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Letters

Racial and Sex Differences in Stroke Risk in Patients With Atrial Fibrillation

Atrial fibrillation (AF) is an important risk factor for ischemic stroke, but individual risk varies. Current guidelines state that AF patients without significant comorbidities are at low risk of stroke, and therefore, the benefits of anticoagulant therapy may be outweighed by the risk of bleeding (1). Although periodic reassessment of an individual's stroke risk is recommended, optimal reassessment frequency is an unsettled issue. Data from the Taiwan National Health Insurance Research Database indicate that some patients rapidly accumulate new stroke risk factors (2). However, it is unknown whether these findings translate to the United States, where AF prevalence is higher, and the population is more heterogeneous.

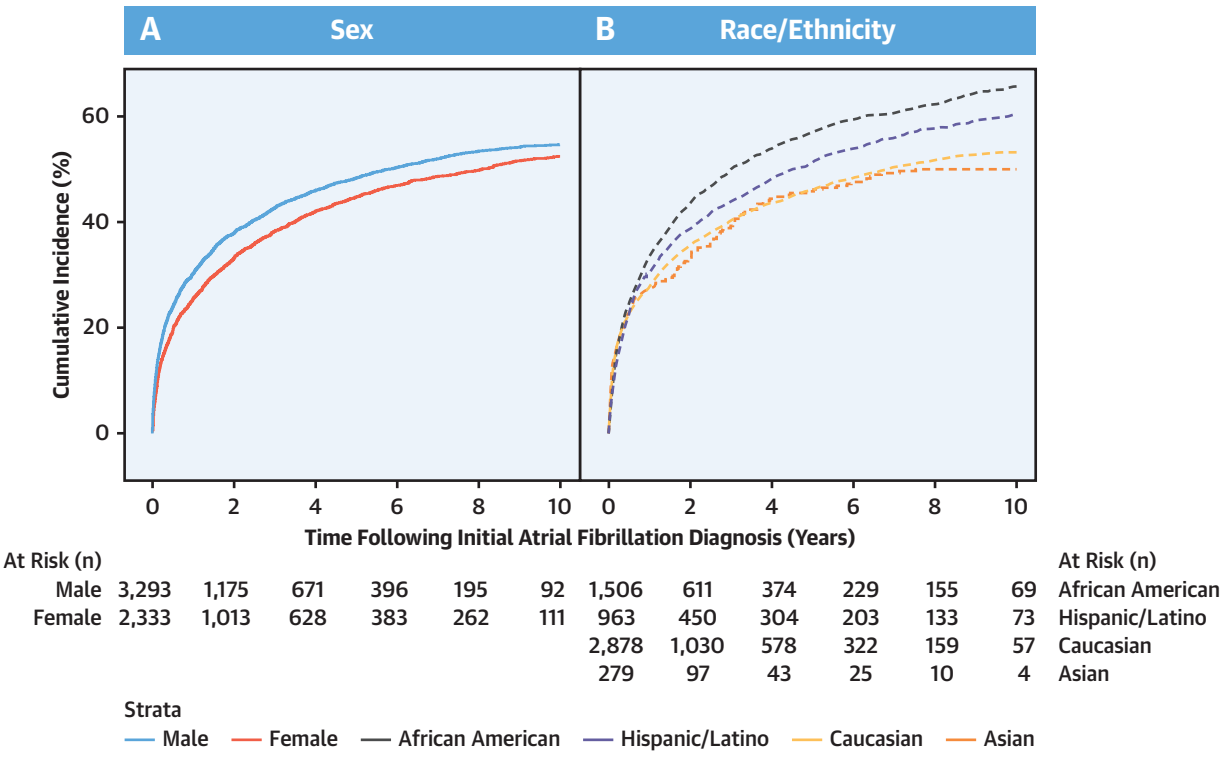
We sought to assess the incidence of CHA_2DS_2-VASc (congestive heart failure, hypertension, age ≥75 years, diabetes mellitus, prior cerebrovascular accident, transient ischemic attack, or thromboembolism, vascular disease, age 65-74 years, sex) score increases in low-risk AF patients and whether score increases vary by sex or race/ethnicity. Using a validated algorithm (3), we identified 5,626 patients (mean age 66.3 ± 15.0 years) from the Mount Sinai Hospital electronic health records with newly diagnosed AF between January 2003 and December 2017 who had a CHA_2DS_2-VASc score of 0 (men) or 1 (women) at the time of AF diagnosis. This cohort was 58.5% male, 41.5% female; 51.2% Caucasian, 26.8% African American, 17.1% Hispanic/Latino, and 4.9% Asian. We computed CHA_2DS_2-VASc scores for each patient visit after AF diagnosis using a validated algorithm (4).

