

Venous Thromboembolism in Hip Fracture Patients: A Subanalysis of the FAITH and HEALTH Trials

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Purpose: Venous thromboembolism (VTE) is an important cause of morbidity and mortality in hip fracture patients. The primary objective of this preplanned subgroup analysis was to determine incidence of VTE including pulmonary embolism (PE) and deep vein thrombosis (DVT) in the hip fracture population. Secondary objectives included determining timing of VTE diagnosis, VTE prophylaxis prescribed, and factors associated with VTE to guide future clinical decision making.

Methods: We performed a subanalysis of data from large hip fracture trials. The incidence of VTE, including DVT and PE, and timing of VTE were determined. Characteristics of patients who suffered a VTE were identified and a multivariable Cox regression analysis was used to determine which factors were associated with increased risk of VTE, including, age, treatment for comorbidities, thromboprophylaxis, time to surgery, and method of fracture management. Factors were selected a priori based on biological rationale, previous literature, and expert opinion.

Results: 2520 hip fracture patients were included in the analysis. 64 patients (2.5%) had a VTE event (DVT: 36 [1.4%], PE: 28 [1.1%]). Three (4.7%) were diagnosed presurgery and 61 (95.3%) postsurgery. 22 (34.4%) were diagnosed pre-hospital discharge and 42 (65.6%) post-hospital discharge. 35 (54.7%) were diagnosed <6 weeks postfracture and 29 (45.3%) ≥6 weeks postfracture. 1993 patients (79%) received thromboprophylaxis preoperatively and 2502 (99%) received any thromboprophylaxis postoperatively. The most common methods of preoperative thromboprophylaxis were low-molecular-weight heparin (LMWH) (46%) and mechanical prophylaxis (18%). The most common method of postoperative thromboprophylaxis was LMWH (73%). Age ($P = 0.94$), receiving treatment for a comorbidity ($P = 0.25$), postoperative thromboprophylaxis (medical vs not medical) ($P = 0.58$) and increased time to surgery ($P = 0.11$) were not associated with incidence of VTE. Compared to internal fixation, arthroplasty was associated with nearly a 3-fold increased incidence of VTE ($P = 0.02$). Total hip arthroplasty and hemiarthroplasty versus fixation were associated with a 2.67- and 1.77-times increased risk of VTE, respectively.

Conclusion: The incidence of VTE in hip fracture patients recruited to the FAITH and HEALTH trials was 2.5%. Although over half of cases were diagnosed within 6 weeks of the fracture, VTE is still prevalent after this period. The vast majority of patients received thromboprophylaxis before and after surgery. Although several factors were examined, treatment with arthroplasty rather than fixation was associated with increased incidence of VTE.