Determinants and disparities in oral anticoagulation prescription: We are far from the PINNACLE of care

Check for updates

Daniel S. Modaff, MD, Jennifer M. Wright, MD

From the Division of Cardiology, Department of Medicine, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin.

Atrial fibrillation (AF), the most common arrhythmia in the United States, carries with it a well-known association with stroke that is approximately 5 times the general population.[1] Consequently, for over 2 decades, clinical practice guidelines have recommended anticoagulation in AF patients most at risk for stroke or systemic embolism.[2]

While specifics of oral anticoagulation (OAC) recommendations have evolved over the years, the concept of OAC to reduce AF-associated strokes is not novel. Despite this, the medical community continues to struggle with transitioning this knowledge into practice. Prior registry data have consistently shown OAC prescription rates ranging from 45% to 70% in AF patients at risk for stroke, with minimal gains through the years despite the addition of direct oral anticoagulants and dissemination of guidelines.[3–5] Moreover, when compared with non-Hispanic White and higher-income populations, implementation of guideline-based AF management is disproportionately lower in historically underserved populations, resulting in lower rates of rhythm control, including catheter ablation, and higher rates of adverse arrhythmia-related outcomes.[6–8]

In this issue of *Heart Rhythm O²*, Azizi and colleagues utilize descriptive and machine learning (ML) models on the American College of Cardiology's PINNACLE (Practice Innovation and Clinical Excellence) registry data (now known as the Veradigm Cardiology Registry) to identify social and geographic factors associated with OAC prescription rates for AF patients.[9] Of the 864,330 registry patients included between January 1, 2017, and June 20, 2018, 68% were prescribed OAC with significant variation depending on geographic location, ranging from as low as 26.8% to as high as 93.2%, with higher rates for patients who resided in suburban counties and the Western United

States. Prescription rates were additionally higher for those who identified as non-Hispanic White, were seen in larger clinics, had greater household incomes, and were insured by Medicare. Interestingly, while these correlations were identified in the descriptive data, race and ethnicity were ultimately not predictors of OAC prescription in ML-derived models. In the study population, non-Hispanic White individuals accounted for 66% of patients, while <10% were identified as Black, Hispanic, or other, and the remaining 25% of the population was missing racial or ethnic data. This missing demographic data may not only account for the limitation in the ML analysis, but also highlight the underrepresentation of the non-Hispanic White population in this very large cohort of patients.

Importantly, this study provides further insight into disparities in OAC prescription trends in the United States based on a large outpatient registry. At the same time, we must consider that this registry is voluntary and presumably includes providers and practices with an interest in quality improvement. As a result, this study may be susceptible to selection bias, and OAC prescription rates may be higher than those in the "real world." Furthermore, patients with a history of left atrial appendage occlusion will also decrease longitudinal OAC prescription rates, which the authors note to be a limitation of the data capture.

The authors are to be lauded for their use of ML in the investigation of the sociodemographic predictors of OAC utilization in a large registry of patients. The present analysis contributes to the growing body of evidence regarding disparities in arrhythmia care. However, as we move forward, it is imperative that we not only continue to identify these disparities, but also translate this knowledge into change. The recent call for action in *Heart Rhythm* highlights the urgency of this issue and the need for just that: action.[10] As we are only privy to the tip of the iceberg with respect to disproportionate care, we must strive to continue to uncover inequities and take steps to address them in our quest to provide representative and evidenced-based care for our arrhythmia patients. Equitable care, after all, is a key component to reach the pinnacle of health care that we all strive for.

Address reprint requests and correspondence: Dr Jennifer M. Wright, Biomedical Engineering, University of Wisconsin-Madison, 600 Highland Avenue, Madison, WI. E-mail address: jmwright@medicine.wisc.edu; @jenwrightep.

References

1. Wolf PA, D'Agostino RB, Belanger AJ, Kannel WB. Probability of stroke: a risk profile from the Framingham Study. Stroke 1991;22:312–318.
2. Fuster V, Rydén LE, Asinger RW, et al. ACC/AHA/ESC guidelines for the management of patients with atrial fibrillation: executive summary: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the European Society of Cardiology Committee for Practice Guidelines and Policy Conferences (Committee to Develop Guidelines for the Management of Patients With Atrial Fibrillation) Developed in Collaboration With the North American Society of Pacing and Electrophysiology. Circulation 2001;104:2118–2150.
3. Navar AM, Kolkailah AA, Overton R, et al. Trends in oral anticoagulant use among 436 864 patients with atrial fibrillation in community practice, 2011 to 2020. J Am Heart Assoc 2022;11:e026723.
4. Marzec LN, Wang J, Shah ND, et al. Influence of direct oral anticoagulants on rates of oral anticoagulation for atrial fibrillation. J Am Coll Cardiol 2017;69:2475–2484.
5. Hsu JC, Maddox TM, Kennedy KF, et al. Oral anticoagulant therapy prescription in patients with atrial fibrillation across the spectrum of stroke risk: insights from the NCDR PINNACLE registry. JAMA Cardiol 2016;1:55–62.
6. Eberly LA, Garg L, Yang L, et al. Racial/ethnic and socioeconomic disparities in management of incident paroxysmal atrial fibrillation. JAMA Netw Open 2021;4:e210247.
7. Chung S-C, Sofat R, Acosta-Mena D, et al. Atrial fibrillation epidemiology, disparity and healthcare contacts: a population-wide study of 5.6 million individuals. Lancet Reg Health Eur 2021;7:100157.
8. Essien UR, Kim N, Magnani JW, et al. Association of race and ethnicity and anticoagulation in patients with atrial fibrillation dually enrolled in Veterans Health Administration and Medicare: effects of Medicare Part D on prescribing disparities. Circ Cardiovasc Qual Outcomes 2022;15:e008389.
9. Azizi Z, Ward AT, Lee DJ, et al. Sociodemographic determinants of oral anticoagulant prescription in patients with atrial fibrillations: findings from the PINNACLE registry using machine learning. Heart Rhythm O2 2023;4:158–168.
10. Thomas KL, Garg J, Velagapudi P, et al. Racial and ethnic disparities in arrhythmia care: a call for action. Heart Rhythm 2022;19:1577–1593.