



EDITORIAL COMMENT

Current and future challenges: Exploring new opportunities in stroke education for atrial fibrillation patients



Desafios do presente e para o futuro: explorando novas oportunidades na educação sobre AVC em doentes com fibrilhação auricular

Alexandre Amaral e Silva^{a,b,c}

^a Neurovascular Unit, Hospital CUF Tejo, Lisbon, Portugal

^b Department of Neurology, Hospital CUF Tejo, Lisbon, Portugal

^c Department of Neurology, Hospital CUF Santarém, Santarém, Portugal

Available online 30 April 2024

Atrial fibrillation (AF) is the most prevalent arrhythmia in adults worldwide and also in Portugal, where its prevalence is notably high, especially in elderly patients (aged 65 years or more).^{1,2} The most feared complication associated with AF is ischemic stroke: AF is one of the most important known precursors for stroke, accounting for about 20% of all strokes.³ Nonvalvular AF carries a five-fold increased risk of stroke, while AF related to mitral stenosis increases stroke risk 20-fold.^{4,5} The link between AF and stroke is well established and since stroke is the leading cause of death and disability in Portugal, this makes it particularly important not only to manage AF but also to educate patients and their families on promptly recognizing and responding to stroke symptoms and signs.

Every year, around 20 000 people are admitted to the hospital because of stroke in Portugal.⁶ Despite significant advances in stroke care in recent years, including a greater number of stroke units and increases in the number of patients treated with chemical and endovascular recanalization strategies, most patients arrive late at the hospital

and therefore do not have access to key acute recanalization treatments.⁷

Time is critical in the treatment of ischemic stroke – ‘‘time is brain’’. Intravenous thrombolysis and mechanical thrombectomy, the primary acute recanalization treatments, are associated with substantial benefits in patient outcomes when administered in the optimal time window. The urgency in administering these treatments is underscored by the time-dependent nature of their effectiveness. Shorter stroke onset to recanalization times are linked to better outcomes, making the timely recognition of stroke symptoms a crucial component in the overall stroke care continuum.⁸

Correct early identification of the warning signs of stroke by patients, family members or bystanders is the first link in the treatment chain. Only timely identification and consequent activation of the emergency medical services will enable patients to be referred in the appropriate time window to hospitals with the capacity to perform revascularization treatments in the acute phase. Inappropriate delays will therefore contribute to the underuse of life-saving treatments, not to mention potentially worse outcomes, with higher mortality and dependency rates. The key to overcoming this less-than-ideal situation lies in strengthening and spreading stroke knowledge among patients and

DOI of original article: <https://doi.org/10.1016/j.repc.2023.11.005>

E-mail address: a.amaralesilva@gmail.com

<https://doi.org/10.1016/j.repc.2024.04.004>

0870-2551/© 2024 Sociedade Portuguesa de Cardiologia. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

bystanders. In the past few years, health professionals and especially medical societies like the Portuguese Stroke Society have set up numerous educational and training initiatives aimed at increasing health literacy in these areas for the general population. But the question is whether we are really hitting the mark.

In the field of healthcare, where knowledge can often be the difference between life and death, understanding the dynamics of the patient's awareness of and attitude toward illness becomes crucial. The fact is that, despite having successfully raised awareness about stroke symptoms and treatment options, stroke education campaigns have yet to produce a profound change in individual reactions to these situations, with appropriate behavioral responses appearing limited.⁹ Therefore, exploring other strategies to increase stroke literacy, especially in high-risk patients, seems a logical and potentially impactful approach.

In this context, in the current issue of the *Journal* a group of stroke specialists reports the results of a recent study on stroke recognition in AF patients.¹⁰ Having focused on comparing stroke recognition-to-door time and prehospital stroke code activation in patients with known AF (KAF) and those with AF detected after stroke (AFDAS), its findings provide convincing arguments for challenging some of our assumptions about the effectiveness of current educational strategies.

In this retrospective cohort study, the authors have shone a spotlight on an often overlooked aspect of stroke care: recognition of and response time to stroke symptoms in high-risk patients, specifically assessing patients with AF – a condition closely linked to ischemic stroke. Looking at this study in close detail and analyzing its conclusions and implications, it becomes clear that there may be a missed opportunity, a gap in stroke education, and a chance to rethink how we approach patient care, particularly for those with AF.

The study included 438 patients, of whom 238 had KAF (54.3%) and 200 had AFDAS (45.7%). Notably, less-than half of the patients with KAF were pre-treated with anticoagulation, raising concern about the low rates of patients with AF who are adequately anticoagulated, despite the widespread availability of direct oral anticoagulants, which are more efficacious and safer than the old vitamin K antagonists. Surprisingly (or perhaps not), the study found no significant differences in stroke recognition-to-door time and prehospital stroke code activation between patients with known or newly diagnosed AF. Similarly, prehospital stroke code activation rates were comparable, with 64.6% for KAF and 65.3% for AFDAS.

Furthermore, within the KAF subgroup, the use of preadmission anticoagulation did not influence stroke recognition-to-door time or the mode of hospital admission. This perhaps unexpected finding challenges the widespread assumption that patients under anticoagulation treatment show better awareness of and faster response to stroke symptoms. The implications of this revelation may extend beyond the specific cohort investigated, forcing us to reconsider our beliefs about the correlation between anticoagulation and stroke awareness.

