Patterns of antithrombotic use in relation to the CHA_2DS_2-VASC and the $CHADS_2$-65 stroke risk score in contemporary practice: Insights from the prospective Stroke Prevention and Rhythm Interventions in Atrial Fibrillation (SPRINT-AF) registry

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BACKGROUND

- Stroke prevention with oral anticoagulation (OAC) is an important treatment goal for patients with atrial fibrillation (AF), particularly those at elevated risk.
- Presently, the CHA_2DS_2-VASc score and the "$CHADS_2$-65" algorithm endorsed by the CCS AF guidelines are two of the most commonly used stroke risk stratification tools in clinical practice.

Study objectives

- We evaluated rates of antithrombotic use in relation to these 2 stroke risk scoring systems in a contemporary, prospective, Canadian AF registry: the **S**troke **P**revention and **R**hythm **Int**erventions in **A**trial **F**ibrillation (SPRINT-AF) registry (www.clinicaltrials.gov;NCT01733160).
- The primary aims of this analysis were to examine rates and patterns of guideline concordance for OAC use for stroke prevention in contemporary Canadian practice.

Overview of the SPRINT-AF program

- The SPRINT-AF registry is a contemporary registry of Canadian AF patients recruited from the practices of cardiologists, internists, and family physicians.
- The primary purpose of SPRINT-AF is to determine how Canadian physicians assess stroke risk in adults with atrial fibrillation (AF) and make therapeutic decisions around oral anticoagulation for AF-related stroke prevention.
- For each participating site, we mandated that consecutive AF patients be included into the registry.
- Enrolment spanned from November 2013 to March 2016.

Inclusion criteria

- Documentation of AF within the past 10 years of enrolment.
- Age ≥ 18 years.
- Able to provide written informed consent.

Exclusion criteria

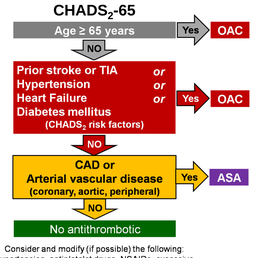
- Presence of hemodynamically significant valvular heart disease, such as severe rheumatic mitral valve stenosis or severe aortic stenosis.
- Active malignancy.
- Life expectancy < 12 months.
- An existing clinical indication for OAC treatment other than AF (e.g. venous thromboembolism, hypercoaguable disorders)
- Prior participation in an OAC randomized trial.

CHA_2DS_2-VASc and "$CHADS_2$-65" scoring schemes

CHA_2DS_2-VASc

	Clinical feature	Score
C	Congestive heart failure **(or LVEF ≤40%)**	1
H	Hypertension	1
A	Age ≥ 75 years	2
D	Diabetes	1
S	Stroke / TIA / Thromboembolism	2
V	Vascular disease (MI, PAD, or aortic plaque)	1
A	Age between 65-74 years	1
Sc	Sex category: Female	1
	Maximum score	10

$CHADS_2$-65



Consider and modify (if possible) the following: hypertension, antiplatelet drugs, NSAIDs, excessive alcohol, labile INRs and specifically bleeding risk factors for NOACs (low eGFR, age≥75 years, low body weight)

METHODS / STUDY MILESTONES

Study Design:

- Phase 2 of SPRINT-AF (present study) is a prospective registry which enrolled 2,576 subjects over a 31-month recruitment period from 133 community-based Primary Care and Cardiology practices in Canada.
- Of these 2,576 subjects 77 (3%) subjects were excluded due to: absence of AF rhythm proof, (ii) study withdrawal, (iii) no data entered in the CRF, (iv) did not meet eligibility criteria.
- **The final cohort consists of 2,499 subjects.** *(in this presentation, we will present data of **2,215** subjects with cleaned baseline CRFs)*

Study schedule

Timeline	Study visit
Week 0	Baseline
Week 12 ± 4	In-person follow-up
Week 26	Centralized telephone follow-up
Week 52	Centralized telephone follow-up

Key outcomes being collected

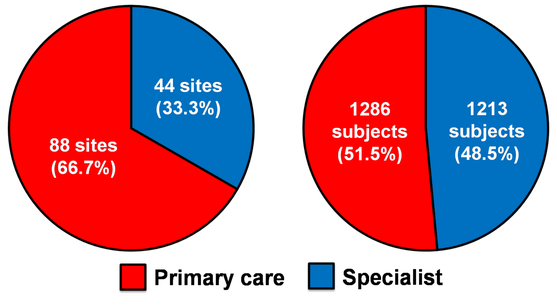
Outcome	Timepoints (weeks)	Related to stroke prevention	Related to rate/rhythm-control
Medication use	0, 12, 26, 52	✓	✓
Bleeding events	0, 12, 26, 52	✓	
Major cardiac outcomes (death, stroke, systemic embolism)	0, 12, 26, 52	✓	✓
AFEQT and SAF	0, 12, 52		✓
ACTS	0, 12 ,52	✓	

AFEQT = Atrial Fibrillation Effect of Quality of Life survey; SAF = Canadian Cardiovascular Society Severity of Atrial Fibrillation scale; ACTS = Anti-Clot Treatment Scale

RESULTS

Enrolment statistics:

Subject enrollment by province		
Province	**# of pts**	**%**
ON	1546	61.9
MB	255	10.2
QC	244	9.8
BC	243	9.7
NS	54	2.2
SK	47	1.9
AB	47	1.9
NB	37	1.5
PE	21	0.8
NL	5	0.2
Total	*2499*	*100%*

