

Description of Post-Hip Fracture Anticoagulant Management for Atrial Fibrillation Patients and Associated outcomes

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BACKGROUND

- Management of atrial fibrillation (AF) following a hip fracture is challenging
- Anticoagulant use and its effects during this period are poorly described
- Comparison of outcomes for AF vs. Non-AF patients does not exist

METHODS

- Institutional data set of 736 AF patients on anticoagulation and 1,401 Non-AF patients who suffered a hip fracture from 1/1/11—12/19/16
- Description of AF cohort anticoagulant prescription patterns
- Description of AF cohort outcomes using Kaplan Meier analysis
- Description of Non-AF cohort outcomes using Kaplan Meier analysis
- Multivariate analysis of propensity score matched 2:1 cohorts using Cox Proportional-Hazard Models
- Comparison of distribution of categorical variables using Chi-squared Test

RESULTS

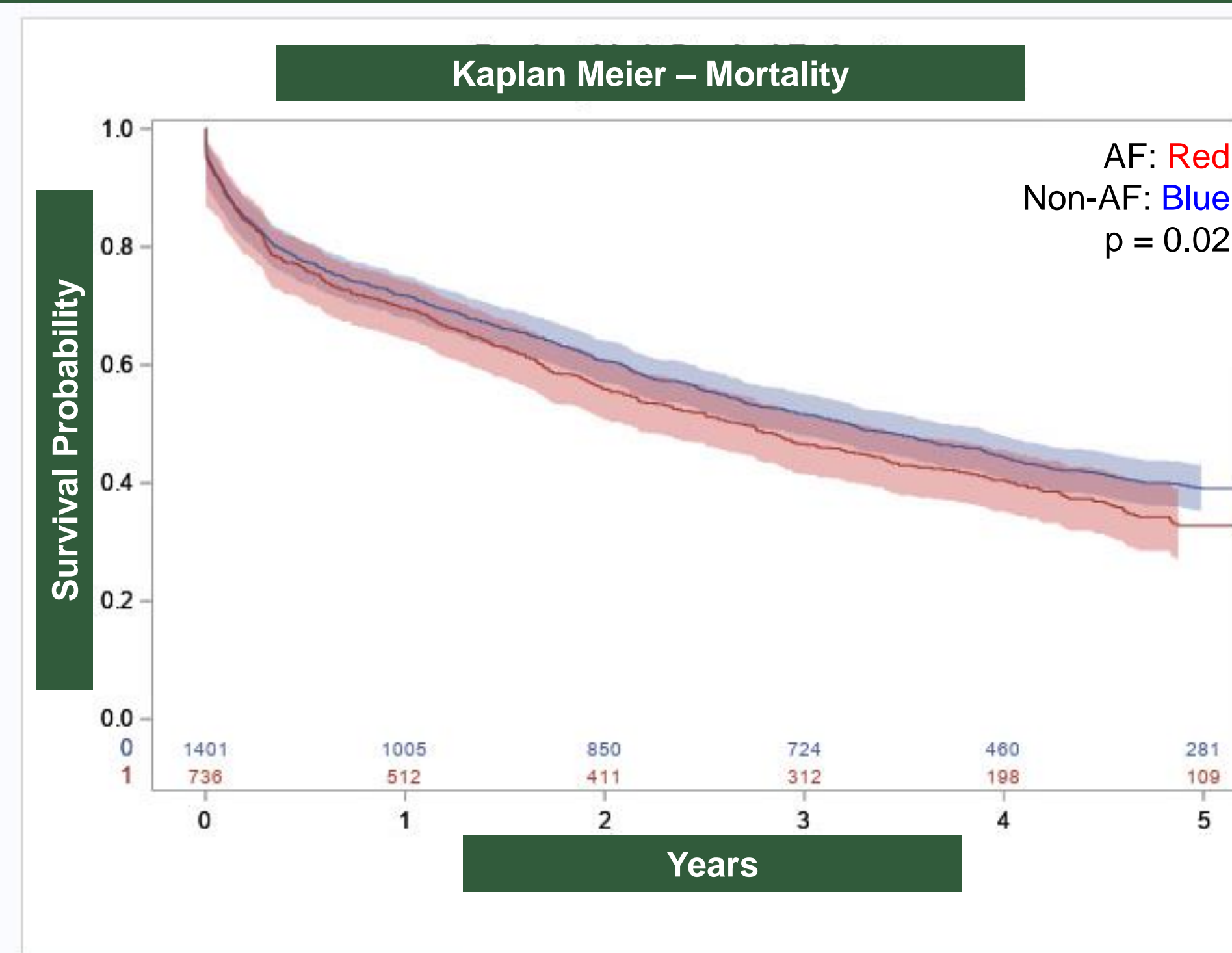
- AF patients who suffered hip fractures were elderly (82 years old), more commonly female (65%), and had an average CHA₂DS₂-VASc score of 4.4. Baseline comorbidities differed between the cohorts.
- Anticoagulant prescription rates were high (100%) upon discharge and remained high at 36 months (90%). Overtime Warfarin use decreased (81 to 65%) and Direct Oral Anticoagulant (DOAC) prescription rates increased (18 to 25%). Aspirin and Antiplatelet therapy rates remained consistent (33% and 1% respectively).
- At 36 months, AF patients rates of mortality (53%) & bleeding (9%) were high and rates of ischemic stroke (3%) & hemorrhagic stroke (2%) were low.
- At five years the mortality rate (HR= 1.14; 95% CI 1.02-1.28; p=0.02) was higher in the atrial fibrillation cohort.

