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**ULTRASOUND IN EMERGENCY MEDICINE** · Volume 54, Issue 5, P656-664, May 2018

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Comparison of the Accuracy of Emergency Department-Performed Point-of-Care-Ultrasound (POCUS) in the Diagnosis of Lower-Extremity Deep Vein Thrombosis

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Abstract

Background

Compression ultrasonography is the most effective diagnostic tool in the emergency department (ED) for the diagnosis of deep vein thrombosis (DVT). It has been demonstrated to be highly accurate and cost-effective.

Objective

The objective of this study was to determine the accuracy of emergency physicians who performed three-point compression ultrasound (US) for suspected above-knee DVT within the context of using Wells score and D-dimer.



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This was a prospective diagnostic test assessment of three-point ultrasound conducted in a district general hospital of patients who presented to the ED with suspected DVT of the lower limb. The accuracy of three-point ultrasound carried out by the emergency physicians was assessed by comparison of the Doppler ultrasound carried out by the Radiology Department as reference standard. The study incorporated ultrasound alongside the Wells score and D-dimer.

Results

A total of 109 patients (66.1%) had a three-point compression point-of-care ultrasound in the ED and a second ultrasound performed by the Radiology Department. Bedside three-point compression ultrasound of the lower extremity performed by physicians in the ED had a sensitivity of 93.2% (95% confidence interval [CI] 83.8–97.3%) and a specificity of 90.0% (95% CI 78.6–95.7%), with an accuracy of 91.7% (95% CI 85–95.6%).

Conclusions

Emergency physicians can obtain a level of competence equivalent to that of radiologists, but it requires substantial training and practice to achieve and maintain this performance. Providers should be aware of their limitations and maintain regular training with ultrasound applications.

Keywords

thromboembolic disease · diagnosis · imaging · ultrasound · emergency department management · DVT



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*The Journal of
Emergency Medicine*

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