Original Investigation

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Perioperative Management of Patients With Atrial Fibrillation Receiving a Direct Oral Anticoagulant

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Key Points

Question Is a standardized perioperative management approach safe for patients with atrial fibrillation who use a direct oral anticoagulant and require elective surgery or procedure?

Findings In this cohort study of 3007 patients with atrial fibrillation using apixaban, dabigatran, or rivaroxaban, the direct oral anticoagulant treatment was stopped and resumed before and/or after elective surgery or procedure using standardized protocols without heparin bridging. The 30-day postoperative rates of major bleeding were less than 2%, and the rates of stroke were less than 1%.

Meaning In this study, in patients treated with a direct oral anticoagulant, a simple standardized perioperative management approach was associated with low rates of bleeding and stroke.

Abstract

Importance Patients with atrial fibrillation (AF) who use a direct oral anticoagulant (DOAC) and request elective surgery or procedure present a common clinical situation yet perioperative management is uncertain.

Objective To investigate the safety of a standardized perioperative DOAC management strategy.

Design, Setting, and Participants The Perioperative Anticoagulation Use for Surgery Evaluation (PAUSE) cohort study conducted at 23 clinical centers in Canada, the United States, and Europe enrolled and screened patients from August 1, 2014, through July 31, 2018. Participants (n = 3007) had AF; were 18 years of age or older; were long-term users of apixaban, dabigatran etexilate, or rivaroxaban; were scheduled for an elective surgery or procedure; and could adhere to the DOAC therapy interruption protocol.

Interventions A simple standardized perioperative DOAC therapy interruption and resumption strategy based on DOAC pharmacokinetic properties, procedure-associated bleeding risk, and creatinine clearance levels. The DOAC regimens were omitted for 1 day before a low–bleeding-risk procedure and 2 days before a high–bleeding-risk procedure. The DOAC regimens were resumed 1 day after a low–bleeding-risk procedure and 2 to 3 days after a high–bleeding-risk procedure. Follow-up of patients occurred for 30 days after the operation.

Main Outcomes and Measures Major bleeding and arterial thromboembolism (ischemic stroke, systemic embolism, and transient ischemic attack) and the proportion of patients with an undetectable or minimal residual anticoagulant level (<50 ng/mL) at the time of the procedure.

Results The 3007 patients with AF (mean [SD] age of 72.5 [9.39] years; 1988 men [66.1%]) comprised 1257 (41.8%) in the apixaban cohort, 668 (22.2%) in the dabigatran cohort, and 1082 (36.0%) in the rivaroxaban cohort; 1007 patients (33.5%) had a high–bleeding-risk procedure. The 30-day postoperative rate of major bleeding was 1.35% (95% CI, 0%-2.00%) in the apixaban cohort,

0.90% (95% CI, 0%-1.73%) in the dabigatran cohort, and 1.85% (95% CI, 0%-2.65%) in the rivaroxaban cohort. The rate of arterial thromboembolism was 0.16% (95% CI, 0%-0.48%) in the apixaban cohort, 0.60% (95% CI, 0%-1.33%) in the dabigatran cohort, and 0.37% (95% CI, 0%-0.82%) in the rivaroxaban cohort. In patients with a high–bleeding-risk procedure, the rates of major bleeding were 2.96% (95% CI, 0%-4.68%) in the apixaban cohort and 2.95% (95% CI, 0%-4.76%) in the rivaroxaban cohort.

Conclusions and Relevance In this study, patients with AF who had DOAC therapy interruption for elective surgery or procedure, a perioperative management strategy without heparin bridging or coagulation function testing was associated with low rates of major bleeding and arterial thromboembolism.

Full Text

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