

Direct Oral Anticoagulants Unnecessarily Delay Surgery in Low-Energy Hip Fracture Patients

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Purpose: Direct oral anticoagulants (DOACs) are now a commonly used alternative to warfarin therapy. Little evidence guides decision-making on time to surgery in hip fracture patients taking DOACs. The purpose of this study was to compare transfusion rates in patients on DOACs with non-anticoagulated patients and, secondarily, to determine if time to surgery or complications differ between these groups.

Methods: This multicenter retrospective study identified acute, operatively treated, low-energy hip fracture (OTA 31A, 31B, 32) patients aged 55 years and older who initially presented to the emergency department of 3 tertiary care, academic, Level-I trauma centers between 2012 and 2017. Further inclusion criteria required that the patient be taking apixaban, rivaroxaban, or dabigatran upon presentation. Impending, pathologic, and periprosthetic fractures were excluded. Anticoagulated patients were matched to “control” non-anticoagulated hip fracture patients meeting all other inclusion and exclusion criteria. The 2 cohorts were balanced using propensity score based on age, sex, comorbidities, year of surgery, and type of surgery. Chart review identified further baseline characteristics, surgery/anesthesia data, transfusion rates, and 90-day postoperative complications, readmissions, and mortality. Comparisons were made using χ^2 and nonparametric independent-samples tests.

Results: 132 patients admitted on DOACs were identified (107 factor Xa inhibitors, 25 dabigatran) and were matched to 132 “control” non-anticoagulated patients. There was no difference in transfusion rates between anticoagulation groups (43.2% [n = 57] DOAC vs 45.5% [n=60] control). Median time from admission to surgery was 41.7 hours (interquartile range [IQR] 32.9) in the DOAC group and 26.8 hours (IQR 27.8) in the control group (P <0.001). 28% of patients on DOACs underwent surgery before 24 hours and 61% before 48 hours, compared with 42% before 24 hours and 79% before 48 hours in the control group. There were no differences in 90-day complication, readmission, or mortality rates between DOAC and control groups. Comparing DOAC patients undergoing surgery within 24 hours and after 24 hours, there were no differences in transfusion rates or complications.

Conclusion: DOAC medications are becoming more prevalent in the elderly, low-energy hip fracture patient population. Compared to matched control non-anticoagulation patients, these patients had no increase in transfusions, complication rates, or mortality in this study. Delay to surgery seen in these patients may not be warranted. This is the largest cohort of hip fracture patients on DOAC to date and the only study to match patients using propensity score matching.