Sequential compression devices (SCDs) applied to the legs effectively reduce lower extremity DVT, but have not been tested in the arms. Our objective was to determine whether SCDs applied to the arm may reduce the risk of PICC-associated UE DVT.”


Abstract:

BACKGROUND: Peripherally inserted central venous catheters (PICCs) are increasingly used for parenteral access in critically ill hospitalized patients, but they increase the incidence of upper extremity deep venous thrombosis (UE DVT). Sequential compression devices (SCDs) applied to the legs effectively reduce lower extremity DVT, but have not been tested in the arms. Our objective was to determine whether SCDs applied to the arm may reduce the risk of PICC-associated UE DVT.

METHODS: This was a retrospective study of randomized, single-center, controlled clinical trial on patients hospitalized in the intensive care unit with critical neurological illness who had a PICC and were not receiving anticoagulants. Between January 2014 and October 2016, patients were randomized 1:1 to an intervention group having a custom SCD applied to the arm harboring the PICC or to a control group. The primary endpoint was ultrasound-detected UE DVT.

RESULTS: Following randomization of 77 subjects, the study was terminated due to excess DVT in the treatment arm. UE DVT was detected in 18 subjects (29.0%), and it was more frequent among those in the SCD group (13/31 [41.9%] vs. the control group 5/31 [16.1%]; p = 0.049). After accounting for crossovers, the difference was still significant (12/28 [43.0%] vs. 6/34 [17.6%]; p = 0.048). Yet, symptomatic UE DVT (n = 3) and pulmonary embolism without evidence of lower extremity DVT (n = 2) were only observed in patients who were not wearing the SCD on the arm.

CONCLUSIONS: Although UE DVT is commonly associated with PICC use, the results of this trial do not support the use of SCD on the arm for DVT prevention. Further research on this strategy may nonetheless be justified.
TRIAL REGISTRATION: This trial was registered in ClinicalTrials.gov under the identifier NCT01670188.

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