

Anticoagulation Prescribing Patterns and Direct Oral Anticoagulants Dosing in Patients with Non-Valvular Atrial Fibrillation



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Background

- Direct oral anticoagulants (DOACs) have been shown to be at least equally effective to warfarin for stroke prevention in non-valvular atrial fibrillation (NVAF).^{1,2}
- Although DOACs have been on the market in Canada for several years, their uptake in practice has been variable.^{3,4}
- Several observational studies have shown that the doses of DOACs used in practice are inconsistent with manufacturer labeling.^{5,6}

Objectives

- The primary objective of this study is to describe patterns of oral anticoagulant use at Abbotsford Regional Hospital (ARH).
- The secondary objectives of this study are:
 - To determine patient characteristics associated with prescribing of warfarin vs. DOAC
 - To determine if DOACs are dosed according to manufacturer labeling

Methods

- Retrospective chart review
 - Single-site study at ARH
 - Convenience sample of patients admitted from April 2017 to September 2017

Inclusion Criteria

- Age \geq 18, ICD-10 diagnosis code of atrial fibrillation (AF), CHADS-65 \geq 1

Exclusion Criteria

- Mitral stenosis, mechanical heart valve, active intracranial bleed, hypersensitivity or intolerance to oral anticoagulants (OAC), pregnant women, left atrial appendage exclusion device, AF due to reversible causes, dialysis patients

Primary Outcome

- % of patients prescribed DOAC (apixaban, dabigatran, edoxaban, rivaroxaban), warfarin or no OAC at discharge

Secondary Outcomes

- Patient characteristics associated with prescribing of warfarin vs. DOAC
- % of patients on DOACs receiving the correct dose, too low of a dose, or too high of a dose