Cumulative incidence curves for an increase in CHA_2DS_2-VASc score from 0 to 1 (men) or 1 to 2 (women) are displayed in **Figure 1**. Overall, the CHA_2DS_2-VASc score increased in 27.4% of the study population within 1 year. At median follow-up times (2.01 years, interquartile range: 0.23 to 5.73 years), the CHA_2DS_2-VASc score increase percentages were: median: 36.0%; Q1: 15.9%; and Q3: 48.5%. Score increases at 1 year/median (interquartile range) years occurred in 33.6/43.6 (17.1% to 59.0%) of African Americans and 30.5/38.7 (14.7% to 53.5%) of Hispanic/Latinos. Score increases occurred most frequently from new diagnosis of hypertension (62%), vascular disease (24%), and age increase (14%). A multivariable Cox proportional hazards regression model demonstrated that African Americans (hazard ratio [HR]: 1.44; 95% confidence interval [CI]: 1.33 to 1.57; $p < 0.001$), Hispanic/Latinos (HR: 1.17; 95% CI: 1.06 to 1.30; $p = 0.002$), and Asians (HR: 1.21; 95% CI: 1.02 to 1.43; $p = 0.035$) were at significantly higher risk for a CHA_2DS_2-VASc score increase relative to Caucasians. Additionally, men were at significantly increased risk relative to women (HR: 1.20; 95% CI: 1.12 to 1.29; $p < 0.001$).

Because a Class 1A recommendation exists for initiation of oral anticoagulants at CHA_2DS_2-VASc scores of 2 (men) or 3 (women) (1), we conducted a separate analysis for score increases from ≤1 to 2 (men) and ≤2 to 3 (women). In this analysis, 24.5% of the population became indicated for anticoagulation within 1 year (34.4% at 2 years). Stratification by sex and race/ethnicity revealed similar incidence ratios to **Figure 1**. African Americans (HR: 1.40; 95% CI: 1.32 to 1.49; $p < 0.001$), Hispanic/Latinos (HR: 1.29; 95% CI: 1.20 to 1.39; $p < 0.001$), and Asians (HR: 1.42; 95% CI: 1.15 to 1.60; $p < 0.001$) were at significantly higher risk for a CHA_2DS_2-VASc score increase relative to Caucasians, and men (HR: 1.23; 95% CI: 1.17 to 1.30; $p < 0.001$) were at significantly increased risk relative to women.

Although clinical guidelines recommend periodic stroke risk reassessment for AF patients, the optimal interval between reassessments is unclear. This is of particular importance in AF patients with low CHA_2DS_2-VASc scores, because risk factor acquisition may prompt oral anticoagulation therapy initiation. In our cohort of AF patients with CHA_2DS_2-VASc scores of 0 (men) or 1 (women), 27.4% acquired at least 1 new stroke risk factor within 1 year, a rate higher than previously reported (2). Furthermore, sex and race/ethnicity significantly affected stroke risk factor acquisition. Our findings align with previous reports (2) asserting stroke risk in AF increases at an alarming rate; we extend these by demonstrating differences based on sex and race/ethnicity. Our

FIGURE 1 Cumulative Incidence of CHA_2DS_2-VASC Increases From 0 to 1 (Men) or 1 to 2 (Women)



(A) Men exhibited increased risk relative to women **(B);** African Americans, Hispanic/Latinos, and Asians exhibited increased risk relative to Caucasians.

findings affirm the need for frequent stroke risk reassessment in AF patients, particularly for men and for patients of African American or Hispanic ethnicity. Clinicians should consider these factors when determining optimal risk reassessment intervals for their AF patients.

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