

## Predictors of deep venous thrombosis in patients admitted to rehabilitation clinics after major orthopaedic surgery.

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### Abstract

#### BACKGROUND:

Venous thromboembolism (VTE) is a frequent complication of major orthopaedic surgery; prolonged prophylaxis with anticoagulants is standard of care. However, late manifestation of VTE is common and little is known about the predictors of late deep vein thrombosis (DVT) and the distribution of proximal and distal DVT and isolated calf muscle vein thrombosis (MVT).

#### PATIENTS AND METHODS:

482 patients admitted to a rehabilitation clinic (RC) after total hip or knee replacement (THR; TKR) or hip fracture surgery (HFS) underwent complete compression ultrasound (CCUS) screening for VTE within 72 hours after admission into RC. Predictors of VTE were evaluated.

#### RESULTS:

DVT was prevalent in 74 events (14.7 %), consisting of 13 (2.7 %) proximal DVT, 17 (3.5 %) distal DVT and 41 (8.5 %) MVT, respectively. Multivariate analyses established history of VTE (OR for proximal DVT 7.0; 95 %-CI 1.9 - 25.9; OR for any DVT 3.9; 95 %-CI 1.7 - 8.9), female gender (OR 3.3; 95 %-CI 1.0 - 10.6), coronary artery disease (OR 3.8; 95 %-CI 1.1 - 12.9) and cancer (OR 8.0; 95 %-CI 1.8 - 35.5) as independent VTE predictors for proximal DVT. For MVT, age (OR 2.4; 95 %-CI 1.2 - 5.0) and a history of musculo-skeletal disease (OR 2.6; 95 %-CI 1.1 - 5.8) or autoimmune disease (OR 3.9; 95 %-CI 1.0 - 15.4) were found to be independent predictors.

#### CONCLUSIONS:

This study confirms well-known predictors of VTE and high rates of postoperative VTE despite optimal thromboprophylaxis. In addition, independent risk factors for proximal DVT and MVT were identified. The data support the concept of continuing thromboprophylaxis during rehabilitation after major orthopaedic surgery because a considerable percentage of patients had asymptomatic DVT at RC on admission. However, significant differences in the individual risk profile and the distribution pattern of DVT and MVT exist, which could be used for a more individualized thromboprophylaxis strategy.

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