Patterns of Direct Oral Anticoagulant Adherence After Composite Outcome(s) Among Older Adults with Atrial Fibrillation

Fatima B[1], Mohan A[1], Abughosh SM[1]

[1]Department of Pharmaceutical Health Outcomes and Policy, College of Pharmacy, University of Houston, Houston, TX

Contact Information:
Bilqees Fatima
University of Houston
Email:
Bfatima5@central.uh.edu

BACKGROUND

- Atrial fibrillation (AF) is the most frequent arrhythmia treated in clinical practice, which is linked to a higher risk of several clinical outcomes like stroke, congestive heart failure, myocardial infarction, systemic embolism, and death.
- Long-term oral anticoagulation among AF patients has been shown to reduce the risk of ischemic stroke and other embolic events.
- Direct oral anticoagulants (DOACs) are recommended among AF patients, given an improved safety profile compared to warfarin.
- Suboptimal adherence to DOACs is one of the major concerns among AF patients. However, adherence to DOACs after experiencing a cardiovascular or bleeding event is currently unclear.

OBJECTIVE

- To identify distinct adherence trajectories of DOACs after a cardiovascular or bleeding event and examine sociodemographic and clinical predictors associated with each adherence trajectory.

METHODS

Study Design: Retrospective cohort study (Figure 1)

Data source: Administrative claims (Texas Medicare Advantage Plan)

Inclusion criteria:

- ☑ AF patients ≥18 years old
- ☑ DOAC prescription (July 2016-Dec 2017)
- ☑ A clinical event following the DOAC prescription (before Jan 1st, 2020)
- ☑ Continuous enrollment

Exclusion criteria:

- ☒ Diagnosis of systemic embolism, valvular disease and valvular replacement condition

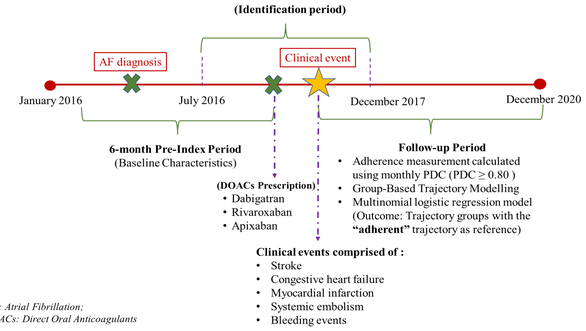
Statistical Analysis:

- Descriptive statistics: Chi-square and ANOVA
- Multinomial logistic regression model:
  - Outcome: Trajectory groups with "adherent" trajectory as reference

Adherence measurement:

- For 12 months follow-up period following the clinical event, the monthly DOAC proportion of days covered (PDC) was measured and a PDC ≥ 0.80 was considered as adherent
- 12 binary indicators of DOACs adherence modelled into a logistic Group-based trajectory model (GBTM)
- SAS version 9.4 (SAS Institute, Cary, NC)

Figure 1. Study design



AF: Atrial Fibrillation;
DOACs: Direct Oral Anticoagulants

Figure 2. Cohort Information

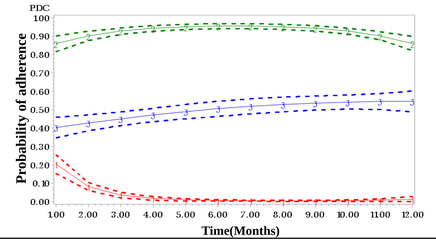
Total number of Atrial Fibrillation Patients (N=2186)

Total number of DOAC users with continuous enrollment (N=2064)

Total number of Patients after applying exclusion criteria (N=1969)

Total number of patients with cardiac or bleeding event(s) (N=694)

Figure 3. Baseline adherence trajectories



Adherent (37.6%); Intermediate non-adherent (30.6%); Rapid decline (31.7%)

RESULTS

Table 1. Baseline characteristics of DOAC users with clinical event(s)

