

Guideline-Adherent Antithrombotic Treatment Improves Outcomes in Patients With Atrial Fibrillation: Insights From the Community-Based Darlington Atrial Fibrillation Registry



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Abstract

Objective: To assess the influence of guideline-adherent vs nonadherent antithrombotic treatment (ATT) on stroke and mortality rates in an atrial fibrillation (AF) primary care population.

Patients and Methods: We used the Darlington Registry cohort, which included 105,000 patients from March 31, 2012, through March 31, 2013. Guideline adherence in ATT was assessed against 2014 National Institute for Health and Care Excellence guidelines, which recommend oral anticoagulation for stroke prevention as a default management unless a truly low risk of stroke ($\text{CHA}_2\text{DS}_2\text{-VASc}=0$ in men and 1 in women) is evident.

Results: Of 2259 patients with AF (2.15%), 36.1% were undertreated, 50.8% were guideline adherent, and 13.1% were overtreated. Oral anticoagulation was declined by 5.0% and contraindicated in 8.3%. Of 67 incident strokes (3.0%), 66 (98.5%) occurred in high-risk patients ($\text{CHA}_2\text{DS}_2\text{-VASc} \geq 2$). For the high-risk cohort, 1-year stroke rates were 4.5% (95% CI, 3.2%-6.3%) for undertreatment, 1.9% (95% CI, 1.2%-2.9%) for guideline adherence, and 7.2% (95% CI, 4.4%-11.6%) for overtreatment; corresponding mortality rates were 16.1% (95% CI, 13.6%-19.0%), 8.0% (95% CI, 6.5%-9.8%), and 8.2% (95% CI, 5.2%-12.7%), respectively. On multivariable analysis, both undertreatment and overtreatment of high-risk patients were associated with significant increases in stroke rates (odds ratio [OR]=2.32; 95% CI, 1.30-3.14; $P=.005$ and OR=2.28; 95% CI, 1.12-4.63; $P=.02$, respectively). Undertreatment was also associated with a significant increase in all-cause mortality (OR=1.59; 95% CI, 1.14-2.21; $P=.006$).

Conclusion: Only half of all eligible patients with AF are prescribed oral anticoagulation in accordance with guideline recommendations. Guideline-adherent ATT significantly reduces the risk of stroke and improves survival.

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Oral anticoagulation (OAC) is the mainstay of effective stroke prevention in atrial fibrillation (AF) and reduces both stroke and mortality in AF.^{1,2} In accordance with current AF guidelines, stroke prevention with OAC should be the default therapy in patients with AF, unless a truly low risk of stroke (ie, congestive heart failure, hypertension, age ≥ 75 years, diabetes mellitus, stroke or transient ischemic attack, vascular disease, age 65-74 years, female sex category [$\text{CHA}_2\text{DS}_2\text{-VASc}$] score of 0 in men and 1 in women) is confirmed.^{3,4}

Contemporary registry data show that approximately 5% of patients with AF have no risk factors for stroke,^{5,6} which indicates that risk stratification and OAC should be carefully and repeatedly reviewed in all patients with AF because risk factors can develop over time. Nonetheless, approximately one-third of patients with AF at risk for stroke are not given OAC but instead are treated with antiplatelet monotherapy or are left untreated, and approximately 50% of patients with no risk factors are unnecessarily prescribed OAC.^{6,7}



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Absolute OAC prescription rates, commonly reported by AF studies,⁸ may be misleading because they may not reflect real-life eligibility for anticoagulation by failing to take into account the complexity of various clinical and patient-related factors affecting the final decision making on OAC prescription. For example, 1 in 10 patients with AF refuses to take OAC,⁹ and the same proportion may have contraindications to anticoagulation.^{10,11} In addition, some patients with AF may require temporal combination antithrombotic treatment (ATT) (OAC + antiplatelets) owing to acute vascular disease.^{3,4} The definition of guideline adherence may also vary, depending on applied stroke risk stratification schemes and guideline recommendations.^{12,13} Finally, indications for OAC in individual patients may change over time, making comparisons even more complex and difficult to interpret.

Previous reports on guideline adherence on OAC for stroke prevention in AF were based predominantly¹⁴ or solely¹⁵⁻¹⁷ on thromboembolic risk assessment, and patients were managed by cardiologists, mainly in hospital-based or cardiology outpatient settings, often linked to university centers. Moreover, various combined end points and selected patient populations (ie, only patients at high risk for stroke) were used to assess the clinical relevance of guideline-recommended ATT.^{14,16,17}

We sought to provide herein a more comprehensive analysis of outcomes related to OAC guideline adherence, taking into account the aforementioned clinical and patient factors, and to assess the effect of guideline-adherent vs nonadherent thromboprophylaxis on “hard” clinical end points (stroke and death rates) in an unselected (ie, consecutive all-comers) contemporary, community-based AF population.

METHODS

The design of the Darlington AF Registry has been described previously.¹⁸ In short, 11 primary care practices serving the population of 105,000 patients in Darlington, County Durham, United Kingdom, were involved. Consecutive all-comers with an established AF or atrial flutter diagnosis and a known vital status in March 2013 were eligible for inclusion.

Each primary care practice was equipped with the Guidance on Risk Assessment and Stroke Prevention in Atrial Fibrillation (GRASP-AF) tool.^{10,18} This electronic record interrogation software was designed to support primary care physicians in population-based screening for stroke risk factors and to facilitate decision making for OAC prescription. Indeed, GRASP-AF is a free and easy-to-use tool used to interrogate patient clinical data; it allows one to graphically display annual stroke risk. This measure helps clinicians identify patients with AF who may have a missing diagnosis code for AF, calculate the risk of stroke in patients with AF, identify patients at high risk for stroke who are not receiving OAC, calculate the number of strokes that a practice can expect in the next 12 months (given current levels of OAC), or help clinicians manage their patients with AF and highlight patients of concern or interest.

Because the GRASP-AF tool does not capture outcome events, additional searches of the primary care data set were performed to identify patients who experienced stroke or died during a 12-month observation period. Incident acute stroke was diagnosed only when there was a concordance between the clinical picture of cerebrovascular accident, physical examination, and cerebral imaging (computed tomography or magnetic resonance imaging). Cardiovascular death was defined as death resulting from 1 of the following conditions: cardiac (myocardial infarction, cardiac failure, cardiac arrest, coronary heart disease, ventricular tachycardia, or complete heart block), heart failure, stroke, pulmonary embolism or systemic thromboembolism, and intracranial bleeding. Every outcome event was manually reviewed and adjudicated. Read codes were used to capture and identify different types of strokes, comorbidities, medical treatments, contraindications to OAC/antiplatelets, and therapy decline.¹⁸

Stroke Risk

The CHA₂DS₂-VASc score was used to assess stroke risk.¹⁹ As per the 2014 National Institute for Health and Care Excellence (NICE) guidelines, low risk was defined as a CHA₂DS₂-VASc score of 0 in men and 1 in women (1 point for sex category only); moderate risk as a CHA₂DS₂-VASc score of 1 in men;

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