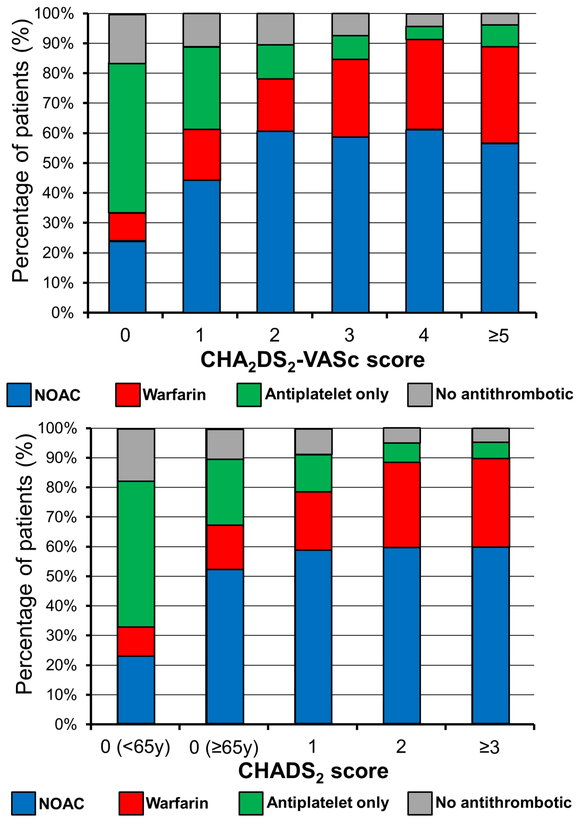


RESULTS

Baseline characteristics	% (n=2215)
Male	63.3% (1403)
Mean Age (yrs)	73.5 ± 10.6
Age ≥75	47.7% (1056)
Age ≥80	28.5% (632)
Age ≥85	12.8% (283)
AF duration <12 months	27.4% (605)
Hypertension	71.9% (1593)
Dyslipidemia	62.2% (1377)
Diabetes	26.0% (577)
Current smoking	6.3% (140)
Prior ACS/MI	14.5% (321)
Prior Stroke/TIA	11.8% (261)
Heart failure	12.6% (280)
$CHADS_2$	1.8 ± 1.2
CHA_2DS_2-VASc	3.3 ± 1.7
Antithrombotic therapy use (%)	**% (n=2209)***
Any OAC	81.2% (1795)
Vitamin K antagonists	25.1% (555)
Direct oral anticoagulants (DOAC)	56.1% (1240)
Antiplatelet drug alone	11.7% (258)
None	7.1% (156)
*Data on antithrombotic drug use was missing for 6 patients	

Table 1. Baseline demographics of patients in SPRINT-AF (n=2215)

Antithrombic use according to CHA_2DS_2-VASc and "$CHADS_2$-65"



SUMMARY AND CLINICAL IMPLICATIONS

In this contemporary, prospective, observational registry of Canadian AF patients enrolled from specialty and general practice:

- Amongst patients with CHA_2DS_2-VASc score of ≥2, the rate of guideline-concordant OAC use for stroke prevention was high (>80%). This high rate of OAC use did not support the presence of a "risk-treatment" paradox in contemporary Canadian AF stroke prevention practice amongst those at elevated stroke risk.
- In contemporary Canadian practice, patients were two times more likely to be treated with DOAC agents than warfarin.
- On the other hand, 1 of 3 patients considered to be at low risk for stroke (defined as not meeting the $CHADS_2$-65 criteria or having a CHA_2DS_2-VASc score of 0) were still treated with OAC in the absence of guideline recommendations.
- Further work is needed to define the reasons and motivations for treating this lower risk population with OAC, in the absence of proven benefit. Clinical outcomes (stroke, TIA, bleeding) of this population will be addressed with the 1-year follow-up of SPRINT-AF.

LIMITATIONS

- Even though we mandated that consecutive AF patients be included into the SPRINT-AF registry from each participating site, this might not have been the case, leading to potential selection bias.
- The study sites (n=133) in SPRINT-AF might not be reflective of the overall Canadian community practice.

FUNDING SOURCE

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DISCLOSURES

Dr. Ha has received research support from Bayer and speaker's honoraria from Bayer and Boehringer Ingelheim. Dr. Singh has received speaker's honoraria from Boeringher Ingelheim and Bristol-Myers-Squibb and has received research funding from Boeringher Ingelheim and Janssen. Dr. Cox has received consulting fees and speaker's honoraria from Bayer, Boehringer Ingelheim, Bristol-Myers-Squibb, Pfizer and has received research funding from Bayer. Dr. Dorian has received consulting fees and research funding from Bayer, Boehringer-Ingelheim, Bristol-Myers-Squibb, Pfizer, and Sanofi. Dr. Fournier has served on advisory boards for Amgen, Astrazeneca, Boeringher Ingelheim, Bristol-Myers-Squibb, Forest Laboratories, Janssen, Merck, Novo Nordisk Canada, Sanofi, Takeda, Valeant Canada and has received speaker's honoraria from Amgen, Astrazeneca, Boeringher Ingelheim, Bristol-Myers-Squibb, Eli-Lilly, Forest Laboratories, GlaxoKlineSmith, Merck, Sanofi and Valeant Canada. Dr. Gladstone has received speaker's honoraria from Bayer, Boehringer Ingelheim, Bristol-Myers-Squibb, and Pfizer. Dr. Lockwood has received consulting fees and speaker's honoraria from Bayer, Boehringer Ingelheim, Bristol-Myers-Squibb, and Pfizer, research support from Medtronic and St. Jude Medical, and fellowship support from St. Jude Medical. Dr. Gupta has received consulting fees and research funding from Bayer, Bristol-Myers-Squibb, and Pfizer. The other authors have no disclosures to report.

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