Variable	Total Patients	Low adherent	Adherent	Intermediate non-adherent	P value
	(N=694)	(N=220)	(N=261)	(N=213)	
Age					
<75 years	255 (36.74)	81 (36.82)	105 (40.23)	69 (32.39)	0.2124
≥75 years	439 (63.26)	139 (63.18)	156 (59.77)	144 (67.61)	
Gender					
Female	392 (56.48)	113 (51.36)	149 (57.09)	130 (61.03)	0.1238
Male	302 (43.52)	107 (48.64)	112 (42.91)	83 (38.97)	
Health Plan					
No subsidy	425 (61.24)	175 (79.55)	124 (47.51)	126 (59.15)	0.0001*
Low-income subsidy	269 (38.76)	45 (20.45)	137 (52.49)	87 (40.85)	
CHA2DS2-VASc score					
Score < 3	316 (45.53)	108 (49.09)	117 (44.83)	91 (42.72)	0.3958
Score ≥3	378 (54.47)	112 (50.91)	144 (55.17)	122 (57.28)	
HAS-BLED score					
Score < 2	475 (68.44)	153 (69.55)	183 (70.11)	139 (65.26)	0.4815
Score ≥2	219 (31.56)	67 (30.45)	78 (29.89)	74 (34.74)	
PCP visits					
Yes	172 (24.78)	49 (22.27)	71 (27.20)	52 (24.41)	0.4540
No	522 (75.22)	171 (77.73)	190 (72.80)	161 (75.59)	
Diabetes Mellitus					
Yes	71 (10.23)	24 (10.91)	26 (9.96)	21 (9.86)	0.9218
No	623 (89.77)	196 (89.09)	235 (90.04)	192 (90.14)	
Hypertension					
Yes	114 (16.43)	35 (15.91)	41 (15.71)	38 (17.84)	0.7981
No	580 (83.57)	185 (84.09)	220 (84.29)	175 (82.16)	
Coronary Artery Disease					
Yes	75 (10.81)	31 (14.09)	28 (10.73)	16 (7.51)	0.0879
No	619 (89.19)	189 (85.91)	233 (89.27)	197 (92.49)	
Renal disease					
Yes	45 (6.48)	14 (6.36)	14 (5.36)	17 (7.98)	0.5136
No	649 (93.52)	206 (93.64)	247 (94.64)	196 (92.02)	
Anemia					
Yes	49 (7.06)	21 (9.55)	17 (6.51)	11 (5.16)	0.1867
No	645 (92.94)	199 (90.45)	244 (93.49)	202 (94.84)	
Antiplatelet agents					
Yes	76 (10.95)	27 (12.27)	24 (9.20)	25 (11.74)	0.5081
No	618 (89.05)	193 (87.73)	237 (90.80)	188 (88.26)	
Antiarrhythmic agents					
Yes	154 (22.19)	57 (25.91)	57 (21.84)	40 (18.78)	0.2003
No	540 (77.81)	163 (74.09)	204 (78.16)	173 (81.22)	
Antihyperlipidemic agents					
Yes	460 (66.28)	148 (67.27)	171 (65.52)	141 (66.20)	0.9205
No	234 (33.72)	72 (32.73)	90 (34.48)	72 (33.80)	
NSAID					
Yes	53 (7.64)	22 (10.00)	9 (3.45)	22 (10.33)	0.0055*
No	641 (92.36)	198 (90.00)	252 (96.55)	191 (89.67)	
Type of DOACs					
Dabigatran	37 (5.33)	7 (3.18)	14 (5.36)	16 (7.51)	0.0008*
Rivaroxaban	352 (50.72)	119 (54.09)	114 (43.68)	119 (55.87)	
Apixaban	305 (43.95)	94 (42.73)	133 (50.96)	78 (36.62)	
Clinical event					
One event	450 (64.84)	139 (63.18)	186 (71.26)	125 (58.69)	0.0001*
More than one	244 (35.16)	81 (36.82)	75 (28.74)	88 (41.31)	
CMS Risk score	2.29(1.30)	2.10 (1.18)	2.37(1.36)	2.39 (1.33)	0.01*

* Statistically significant difference

Table 2. Multinomial logistic regression model (N=694)

Variables	Reference	Low adherent vs Adherent	Intermediate non-adherent vs Adherent
		OR (95% CI)	OR (95% CI)
Age			
≥75 years	<75 years	1.56 (0.94-2.58)	1.796 (1.08-2.97)*
Health plan			
Low-income subsidy	No subsidy	4.81 (3.07-7.51)*	1.57 (1.06-2.34)*
Coronary Artery Disease			
Yes	No	1.89 (1.01-3.55)*	0.68 (0.34-1.37)
NSAID Use			
Yes	No	5.10 (1.95-13.36)*	3.17 (1.26-7.93)*
Type of DOAC			
Apixaban	Rivaroxaban	0.67 (0.44-1.01)	0.53 (0.35-0.79)*
Clinical event			
One event	More than one	1.30 (0.85-2.00)	1.65 (1.09-2.50)*
CMS risk score	-	0.93 (0.78-1.09)	1.04 (0.89-1.20)

* P-value < 0.05

Note: Only statistically significant variables are presented in this table

DISCUSSION

- Approximately 62% of the AF patients who had experienced a clinical event followed non-adherent trajectories to the DOAC during the one-year follow-up following the event.
- Factors, such as low-income subsidy, use of NSAIDs, type of DOACs, presence of coronary artery disease, age, and having more than one cardiac or bleeding episode during follow-up was associated with non-adherence to DOACs during the one year after a clinical outcome.

CONCLUSION

- The results of this study suggest that one-year adherence among DOACs users after the clinical event(s) are suboptimal.
- Predictors identified should be considered in developing future interventions to improve adherence among these high-risk patients to enhance health outcomes.

APPROVAL

The study protocol approval was obtained from the University of Houston research institutional review board on 12/06/2022 (IRB ID: STUDY00002815).