



## Service Priorities and Programmes Electronic Presentations

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### **Above Knee Compression Ultrasonography by Emergency Physicians (EP) for Diagnosing Deep Vein Thrombosis in an Emergency Department(ED) in Hong Kong**

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#### **Introduction**

Swollen legs are common presentations to ED. The diagnosis of deep vein thrombosis (DVT) is a challenge to emergency physicians (EPs).

#### **Objectives**

To quantify the sensitivity and specificity of the above knee compression ultrasonography (CUS) on affected limb by trained EP with the formal compression ultrasonography by Radiology Department (Formal USG).

#### **Methodology**

A retrospective review was conducted for patients with suspected DVT in ED of a local hospital from July 2013 to August 2014, using a standardized protocol. All the patients diagnosed with suspected DVT were recruited. Pre-test stratification according to the Wells scores, patients were divided into low-, moderate- and high-risk groups. All these patients had CUS by EP, quantitative D-dimers (cut off <500ng/mL) and Formal USG. Cases with positive CUS by EP were admitted irrespective of their risk groups. High-risk group had CUS by EP before admission for Formal USG. Low to moderate-risk group with negative CUS and D-dimer were discharged. Those with negative CUS and positive D-dimers were discharged unless there is other indication for admission, with another CUS and Formal USG repeated in one week.

#### **Result**

95 patients were analyzed. DVT prevalence was 23% (22/95), all of them were admitted. 44 (46%) were discharged. None had thromboembolic events after 3 months. The sensitivity and specificity of CUS for DVT were 91% and 97% respectively. There were two false negatives, both in the high-risk group with D-dimer levels above the diagnostic level. One patient had DVT and was on warfarin. Formal USG showed partial recanalization of known DVT at popliteal vein. The other had multiple malignancies with Formal USG showing mild eccentric wall thickening of common femoral vein (CFV) which could result from old chronic DVT. There were two

false positive. Both presented with leg edema. One patient had previous history of DVT and was admitted for further evaluation due to high Wells score. One was an intravenous drug addict with repeated groin vein injection causing venous effacement. His CUS showed partial compressible CFV, and no identifiable thrombus. The other had congenital absent of inferior vena cava, the patient had CT venogram of lower limb and abdomen done to rule out DVT. Combining the Wells score and CUS, trained EP is effective in ruling in and out DVT cases in low- to moderate-risk groups. Integration of CUS into the training of EPs for suspected DVT will improve patient care, reduce hospital admission and cost of treatment.