Use of Evidence-Based Therapy for Cardiovascular Risk Factors in Canadian Outpatients With Atrial Fibrillation

From the Facilitating Review and Education to Optimize Stroke Prevention in Atrial Fibrillation (FREEDOM AF) and Co-ordinated National Network to Engage Physicians in the Care and Treatment of Patients With Atrial Fibrillation (CONNECT AF)

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Using data collected from 2 national atrial fibrillation (AF) primary care physician chart audits (Facilitating Review and Education to Optimize Stroke Prevention in Atrial Fibrillation [FREEDOM AF] and Co-ordinated National Network to Engage Physicians in the Care and Treatment of Patients With Atrial Fibrillation [CONNECT AF]), we evaluated the frequency of, and factors associated with, the use of cardiovascular (CV) evidence-based therapies in Canadian AF outpatients with at least 1 CV risk factor or co-morbidity. Of the 11,264 patients enrolled, 9,495 (84.3%) were eligible for one or more CV evidence-based therapies. The proportions of patients with AF receiving all eligible guideline-recommended therapies were 40.8% of patients with coronary artery disease, 48.9% of patients with diabetes mellitus, 40.2% of patients with heart failure, 96.7% of patients with hypertension, and 55.1% of patients with peripheral arterial disease. Factors that were independently associated with nonreceipt of all indicated evidence-based therapies included sinus rhythm rather than AF at baseline and liver disease. In conclusion, although most Canadian outpatients with AF have CV risk factors or co-morbidities, a substantial portion of these patients did not receive all guideline-recommended therapies. These findings suggest that there is an opportunity to improve the quality of care for patients with AF in Canada.   © 2017 Elsevier Inc. All rights reserved. (Am J Cardiol 2017;120:582−587)

Atrial fibrillation (AF) impacts an increasingly large proportion of the Canadian population and is a prominent public health concern.[1,2] Patients with AF often have 1 or more cardiovascular (CV) risk factors or co-morbidities that not only increase the likelihood of AF-related morbidity such as stroke but also account for a substantial portion of their

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competing mortality risk.[3,4] Most patients with AF will die from CV causes other than embolic stroke or systemic embolism.[5−7] Thus, modification of CV risk in patients with AF with guideline-recommended strategies could potentially reduce morbidity and mortality. Because the vast majority of patients with AF have disorders such as hypertension, heart failure, diabetes mellitus, coronary artery disease (CAD), or peripheral arterial disease (PAD), for which evidence-based effective therapy is available, patients with AF represent an opportunity to identify these co-morbidities and administer effective therapies. However, information about the rates of evidence-based primary and secondary CV prevention therapy use among outpatients with AF has been limited to date.[8] Using baseline data from the Facilitating Review and Education to Optimize Stroke Prevention in Atrial Fibrillation (FREEDOM AF)[9] and the Co-ordinated National Network to Engage Physicians in the Care and Treatment of Patients With Atrial Fibrillation (CONNECT AF),[10] the goals of this analysis were to determine the proportions of outpatients with AF receiving guideline-recommended evidence-based therapy (EBT) for CAD, diabetes, heart failure, hypertension, and PAD and to identify factors that determine receipt or nonreceipt of all guideline-recommended therapies.

Methods

FREEDOM AF[9] was a knowledge translation initiative that provided guideline-recommended evidence-based management strategies to physicians treating patients with AF at risk for stroke. The objective of this program was to improve the management of patients with AF in Canada through an evidence-based approach aimed at reducing stroke risk while also reducing the bleeding risk that typically accompanies the use of anticoagulation therapy. CONNECT AF[10] was a similar initiative, focusing on risk stratification and stroke prevention therapy care gaps in Canadian patients with AF.

Primary care physicians (PCPs) were recruited to participate by direct mail or fax campaigns, at continuing medical education (CME) events, and from participation in previous or ongoing clinical trials, observational studies, or knowledge translation programs conducted by the Canadian Heart Research Centre.