However, the study has some limitations that should be borne in mind, starting with its retrospective design based

on a single-center stroke treatment registry. A major limitation could be the fact that only data from patients who underwent revascularization therapy were included, preventing generalization of the conclusions to all patients with AF and stroke. It would be interesting to analyze whether a different pattern would have been obtained if all patients with AF and stroke had been included. In addition, as recognized by the authors, the study used time delays in hospital admission and prehospital stroke code activation as a surrogate for patients' stroke knowledge, but these could have been influenced by other factors such as other medical comorbidities, distance to a hospital at stroke onset, and the performance of prehospital health professionals. Other potentially important factors, such as the educational level of patients and bystanders and cognitive performance among patients with previous stroke, were also not taken into account. Finally, the possible relationship between having or not having KAF and the number of routine medical visits was not objectively assessed.

Ultimately, despite the study's limitations, its results may indicate a missed opportunity to promote stroke knowledge among patients followed due to AF. The similarity in stroke recognition-to-door time and prehospital stroke code activation between the KAF and AFDAS groups suggests that the follow-up practices currently in place may not be effectively capitalizing on this vital window for education. This acknowledgment should not be interpreted as a criticism of the present state of stroke literacy, but rather as a call for reflection, careful assessment, and targeted intervention.

The need to rethink stroke education strategies appears to follow on from the conclusions of this study. These findings underscore the need for a subtle approach to stroke education, with emphasis on high-risk populations. The existing paradigm, which assumes that routine follow-ups adequately address stroke awareness, is in need of re-evaluation. In a daily routine of hard work, with many patients and little time for each consultation, it is not always easy for physicians to address all the important issues. But in personalized medicine, focused on the individual patient, sufficient time and availability must be allocated to proactively address areas related to health promotion and education. Targeted interventions that focus on AF patients and their families can potentially bridge this gap in stroke education, ensuring that knowledge translates into swift action at the most critical moments.

As we navigate the reverberations of this study, it becomes clear that stroke care ought to reach beyond typical medical management to encompass a holistic approach. Equipping patients with the knowledge to recognize and appropriately and promptly respond to stroke symptoms, this type of education should be an integral part of medical practice, going beyond basic routine care. Healthcare providers need to collaborate with patients, their relatives, and the community to develop comprehensive educational programs which address the specific needs of high-risk populations.

In summary, the study by Magriço et al. prompts us to revisit our assumptions about stroke education, while fostering the adoption of more targeted and proactive methods. By seizing the opportunity that follow-up of AF patients represents, we can bridge a gap in stroke literacy and thereby achieve the ultimate goal of improving patient outcomes.

By shedding light on missed opportunities, studies like this highlight the importance of a critical examination of implemented policy and practice. Acknowledging and addressing current shortcomings marks the beginning of the journey towards optimal stroke care, which can only be reached through a dynamic, collective effort.

Conflicts of interest

The author has no conflicts of interest to declare.

References

1. Bonhorst D, Mendes M, Adragão P, et al. Prevalence of atrial fibrillation in the Portuguese population aged 40 and over: the FAMA study. *Rev Port Cardiol.* 2010;29:331–50.
2. Bonhorst D. A new look at the prevalence of atrial fibrillation in Portugal: the Safira study. *Rev Port Cardiol.* 2018;37:315–7.
3. Wolf PA, Abbott RD, Kannel WB. Atrial fibrillation as an independent risk factor for stroke: the Framingham Study. *Stroke.* 1991;22:983–8.
4. Murtagh B, Smalling RW. Cardioembolic stroke. *Curr Atheroscler Rep.* 2006;8:310–6.
5. Marini C, De Santis F, Sacco S, et al. Contribution of atrial fibrillation to incidence and outcome of ischemic stroke. *Stroke.* 2005;36:1115–9.
6. Direção-Geral da Saúde. Programa Nacional para as Doenças Cerebro-Cardiovasculares 2017. Available from: https://www.chlc.min-saude.pt/wp-content/uploads/sites/3/2017/10/DGS_PNDCCV_VF.pdf.
7. Dias MC, Dos Reis RS, Santos JV, et al. Nationwide access to endovascular treatment for acute ischemic stroke in Portugal. *Acta Med Port.* 2022;35:127–34.
8. Man S, Solomon N, Mac Grory B, et al. Shorter door-to-needle times are associated with better outcomes after intravenous thrombolytic therapy and endovascular thrombectomy for acute ischemic stroke. *Circulation.* 2023;148:20–34.
9. Bray JE, Johnson R, Trobbiani K, et al. Australian public's awareness of stroke warning signs improves after national multimedia campaigns. *Stroke.* 2013;44:3540–3.
10. Magriço M, Seródio M, Ramos JN, et al. Are we missing an opportunity? Prehospital delay in patients with acute ischemic stroke and known atrial fibrillation. *Rev Port Cardiol.* 2024;43, <http://dx.doi.org/10.1016/j.repc.2023.11.005>.