

## Association of a history of falls or syncope with intracranial bleeding in patients with atrial fibrillation

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**Funding Acknowledgement:** Type of funding source: None

**Background:** In patients with atrial fibrillation (AF), anticoagulation effectively reduces the risk of ischemic stroke. However, up to 50% of patients are not receiving this treatment. A history of falls or syncope and an associated risk of intracranial hemorrhage are commonly reported reasons for undertreatment, though these have not been well studied.

**Purpose:** To investigate the association of a history of falls or syncope with the risk of intracranial hemorrhage in patients with AF.

**Methods:** Patients with a history of AF from the RE-LY, AVERROES and ACTIVE A and W trials were combined into a large cohort. "Critical injury" was defined as any injury that resulted in death, was deemed to be life-threatening or resulted in permanent disability. A "serious injury" was defined as an injury that required hospitalization. "Other injuries" were defined as those that did not meet criteria for critical or serious injury. We used logistic regression and propensity-matched Cox models to assess the association between falls or syncope and adverse outcomes.

**Results:** Among 37,973 patients, 11.9% (n=4503) had a history of falls, 17.5% (n=6655) had a history of syncope and 25.1% (n=9518) had a his-

tory of either falls or syncope. The mean age of the cohort was 71±9.3 years and 58% were male. The median CHADS2 score was 2. A history of falls or syncope was not associated with the risk of incident intracranial hemorrhage (HR 1.11, 95% CI 0.88–1.4). In propensity-matched multivariable models, a history of falls or syncope was associated with an increased risk of death (HR 1.14, 95% CI 1.07–1.22), stroke (HR 1.17, 95% CI 1.05–1.3), myocardial infarction (HR 1.28, 95% CI 1.09–1.52) and major bleeding (HR 1.27, 95% CI 1.16–1.4). Moreover, a history of falls or syncope was associated with increased risk of critical injury (OR 1.97, 95% CI 1.52–2.54), serious injury (OR 2.06, 95% CI 1.75–2.43) and "other injury" (OR 1.58, 95% CI 1.46–1.72).

**Conclusions:** A history of falls or syncope is common in patients with atrial fibrillation; however, neither history was associated with increased risk of intracranial hemorrhage. These patients were at an increased risk of death, stroke, myocardial infarction and major bleeding, suggesting that they should receive anticoagulation for stroke prevention.