both, or neither” White et al (2018).

Abstract:

BACKGROUND: Central venous catheters (CVC) and peripherally inserted central catheters (PICCs) are central vascular access devices (CVADs) that facilitate administration of medications among critically ill patients. Both are associated with risk of venous thromboembolism (VTE). The relative risk of VTE between these catheter types is not well defined. We report the rate of VTE in intensive care unit (ICU) medical patients receiving PICC, CVC, both, or neither.

METHODS: We conducted a single-center, retrospective cohort study of medical-ICU patients between November 2007 and November 2013 grouped by receipt of CVC, PICC, both, or neither. The primary outcome was the rate of 30-day symptomatic venous thrombosis (upper and lower deep vein thrombosis and pulmonary embolism). Cox modeling was used to analyze this population and adjust for comorbidities which could contribute to VTE. Secondary outcomes included VTE location, major bleeding, and all-cause mortality among patients with and without CVADs.

RESULTS: We analyzed 5788 patients. CVADs were placed in 2403 (42%) patients (PICC, n = 816; CVC, n = 1153; both, n = 434). Compared with no CVAD, the hazard ratio (HR) for 30-day VTE was 1.81 (95% CI 1.52-2.17) for any CVAD, 1.90 (95% CI 1.52-2.37) for PICC, 1.57 (95% CI 1.26-1.96) for CVC, and 2.70 (95% CI 2.09-3.47) for both. PICCs had a non-significantly higher HR for VTE compared with CVC (1.21; 95% CI 0.94-1.55). For patients with both a CVC and PICC the HR for VTE was 1.72 times that of solitary CVAD (95% CI 1.32-2.23).

CONCLUSIONS: Among critically ill medical patients, PICCs and CVCs were associated with increased risk of VTE. Placement of both conferred higher risk of VTE compared with either alone.
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