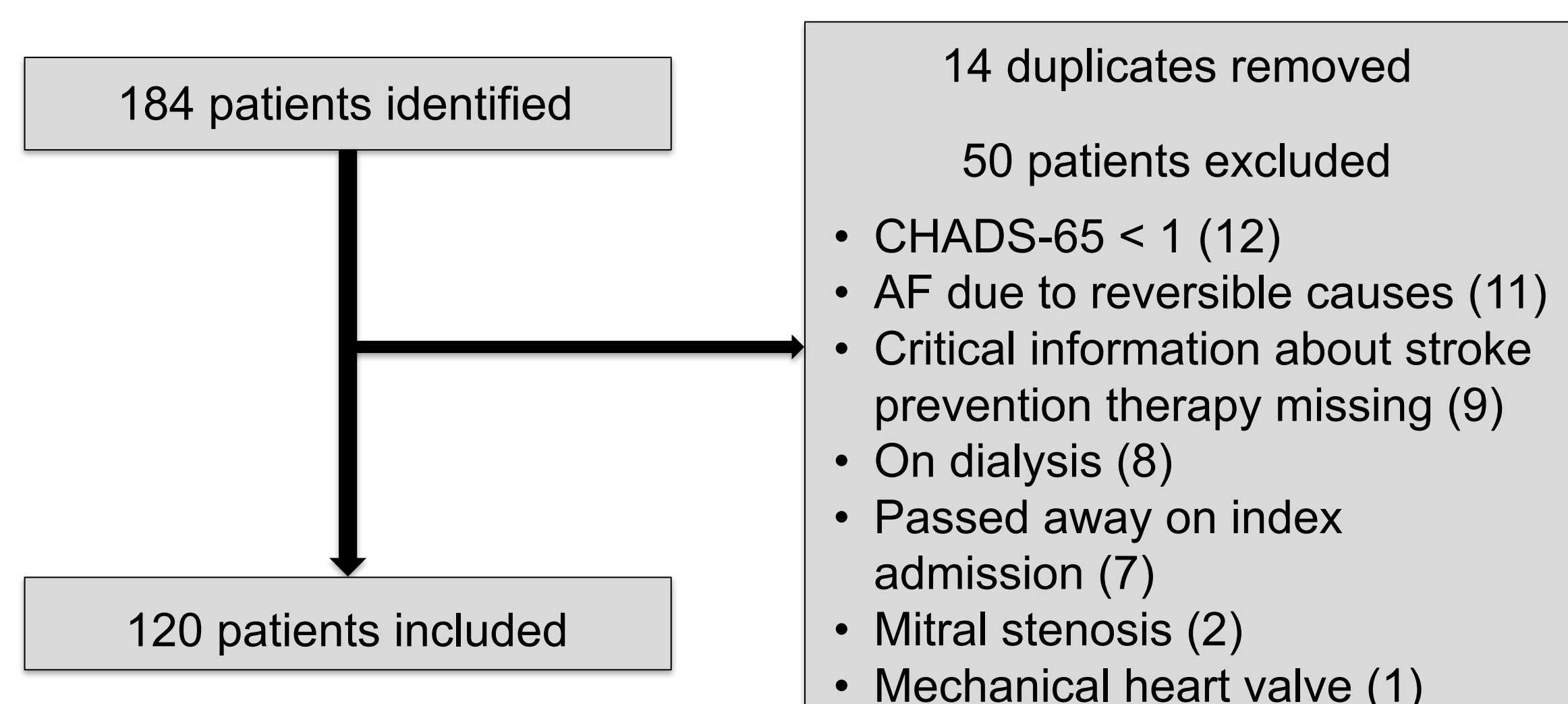


Table 1 – Patient Baseline Characteristics

Characteristic*	Warfarin (N=25)	DOAC (N=83)	No OAC (N=12)	P-value**
Age	78 ± 8.6	79 ± 11.6	78 ± 10.8	0.55
Male	17 (68%)	43 (52%)	6 (50%)	0.15
Weight (kg)	84.5 ± 29.5	78.5 ± 25.3	89.3 ± 15.6	0.34
SCr (mcmol/L)	116 ± 69.4	93 ± 29.3	99.6 ± 34.9	0.12
eGFR (ml/min)	59 ± 22.1	63.2 ± 20.2	61.2 ± 26.8	0.38
ALT/AST/ALP >3x ULN	0 (0%)	3 (4%)	2 (17%)	0.9
Total bilirubin >2x ULN	3 (12%)	4 (5%)	0 (0%)	0.2
NSAID	0 (0%)	1 (1.2%)	0 (0%)	0.9
ASA	3 (12%)	12 (14.5%)	10 (83.3%)	0.9
P2Y12 inhibitor	1 (4%)	5 (6%)	4 (33.3%)	0.9
Comorbidities				
Hypertension	20 (80%)	62 (74.7%)	8 (66.7%)	0.59
Heart failure	15 (60%)	35 (42.2%)	4 (33.3%)	0.12
Ischemic stroke/TIA	6 (24%)	21 (25.3%)	2 (16.7%)	0.9
Stable CAD	7 (28%)	15 (18.1%)	2 (16.7%)	0.28
ACS in the last year	0 (0%)	7 (8.4%)	1 (8.3%)	0.2
Hemorrhagic stroke	0 (0%)	0 (0%)	1 (8.3%)	-
GI bleed	0 (0%)	2 (2.4%)	1 (8.3%)	0.9
Other major bleeding	0 (0%)	1 (1.2%)	3 (25%)	0.9
Diabetes mellitus	8 (32%)	19 (22.9%)	3 (25%)	0.36
Chronic kidney disease	10 (40%)	35 (42.2%)	6 (50%)	0.85
Current alcohol abuse	1 (4%)	4 (16%)	0 (0%)	0.9
CHADS-65	3.1 ± 1.1	2.8 ± 1.2	2.6 ± 1.1	0.3
HAS-BLED	1.6 ± 0.8	1.5 ± 0.8	2.4 ± 0.5	0.87

*Values are represented by mean ± SD for continuous variables and no. (%) for categorical variables
 **Patient characteristics of warfarin vs. DOAC compared using Chi-squared, Fisher's exact test, Student's t-test, or Welch's t-test.

