Low Rates of Oral Anticoagulation Use Among Patients Hospitalized with Atrial Fibrillation and at High Risk for Stroke

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INTRODUCTION

- Atrial fibrillation (AF) is the most common cardiac arrhythmia in the world[1]
- Incidence of stroke in AF is approximately 5% per year[2]
- Patients with a CHA_2DS_2-VASc score ≥2 have a guideline indication for an oral anticoagulant (OAC)[3]
- OACs reduce stroke by >65%[4,5]
- Outpatient prescription data identified a suboptimal use of OACs in AF with approximately half of AF patients with guideline indications for OAC being untreated[6,7,8]
- Oral anticoagulation underuse is a public health concern, as there are preventable strokes causing death and disability

OBJECTIVE

- Explore the rates of inpatient OAC use at discharge among patients hospitalized with AF within the Premier Healthcare Database

METHODS

- The Premier Healthcare Database is a national representation of 1 in 5 U.S. hospitalizations[9]
- Patients were classified as having AF if they had a primary or secondary diagnosis of AF (ICD-9 code 427.31)
- Patients with age ≥40 years, admitted between January 2010 and June 2015, with CHA_2DS_2-VASc score ≥2, and length of stay (LOS) >1 day were included
- Exclusions included: history of heart transplant or mechanical heart valve replacement; any bleed during admission; open heart, brain or spinal surgery; or discharge status of left against medical advice, hospice, transfer to another acute care facility, or expired
- Primary measure was OAC use at discharge, defined as OAC (including apixaban, dabigatran, edoxaban, rivaroxaban, or warfarin) use on the day before or day of discharge
- The proportion of patients with aspirin and P2Y12 antagonist antiplatelet agent (clopidogrel, prasugrel, ticagrelor) use was also evaluated

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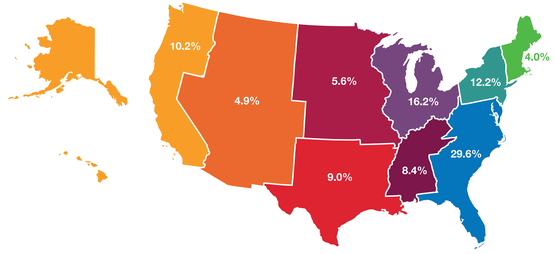
RESULTS

Table 1: Baseline Patient Characteristics

	Overall N=1,579,456	Patients on OAC n=729,377 (46%)	Patients not on OAC n=850,079 (54%)
Age, yr, Median (IQR)	78.0 (69.0, 85.0)	77.0 (69.0, 84.0)	79.0 (70.0, 86.0)
Age, yr			
<55	60,151 (3.8%)	28,427 (3.9%)	31,724 (3.7%)
55-64	166,207 (10.5%)	82,653 (11.3%)	83,554 (9.8%)
65-74	389,431 (24.7%)	193,854 (26.6%)	195,577 (23.0%)
75-84	543,746 (34.4%)	265,322 (36.4%)	278,424 (32.8%)
≥85	419,921 (26.6%)	159,121 (21.8%)	260,800 (30.7%)
Sex, Female	838,444 (53.1%)	377,371 (51.7%)	461,073 (54.2%)
Race, Non-white	296,906 (18.8%)	137,398 (18.8%)	159,508 (18.7%)
Urban Setting	1,360,212 (86.1%)	632,199 (86.7%)	728,013 (85.6%)
Teaching Hospital	625,373 (39.6%)	294,663 (40.4%)	330,710 (38.9%)
Heart Failure	810,771 (51.3%)	398,033 (54.6%)	412,738 (48.6%)
Hypertension	1,411,992 (89.4%)	656,829 (90.1%)	755,163 (88.8%)
Diabetes	658,574 (41.7%)	320,203 (43.9%)	338,371 (39.8%)
Vascular Disease/PAD	252,749 (16.0%)	114,895 (15.8%)	137,854 (16.2%)
History of Stroke/TIA	309,888 (19.6%)	145,224 (19.9%)	164,664 (19.4%)
CKD	507,981 (32.2%)	229,804 (31.5%)	278,177 (32.7%)
Dementia	223,061 (14.1%)	74,059 (10.2%)	149,002 (17.5%)
History of Falls	258,415 (16.4%)	97,488 (13.4%)	160,927 (18.9%)
Length of Stay, Median (IQR)	4.0 (3.0, 7.0)	4.0 (3.0, 6.0)	4.0 (3.0, 7.0)
CHA_2DS_2-VASc, Median (IQR)	4.0 (3.0, 5.0)	4.0 (3.0, 5.0)	4.0 (3.0, 5.0)
Any Aspirin Use	722,229 (45.7%)	293,855 (40.3%)	428,374 (50.4%)
Any P2Y12 Antagonist Use	3,240 (0.2%)	1,207 (0.2%)	2,033 (0.2%)
Any Aspirin + P2Y12 Use	17,175 (1.1%)	4,307 (0.6%)	12,868 (1.5%)

