

Additional Data on Atrial Fibrillation from ELSA-Brasil Study

Victor Sarli Issa¹ and Alfredo José Mansur²

University of Antwerp – Cardiology,¹ Antwerp, Flanders – Belgium

Instituto do Coração do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo,² São Paulo, SP – Brazil

Short Editorial related to the article: Characteristics Associated with Prevalent Atrial Fibrillation and Risk Profile for Incident Atrial Fibrillation in an Elderly Population from ELSA-Brasil

Atrial fibrillation is currently recognized as a medical condition associated with clinically relevant symptoms, worse prognosis, and increased medical costs. Atrial fibrillation does not seem to be a homogenous disease but presents significant variability in terms of epidemiology, clinical presentation, risk factors, access to treatment, and prognosis. Understanding regional, social, and ethnic variations is thus of paramount importance.¹

It is estimated that more than 33 million individuals worldwide are affected with atrial fibrillation,² and the prevalence is expected to grow as the population of individuals aged 65-year-old or older will almost double from 12% in 2010 to an estimated 22% in 2040.³ This will probably bring additional burden for cardiovascular disease and atrial fibrillation.⁴ It has been argued that this health and economic burden might be concentrated in low- and middle-income countries.⁵ In this sense, available data suggests that the atrial fibrillation burden in Brazil is at least equivalent to that seen in other countries.⁶

Interestingly, some social groups such as African Americans and ethnic groups⁷ originating from India, Pakistan, Nepal, Sri Lanka, and Bangladesh - which represent more than 20% of the world's population - seem to have a lower prevalence of atrial fibrillation. Possible explanations comprise socioeconomic, worse access to healthcare, and environmental determinants of health; a genetic basis has been suggested, indicating that lower atrial fibrillation incidence could be explained by smaller left-atrium size indexed to body dimensions⁸ and ethnic variations in cardiac ion channels.⁹

The clinical presentation of atrial fibrillation varies. Currently, atrial fibrillation is categorized as first-diagnosed (episodes of atrial fibrillation that have not been diagnosed before), paroxysmal (episodes that terminate within 7 days), persistent (episodes which are not self-terminating within 7 days), and permanent (episodes for which no further attempts

at restoration of sinus rhythm are planned). According to many guidelines, the diagnosis of atrial fibrillation requires electrocardiographic documentation,¹⁰ even though the widespread incorporation of new technologies, such as pacemakers and defibrillators, smartwatches, and other monitoring devices will probably require the incorporation of more flexible criteria, as more information over these technologies become available. The use of different technologies and the unequal access to them will, in turn, impose additional challenges to physicians, patients, and society.

The study by Bocalon et al.¹¹ is the result of a prospective cohort study developed since 2008 and that includes 15,105 men and women, civil servants from universities or research institutions in 6 Brazilian state capitals: São Paulo, Belo Horizonte, Rio de Janeiro, Salvador, Rio Grande do Sul, and Vitória.¹¹ In the current analysis, the authors sought to identify clinical, electrocardiographic, and echocardiographic data associated with the occurrence of atrial fibrillation.

The cohort represents a relatively specific stratum of the population, namely civil servants from universities or research institutions from major cities. Additionally, the analysis was limited to the age of 74 years, which may have underestimated the frequency of atrial fibrillation. In the present study, the prevalence was 4.2% as compared to more than 9% in international cohorts of individuals above 65 years old.¹²

The diagnosis of atrial fibrillation was based on patients' reports and electrocardiographic recordings at baseline (2008-2010) as well as patients' reports at reassessment on follow-up examinations (2012-2014). Even though this represents a remarkable effort of the authors to identify positive cases, the absence of information on medical charts, continuous electrocardiographic methods, and underrepresentation of sick, not working patients might have reduced the rate of detection.

In the ELSA-Brasil study, many electrocardiographic and echocardiographic parameters were associated with an increased chance of developing atrial fibrillation in the follow-up. Interestingly enough, this was not the case with some clinical and epidemiological variables typically associated with increased risk for atrial fibrillation, such as obesity and arterial hypertension. The relatively limited number of patients identified with atrial fibrillation (an absolute number of 88 individuals) may hinder the identification of more subtle differences.

With this context, the manuscript¹¹ contributes understanding of atrial fibrillation in this setting and may be useful for populations that share the same characteristics.

Keywords

Atrial Fibrillation; Epidemiology; Longitudinal Studies

Mailing Address: Alfredo José Mansur •

Instituto do Coração do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo – Av. Dr. Eneas de Carvalho Aguiar, 44.