Results

- 108 patients were anticoagulated as per CCS guideline recommendations with 77% of them prescribed a DOAC. (See Figure 1)
- Of the 12 patients not discharged on an OAC, 3 declined to take an OAC, 1 had a recent GI bleed, 1 had a recent retroperitoneal bleed, and 2 had a high falls risk. There were no documented reasons for not being on an OAC for 5 patients.
- There were no statistically significant differences in characteristics between the two groups of patients prescribed warfarin vs. DOAC. (See Table 1)
- Full dose was indicated for the majority of patients prescribed a DOAC. We were unable to determine if the dose was correct for 4 patients as information about their weight was not available. (See Figure 2)

Figure 1: Primary Outcome – OAC Regimen on Discharge

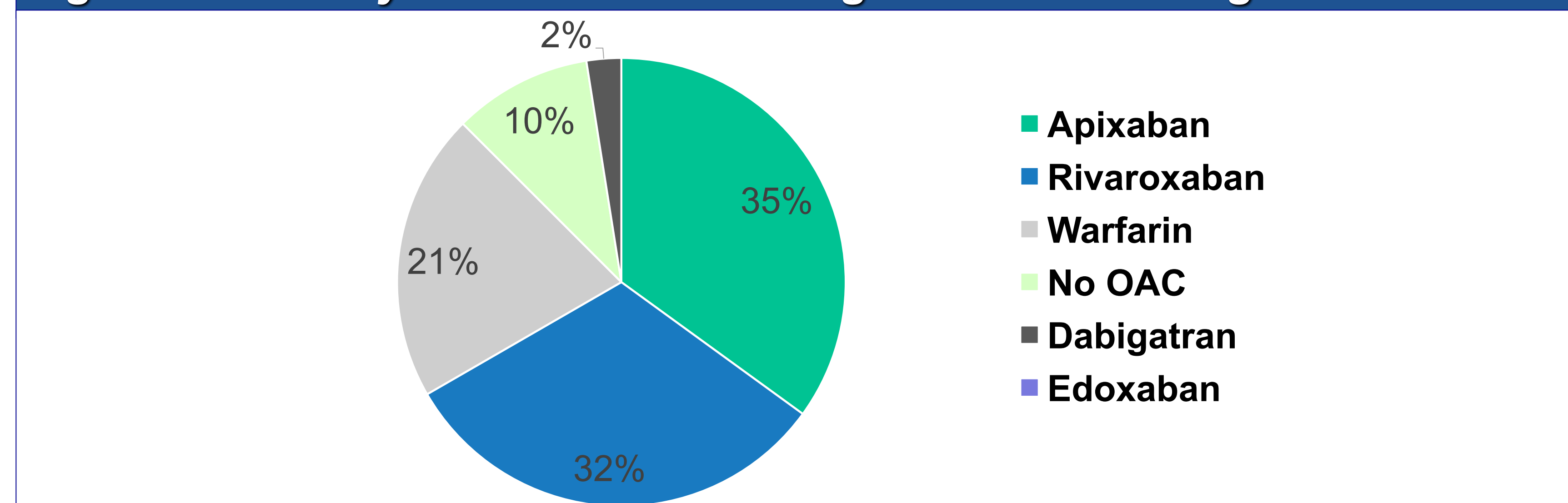
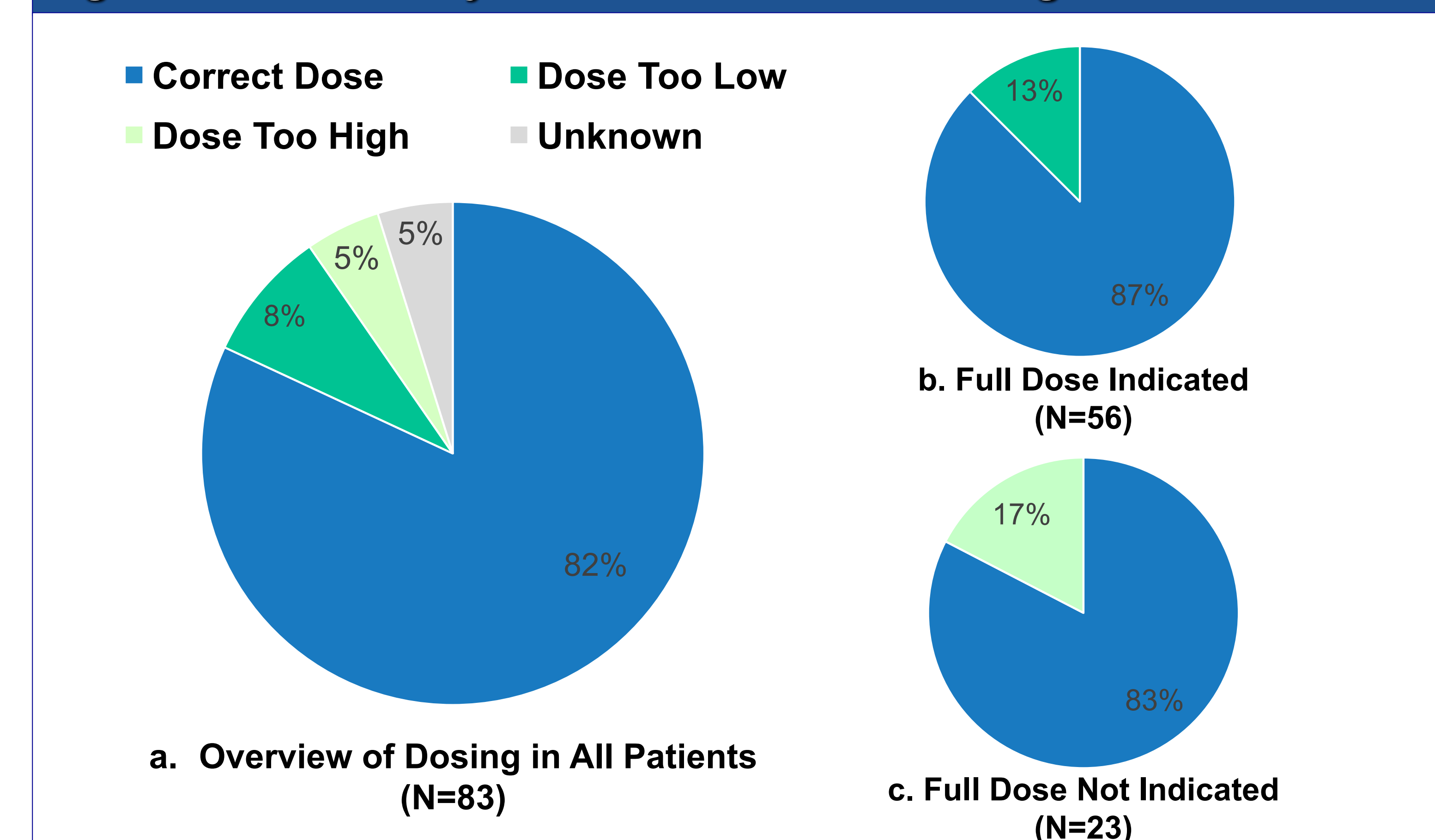


