



Below Knee Deep Vein Thrombosis: To Anticoagulate or Ultrasound?

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Introduction

- Cost/benefit analysis has shown that routine doppler ultrasound screening for deep vein thrombosis (DVT) upon inpatient rehabilitation admission is associated with improved patient outcomes without added cost per admission ¹
- DVT rates have been noted as high as 34% on screening dopplers completed at time of admission to inpatient rehabilitation, 23% of which were isolated below knee DVT ²

Above Knee DVT

- The prevalence of PE in patients with proximal DVT has been estimated as 40–50% ³

Recommended Management:

- Anticoagulant therapy supported in most clinical scenarios ⁴
- Consideration of inferior vena cava filter placement if AC contraindicated ⁵

Below Knee DVT

- ~15% of untreated distal DVTs progress to the popliteal vein, possibly leading to PE ⁶

Recommended Management ⁵:

- Monitoring with serial ultrasound rather than treatment with AC (unless certain high-risk factors are present)
- Inferior vena cava filter placement is recommended against

Study Objective: To assess the incidence and management of below knee DVTs diagnosed on routine screening dopplers during inpatient rehabilitation admissions across four rehabilitation facilities

Methods

Data collection involved all admissions with a VTE diagnosis between January 2017 and December 2018 across four inpatient rehabilitation hospitals in a metropolitan area

Patient data collected:

- Patient age
- Gender
- Reason for rehabilitation admission
- Medical co-morbidities (including prior VTE or cancer)
- Hospital length of stay (acute care and inpatient rehabilitation)
- Surgical procedures during the preceding acute care stay

DVT cases were reviewed for:

- Location of DVT (AK or BK)
- Clinical symptoms
- Management (i.e., anticoagulation, serial ultrasound surveillance, or IVC filter)
- Progression of DVT on subsequent dopplers
- Pulmonary embolism
- Complications of anticoagulation (e.g., bleeding, transfer to acute care)

References

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Outcomes

- 165 total DVTs were identified across four rehabilitation facilities
- 126 of the diagnosed DVTs were above knee, 41 were below knee
- AC was utilized more frequently in those with above (89.76%) than below (71.43%) (p = 0.0037)
- 28.57% (12) of the below knee DVTs were managed with serial ultrasound surveillance [p < 0.0001], and 14.29% (6) were managed with IVC filter

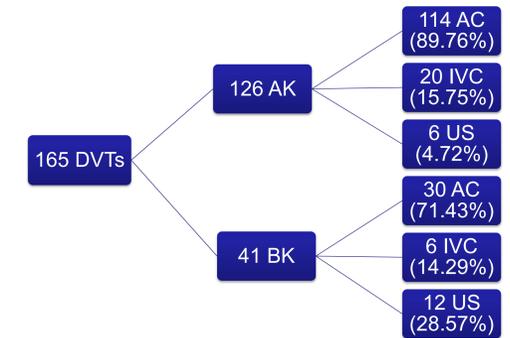


Figure 1. Number of Above Knee (AK) and Below Knee (BK) DVT diagnoses, and subsequent management (AC=anticoagulation, IVC=inferior vena cava filter, US=serial ultrasound)

Complications

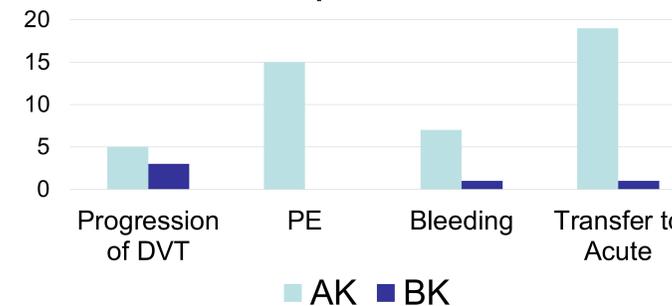


Figure 2. Number of Complications of Above Knee (AK) and Below Knee (BK) DVTs during Inpatient Rehabilitation Admission

None of the below knee DVTs progressed to PE, but 11.9% of those with above knee DVT developed PE (p = 0.0196)

Of the 18 individuals undergoing ultrasound surveillance

- 5 out of 6 above knee DVTs progressed within the lower extremity
- 3 out of 12 below knee DVTs progressed within the lower extremity
- Only one of the three below knee DVTs progressed from below to above knee

Discussion

- Below knee DVTs have a lower likelihood of progression
- Guidelines recommend serial ultrasound surveillance for most cases of below knee DVT
- Anticoagulation poses risk of bleeding and further complications
- **Anticoagulation and IVC placement were identified as frequently chosen management options for below knee DVT in this study**
- These findings have led to an ongoing quality improvement initiative, focusing on provider education regarding below knee DVT management

Contact Info

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