Both programs recorded usual care treatment decisions made by participating physicians; these treatments and the decision to follow guideline recommendations were left entirely to each physician's discretion. The data for this analysis were derived from a 1-page standardized chart audit form completed for all patients by their physicians before participation in the interactive CME/knowledge translation aspect of the program component. Approval, or a letter of no objection for these quality assurance/CME programs (including waiving the need for patient consent), was received from an independent central ethics review board (Optimum Clinical Research, Inc., Ethics Review Board, Oshawa, Ontario) for FREEDOM AF and CONNECT AF and the Research Ethics Review Committee of the College of Physicians and Surgeons of Alberta for FREEDOM AF.

FREEDOM AF[9] enrolled 4,670 patients 18 years or older from 474 PCPs from February to September 2011, who had a history of AF, and were deemed to require stroke prevention therapy based on the clinical judgment of their physician.

CONNECT AF[10] enrolled 6,594 patients from 647 PCPs from January to September 2013, who were 18 years or older and had a history of AF. Patients were ineligible if they had a significant valvular heart disease (prosthetic valve or hemodynamically significant valvular disease), clinically significant concomitant illness, liver or kidney abnormalities, or a reversible (secondary) cause of AF. Before the knowledge translation aspect of the 2 programs, physicians undertook a baseline, anonymized retrospective chart audit of 10 patients with AF in their practice. To qualify for the current analysis, patients from these 2 projects had to have at least one of the following CV risk factors or co-morbidities as indicated by their physician on the case report: CAD, diabetes, heart failure, hypertension, or PAD.

Eligibility for EBT was defined according to contemporary (at the time of the 2 AF chart audits) professional association guidelines,[11−15] and the specific potential eligibility for EBTs according to co-morbidity is listed in the Supplementary Appendix.

Categorical variables are presented as percentages and absolute numbers and continuous variables as medians with 25th and 75th percentiles. For comparison between groups, continuous variables were compared using Wilcoxon rank-sum test, whereas categorical variables were compared using Pearson chi-square test or Fisher's exact test where appropriate. The proportion of patients with each CV risk factor or co-morbidity and their corresponding use of EBT were determined. To identify independent associations with receipt of indicated EBT, stratified multivariable logistic models were constructed (see Supplementary Appendix). All analyses were performed using SAS software, version 9.3 (SAS Institute, Cary, North Carolina), and a 2-tailed p value < 0.05 was considered statistically significant.

Results

Of 11,264 patients enrolled in FREEDOM AF (n = 4,670) or CONNECT AF (n = 6,594), a total of 9,495 (84.3%) were eligible for 1 or more EBTs based on their CV risk factors and associated conditions. As listed in Table 1, the median age of the population was 78 years and 58% were male; medical history included hypertension (82%), CAD (39%), heart failure (22%) and/or depressed left ventricular function (7%), diabetes mellitus (33%), and PAD (10%). Medical therapy included an anticoagulant (93%), antiplatelet (24%), angiotensin-converting enzyme inhibitor or angiotensin receptor blocker (69%), β blocker (62%), calcium channel blocker (37%), diuretic (46%), and lipid-lowering treatment (60%).

The proportion of eligible patients with AF receiving all EBTs according to each CV risk factor/co-morbidity is listed in Table 2 and in Figure 1: 29.8% of patients with CAD, 48.9% of patients with diabetes, 40.2% of patients with heart failure, 96.7% of patients with hypertension, and 55.1% of patients with PAD received all the appropriate EBTs.

Table 3 lists the potential factors associated with receipt of all EBTs (derived from a multivariable logistic regression model, complete-case analysis including project): sinus rhythm (in contrast to AF) at baseline and liver disease were independently associated with lower odds of receiving all EBTs. Male gender, current smoking status, atrial flutter (in contrast to AF) at baseline, and project (CONNECT AF