Figure 2: Secondary Outcome – DOAC dosing



Discussion

- Apixaban may be favored as it has been shown to be superior to warfarin in reducing stroke and systemic embolism while causing less major bleeds in the ARISTOTLE trial.
- Rivaroxaban was also commonly prescribed possibly due to its convenient once-daily dosing.
- The CHADS-65 scores appear to be similar across all groups of patients. However, the HAS-BLED score appears to be higher in patients not receiving an OAC. A higher bleeding risk may explain why these patients were not prescribed an OAC on discharge.
- A higher proportion of patients not receiving an OAC were on ASA or a P2Y12 inhibitor, which offers some protection against stroke in AF.
- In the DOAC group, there was a lower incidence of patients receiving too high of a dose compared to that reported in the trial by Yao et al. (17% vs. 43%). However, the incidence of patients receiving too low of a dose is similar to that reported in the study (12.5% vs. 13.3%).
 - The difference may be explained by increased familiarity with dosing of these medications amongst prescribers over the years. Data from the Yao et al. trial was obtained between 2010-2015.

Limitations

- Retrospective chart review
- Small sample size
- Unable to assess adherence and cost concerns, which could affect prescribing patterns

Conclusions

- At ARH, the majority of patients with NVAF and a CHADS-65 of \geq 1 were prescribed a DOAC on discharge.
- Patient characteristics appear to be similar between the warfarin and DOAC groups.
- The majority of patients discharged on a DOAC were correctly dosed.