Figure 1: Representation of AF Admissions in Premier Healthcare Database



RESULTS (continued)

Figure 2: Proportion of Patients Treated by CHA_2DS_2-VASc

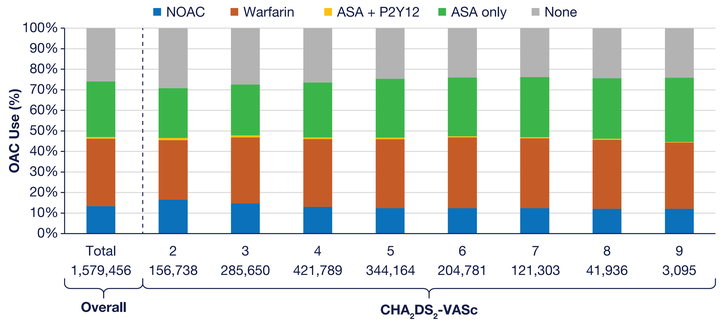


Figure 3: Proportion of Patients Treated by Age

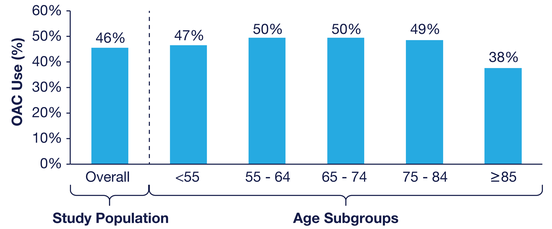
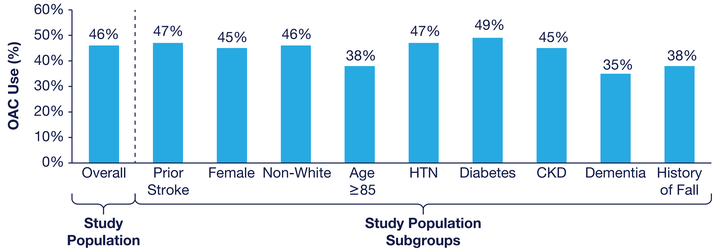


Figure 4: Oral Anticoagulation Use Among Inpatients with AF



LIMITATIONS

- Given that the data were from an administrative database, we were not able to validate the diagnosis of AF beyond ICD-9 codes
- OAC contraindications could not be determined so it is not known what proportion of the low rates of OAC use were clinically appropriate
- The data represent OAC inpatient use, and may not predict outpatient prescriptions provided upon discharge or outpatient medication fills or adherence
- Long-term stroke prevention was not evaluated

CONCLUSIONS

- Among 1.6 million U.S. hospital admissions of patients with atrial fibrillation and risk of stroke, less than 1 in 2 patients at risk for stroke received OAC at discharge
- Low rates of OAC use were consistent across a diverse set of patient subgroups, including those patients most likely to benefit
- Further studies are needed to understand the reasons for the low rates of use of OACs in AF patients at risk for stroke and to develop strategies to improve OAC use
- AF represents a high-impact target for inpatient QI initiatives
- Optimizing AF care during and after hospitalization is an important goal to improve the care of patients

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