
Perioperative atrial fibrillation (AF) after cardiac surgery is associated with a higher short-term risk of perioperative stroke; however, studies have shown conflicting results with respect to the long-term risk of stroke. In addition, little is known about long-term stroke risk after perioperative AF in the setting of noncardiac surgery. Using administrative claims data on discharges from nonfederal acute care hospitals in California from 2007 through 2011, Gialdini et al retrospectively assessed the long-term risk of ischemic stroke after perioperative AF. Among 1729360 eligible individuals admitted for surgery, 24711 (1.43%, 95% confidence interval, 1.41%–1.45%) developed new-onset AF during the hospitalization. Perioperative AF occurred more commonly in the setting of cardiac than noncardiac surgery (16.10% versus 0.78%; P<0.001). Compared with individuals without perioperative AF, those with perioperative AF were older (mean age 71.5 versus 56.2 years) and more likely to have vascular comorbidities.

Over a mean follow-up of 2.1 years (SD, 1.3 years), 13952 experienced a stroke after the index hospitalization for surgery (crude rate, 0.81%; 95% confidence interval, 0.79%–0.82%). After adjusting for covariates, patients with perioperative AF were more likely to have stroke after both noncardiac (hazard ratio, 2.0; 95% confidence interval, 1.7–2.3) and cardiac surgery (hazard ratio, 1.3; 95% confidence interval, 1.1–1.6). The association was stronger for perioperative AF after noncardiac than after cardiac surgery (P<0.001 for interaction).

This is the first large population-based study to demonstrate an increased long-term stroke risk in patients with perioperative AF after noncardiac surgery. This association may be analogous to the observed link between AF in the setting of physiological stressors such as sepsis and stroke. Perhaps, those who develop AF in the setting of a physiological stressor (such as noncardiac surgery or sepsis) have a predisposition to developing AF, thus increasing their risk of future stroke. The weaker association between perioperative AF and long-term risk of stroke among individuals with cardiac surgery is consistent with studies that have suggested that AF after cardiac surgery may be a direct consequence of cardiac manipulation, with negligible long-term implications.

The study’s strengths include its large sample size and robust sensitivity analyses to account for the inherent shortcomings of administrative datasets. The limitations include lack of data on duration of perioperative AF episodes or medication use, possible misclassification, potential ascertainment bias, inability to classify ischemic stroke subtype, and the possibility of individuals moving out of state during the follow-up period. Future prospective studies with more rigorous follow-up are needed to determine the incidence of risk factors for long-term stroke after perioperative AF; randomized controlled trials will assist in determining optimal treatment of such individuals. In the meantime, the management of individuals with perioperative AF remains uncertain.


The Centers for Medicare and Medicaid Services publicly reports 30-day hospital readmission rates for a variety of conditions and may expand reporting to stroke. Readmission after stroke hospitalization is common and likely influenced by a complex interplay of individual, healthcare system, psychosocial and community factors. To understand further the impact of hospital practices on readmission rates, Burke et al conducted a retrospective analysis of adult patients hospitalized for ischemic stroke in 5 states (New York, North Carolina, Washington, Arizona, and Nebraska) using the State Inpatient Databases from 2003 to 2009.

The cohort included 138,668 hospitalizations for ischemic stroke from 568 hospitals, representing ≈14% of the US population. Thirty-day unplanned readmission occurred in 15.2% of stroke admissions. The most common reasons for readmission were related to ischemic stroke, infection, and cardiac conditions. Hospitals factors associated with lower readmission rates were more frequent use of occupational therapy services and higher volume of transfers from outside hospitals, regardless of whether individual patients received occupational therapy or were transferred from outside hospitals. However, hospitals with higher rates of transfer to hospice had higher readmission rates. In addition, hospitals that were more likely to offer life-sustaining treatments were more likely to have hospital readmissions.

In our changing healthcare landscape, where outcome measures such as hospital readmission rates are used as
indicators of quality of care, it is critical to have a clear understanding of the factors driving these outcomes. This study helps to decipher the complex relationship between hospital practices patterns and stroke readmissions. By concentrating on hospital-level factors (ie, overall practice patterns for the hospital) instead of individual factors (ie, whether an individual patient received a service), the authors were able to limit the effect of confounders such as stroke severity and disability which are known to affect readmission rates. The study has the inherent limitations of administrative datasets, including lack of detailed patient-level data (such as stroke subtype, stroke severity, and poststroke disability) and incomprehensive information on hospital-level practices (such as timeliness of care, composition of care teams, types of therapy interventions implemented, and scope and depth of patient education). Future studies may investigate (1) a larger patient population to assess regional variations, (2) whether hospital-based practices also impact stroke outcomes beyond readmission rates, and (3) postdischarge and community factors that affect readmission rates.
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