Postal Code 05403-000, São Paulo, SP – Brazil

E-mail: ajmansur@cardiol.br, ajmansur@incor.usp.br

Manuscript received December 08, 2024, revised manuscript December 10, 2024, accepted December 10, 2024

DOI: <https://doi.org/10.36660/abc.20240827i>

References

1. Essien UR, Kornej J, Johnson AE, Schulson LB, Benjamin EJ, Magnani JW. Social Determinants of Atrial Fibrillation. *Nat Rev Cardiol*. 2021;18(11):763-73. doi: 10.1038/s41569-021-00561-0.
2. Roth GA, Mensah GA, Johnson CO, Addolorato G, Ammirati E, Baddour LM, et al. Global Burden of Cardiovascular Diseases and Risk Factors, 1990-2019: Update From the GBD 2019 Study. *J Am Coll Cardiol*. 2020;76(25):2982-3021. doi: 10.1016/j.jacc.2020.11.010.
3. Heidenreich PA, Trogdon JG, Khavjou OA, Butler J, Dracup K, Ezekowitz MD, et al. Forecasting the Future of Cardiovascular Disease in the United States: a Policy Statement from the American Heart Association. *Circulation*. 2011;123(8):933-44. doi: 10.1161/CIR.0b013e31820a55f5.
4. Lippi G, Sanchis-Gomar F, Cervellin G. Global Epidemiology of Atrial Fibrillation: An Increasing Epidemic and Public Health Challenge. *Int J Stroke*. 2021;16(2):217-21. doi: 10.1177/1747493019897870.
5. Healey JS, Oldgren J, Ezekowitz M, Zhu J, Pais P, Wang J, et al. Occurrence of Death and Stroke in Patients in 47 Countries 1 Year after Presenting with Atrial Fibrillation: a Cohort Study. *Lancet*. 2016;388(10050):1161-9. doi: 10.1016/S0140-6736(16)30968-0.
6. Marcolino MS, Palhares DM, Benjamin EJ, Ribeiro ALP. Atrial Fibrillation: Prevalence in a Large Database of Primary Care Patients in Brazil. *Europace*. 2015;17(12):1787-90. doi: 10.1093/europace/euv185.
7. Conway DS, Lip GY. Ethnicity in Relation to Atrial Fibrillation and Stroke (The West Birmingham Stroke Project). *Am J Cardiol*. 2003;92(12):1476-9. doi: 10.1016/j.amjcard.2003.08.065.
8. Echocardiographic Normal Ranges Meta-Analysis of the Left Heart Collaboration. Ethnic-Specific Normative Reference Values for Echocardiographic LA and LV Size, LV Mass, and Systolic Function: The EchoNoRMAL Study. *JACC Cardiovasc Imaging*. 2015;8(6):656-65. doi: 10.1016/j.jcmg.2015.02.014.
9. Bezzina CR, Shimizu W, Yang P, Koopmann TT, Tanck MW, Miyamoto Y, et al. Common Sodium Channel Promoter Haplotype in Asian Subjects Underlies Variability in Cardiac Conduction. *Circulation*. 2006;113(3):338-44. doi: 10.1161/CIRCULATIONAHA.105.580811.
10. van Gelder IC, Rienstra M, Bunting KV, Casado-Arroyo R, Caso V, Crijns HJGM, et al. 2024 ESC Guidelines for the Management of Atrial Fibrillation Developed in Collaboration with the European Association for Cardio-Thoracic Surgery (EACTS). *Eur Heart J*. 2024;45(36):3314-414. doi: 10.1093/eurheartj/ehae176. PMID: 39210723.
11. Bocalon B, Foppa M, Brant LCC, Pinto-Filho MM, Ribeiro AL, Duncan BB, et al. Characteristics Associated with Prevalent Atrial Fibrillation and Risk Profile for Incident Atrial Fibrillation an Elderly Population from ELSA-Brasil. *Arq Bras Cardiol*. 2025; 122(1):e20240487. doi: <https://doi.org/10.36660/abc.20240487i>.
12. Kornej J, Börschel CS, Benjamin EJ, Schnabel RB. Epidemiology of Atrial Fibrillation in the 21st Century: Novel Methods and New Insights. *Circ Res*. 2020;127(1):4-20. doi: 10.1161/CIRCRESAHA.120.316340.



This is an open-access article distributed under the terms of the Creative Commons Attribution License