



Upper extremity deep venous thrombosis (UEDVT) and its associated complications are increasing in incidence, but management strategies are largely derived from experience treating lower extremity deep venous thrombosis (LEDVT)” Rokosh et al (2019).

Abstract:

OBJECTIVE: Upper extremity deep venous thrombosis (UEDVT) and its associated complications are increasing in incidence, but management strategies are largely derived from experience treating lower extremity deep venous thrombosis (LEDVT). The purpose of this study was to examine our single institution’s experience with in-hospital venous thromboembolism (VTE), specifically the characteristics and outcomes of the UEDVT population as it compares to LEDVT.

MATERIAL AND METHODS: This is a single tertiary care center retrospective cohort study of all consecutive inpatients diagnosed with acute VTE from June 2015 to December 2015. During this period, 4495 patients underwent venous duplex examination (622 UE and 3873 LE), identifying 83 inpatient DVTs. Chronic DVT as well as those diagnosed in the outpatient population were excluded. DVTs were classified as either provoked or unprovoked. Provoked DVT were defined as the presence of any of the following factors within 30 days prior to diagnosis: major surgery, immobilization (greater than 3 days of bedrest), trauma, infection

requiring antibiotics, central venous access, pregnancy, and/or hormonal medication use. Inpatient pulmonary embolisms (PE) detected on chest computed tomography (CT) were also evaluated during this time frame. Patient data were collected including age, gender, race, lifestyle factors, comorbidities, VTE risk factors, symptomatology at presentation, management including anticoagulation choice and filter placement if applicable, as well as discharge disposition. Statistical analysis was performed using GraphPad Prism 8.0 (GraphPad Software, San Diego, California, USA), and a threshold p-value of < 0.05 set for significance. RESULTS: During the study period, 83 DVTs (48 LEDVT, 35 UEDVT) and 24 PE were identified in 96 inpatients. Of these DVTs, 77.1% of these were defined as provoked. Eleven patients had simultaneous DVT and PE, and thirteen patients had PE with presumed occult pelvic or LEDVT. UEDVT patients had a higher proportion of comorbidities than LEDVT patients: coronary artery disease (25.7% vs. 13.1%, $p=0.16$), congestive heart failure (20% vs. 6.6%, $p=0.09$), as well as a trend toward higher incidence of malignancy (60% vs. 42.6%, $p=0.13$). Of provoked VTE, UEDVT correlated more significantly with central venous catheters (88.4% vs. 12.5%, $p<0.0001$), but was less commonly associated with prolonged bed rest (19.2% vs. 39.5%, $p=0.11$). PE was diagnosed in 24/96 (25%) of the study population. Patients with LEDVT were found to have a significantly higher incidence of PE compared to those with UEDVT (34.4% vs. 8.6%, $p=0.006$). Same-admission mortality for patients with VTE was 13/96 (13.5%). Of these, patients with UEDVT had significantly higher all-cause mortality than patients with LEDVT (28.5% vs. 4.9%, $p=0.004$). When catheter-related UEDVT were excluded, there remained a significant difference in mortality between non-catheter related UEDVT and LEDVT (33.3% vs. 4.9% $p=0.0119$). CONCLUSIONS: This study demonstrates a high prevalence of UEDVT in hospitalized patients who experience VTE. Despite a lower incidence of synchronous PE, patients with UEDVT had a higher prevalence of significant medical comorbidities and higher all-cause mortality on the index hospital admission.

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Reference:

Rokosh, R.S., Ranganath, N., Yau, P., Rockman, C., Sadek, M., Berland, T., Jacobowitz, G., Berger, J. and Maldonado, T.S. (2019) High Prevalence and Mortality Associated with Upper Extremity Deep Venous Thrombosis in Hospitalized Patients at a Tertiary Care Center. *Annals of Vascular Surgery*. October 24th. doi: 10.1016/j.avsg.2019.10.055. .