CONCLUSION

- High mortality & Bleeding rate for AF patients who suffer a hip fracture
- Anticoagulation rates remain high post hip fracture
- There is an appreciable transition from warfarin to DOAC
- The rate of aspirin prescriptions is sizeable
- Compared to Non-AF patients who suffer a hip fracture, there are significantly increased rates of mortality for AF patients

AF patients that suffer hip fractures have high rates of mortality, bleeding and anticoagulant continuation.

Compared to Non-AF patients, AF patients have higher mortality



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DISCUSSION

- Literature describing anticoagulation prescription patterns following hip fracture in AF patients is sparse and often describe composite traumatic injuries. Limited data describes reduced anticoagulant immediately following injuries. Data suggests continuing anticoagulants reduce mortality and ischemic stroke rates while increasing bleeding rates. Conflicting data argues there may be increased risks of fractures, specifically with warfarin as it may weaken the bone matrix & predispose hip fractures.
- Our study has limitations. First, it is a single healthcare system, retrospective analysis and therefore our results may be subject to bias. We included multiple hospitals within our healthcare system and applied appropriate statistical methods to adjust for unbalanced characteristics. Second, anticoagulation rates were based on prescriptions in the medical record and assumed to be perfect use.
- Further investigation to determine the cause of mortality and how to prevent bleeding in this cohort is warranted

BASELINE CHARACTERISTICS

	Non-AF (n=1,401)	AF (N=736)	p-value
Age	82.9±8.9	82.6±7.9	0.43
Female	905 (65%)	480 (65%)	0.77
Body Mass Index	27.6±16.3	28.2±17.8	0.25
CHA ₂ DS ₂ -VASc	4.3±4.4	4.4±1.5	0.08
Coronary artery Disease	466 (33%)	313 (43%)	<0.001
Congestive Heart Failure	464 (33%)	292 (40%)	0.003
Hypertension	1093(78%)	570 (77%)	0.76
Hyperlipidemia	735 (52%)	423 (57%)	0.03
Ventricular Tachycardia/ Ventricular Fibrillation	24 (2%)	24 (3%)	0.02
Sudden Cardiac Arrest	3 (0%)	2 (0%)	0.79
Pulmonary Hypertension	50 (4%)	28 (4%)	0.78
Diabetes Mellitus	362 (26%)	197 (27%)	0.64
Chronic Obstructive Lung Disease	244 (17%)	154 (21%)	0.05
Ischemic Stroke	304 (22%)	164 (23%)	0.75
Peripheral Vascular Disease	115 (8%)	68 (2%)	0.42
Deep Vein Thrombosis	0 (0%)	35 (5%)	<0.001
Pulmonary Embolism	0 (0%)	37 (5%)	<0.001
Chronic Kidney Disease	188 (13%)	99 (13%)	0.98
End Stage Renal Disease	43 (3%)	12 (2%)	0.05
Bleeds	255 (18%)	166 (23%)	0.02

PRESCRIPTION PATTERNS

	Patients	Anticoagulant	Warfarin	Direct Acting Oral Anticoagulant	Aspirin	Antiplatelet
Admission	736 (100%)	736 (100%)	599 (81%)	137 (18%)	248 (34%)	11 (1%)
Discharge	706 (96%)	704 (100%)	576 (82%)	128 (18%)	233 (33%)	9 (1%)
3 months	609 (83%)	586 (96%)	473 (78%)	113 (19%)	198 (33%)	7 (1%)
6 months	559 (76%)	521 (93%)	413 (74%)	108 (19%)	184 (33%)	8 (1%)
12 months	512 (70%)	472 (92%)	370 (72%)	102 (20%)	167 (33%)	9 (2%)
24 months	411 (56%)	375 (91%)	274 (67%)	101 (25%)	137 (33%)	8 (2%)
36 months	312 (42%)	280 (90%)	202 (65%)	78 (25%)	108 (34%)	4 (1%)

AF COHORT 36 MONTH OUTCOMES

	AF Cohort (n=736)
Mortality	392 (53%)
Bleeding	69 (9%)
Hemorrhagic Stroke	12 (2%)
Ischemic Stroke	19 (3%)
Myocardial Infarction	41 (6%)
Cardiac Admission	371 (50%)

60 MONTH ADJUSTED COX REGRESSION

	Hazard Ratio	95% Confidence Interval	P-value
Mortality	1.14	1.02-1.28	0.02
Bleeding	1.37	1.04-1.81	0.02
Hemorrhagic Stroke	1.34	0.70-2.57	0.38
Ischemic Stroke	1.46	0.99-2.18	0.06
Myocardial Infarction	0.78	0.56-1.10	0.16
Cardiac Readmission	1.63	1.43-1.86	<0.001

60 MONTH CHI-SQUARED ADJUSTED GROUPS

	AF (n=736)	Non-AF (n=1401)	p-value
Mortality	458 (62%)	814 (58%)	0.06
Bleeding	82 (11%)	123 (8%)	0.08
Hemorrhagic Stroke	15 (2%)	23 (2%)	0.51
Ischemic Stroke	30 (4%)	54 (4%)	0.80
Myocardial Infarction	45 (6%)	114 (8%)	0.09
Cardiac Readmission	406 (55%)	570 (41%)	<0.0001

DISCLOSURE INFORMATION

Nicole Gordon works for Boston Scientific. Other authors have nothing to disclose.