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ARTICLE

Alarming lack of knowledge about antithrombotic therapy among patients with atrial fibrillation

Terapia antitrombótica: alarmante falta de conhecimento em pacientes com fibrilação atrial

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ABSTRACT

Large population campaigns have been conducted in Brazil to improve knowledge about the signs and symptoms of stroke and the importance of time to care. **Objective:** Parallel to these important actions, we aimed to evaluate the lay knowledge of patients with atrial fibrillation, a well-recognized etiology of stroke, adequate treatment and management of which can prevent up to 30% of cerebrovascular events. **Methods:** We questioned 143 patients with atrial fibrillation about the risks associated with the disease. **Results:** Ninety-one percent were on anticoagulation treatment. Of the total, 63.6% reported having been informed about the risks and benefits of anticoagulants but only 46.9% were able to correctly mention one of these risks. Ischemic stroke was identified as a risk by only 25.9% and hemorrhagic stroke was not mentioned. A $CHADS_2 \geq 2$ was scored by 84.0% of the patients. **Conclusions:** Our study showed an alarming knowledge gap in patients with atrial fibrillation. Difficulty in adherence to treatment resulting from the failure of this communication is possibly one of the factors responsible for the high incidence and recurrence of stroke, and should not go unnoticed.

Keywords: *Atrial fibrillation; stroke; patient medication knowledge; warfarin; anticoagulants.*

RESUMO

Campanhas populacionais para melhorar o conhecimento sobre os sinais e sintomas do acidente vascular encefálico e a importância do tempo para o tratamento têm sido realizadas no nosso país, visando a melhoria da linha do atendimento. **Objetivo:** Paralelamente a estas relevantes ações, objetivamos avaliar o conhecimento leigo de pacientes portadores de fibrilação atrial, etiologia determinada e prevalente do acidente vascular encefálico, cujo tratamento e manejo adequado podem prevenir até 30% dos eventos cerebrovasculares. **Métodos:** Entrevistamos portadores de fibrilação atrial sobre os riscos associados à doença. **Resultados:** Noventa e um por cento estavam sob uso de anticoagulantes. Do total, 63,6% responderam terem sido informados sobre riscos e benefícios da terapia anticoagulante, mas apenas 46,9% souberam citar corretamente um desses riscos. Acidente vascular encefálico isquêmico foi associado ao risco por apenas 25,9% e acidente vascular encefálico hemorrágico não foi mencionado. $CHADS_2 \geq 2$ foi pontuado por 84,0% dos pacientes. **Conclusões:** Nosso estudo demonstra uma alarmante falha no conhecimento do risco de acidente vascular encefálico nos portadores de fibrilação atrial. Dificuldade na aderência ao tratamento resultante da falha dessa comunicação é fator relevante na incidência e recorrência do acidente vascular encefálico e não deve ser negligenciado.

Palavras-chave: fibrilação atrial; acidente vascular cerebral; conhecimento do paciente sobre a medicação; varfarina; anticoagulantes.

Large population campaigns have been conducted in Brazil to improve knowledge about the signs and symptoms of stroke and the importance of time to care. Along with receiving the correct treatment, prevention by all means must be a priority to reduce the morbidity and mortality of stroke.

Atrial fibrillation (AF) is a supraventricular arrhythmia that leads to a total disorganization of atrial electrical activity, impairing the atrium's contraction capacity and inhibiting the sinus node[1]. Stroke is the main complication of AF. At least one in five strokes is associated with AF, and thromboembolic strokes in patients with AF are usually more severe and incapacitating than in patients without AF[2,3]. More than 100,000 deaths due to stroke are registered annually in Brazil[4]. Stroke is also one of the main causes of death and is the major cause of disability in Brazil and in the world[2,5,6,7].

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Chronic therapy with oral anticoagulant drugs plays a crucial role in AF treatment by significantly avoiding the risk of thromboembolic stroke, although it brings a risk of intracerebral, or other hemorrhage[8]. Warfarin remains the most frequent oral anticoagulant prescribed in Brazil due to its efficiency and low cost[6,9,10,11].

Risk stratification of thromboembolic events helps identify which patients have a stroke risk, and this clarifies the anticoagulant therapy[12]. Although the congestive heart failure, hypertension, age ≥ 75 years, diabetes mellitus, stroke, vascular disease, age 65-74 years, sex category (CHA_2DS_2 VASc)[13] score has been proposed by vascular physicians, the congestive heart failure, hypertension, age ≥ 75 years, diabetes mellitus, stroke ($CHADS_2$) score is one of the main scales used for thromboembolic risk evaluation in patients with AF by nonspecialists[6,14,15]. Treatment success in AF is highly correlated with patients' understanding about their condition and therapy complications. Prevention of cerebrovascular diseases must be one of the priorities in patient education, as the layperson's recognition of its signs and symptoms remains poor[16,17,18].

We aimed to evaluate patients' knowledge about antithrombotic therapy in AF. We also evaluated whether the therapeutic orientation received by the patient correlated with the $CHADS_2$ score.

METHODS

A cross-sectional study was conducted in a Brazilian Public University Hospital from September 2015 to May 2016. A total of 150 outpatients were interviewed, seven of whom did not meet the inclusion criterion. They were recruited from neurology and cardiology clinics. The inclusion criterion was patients who had been assisted by physicians at least once after receiving the diagnosis of AF. The study excluded patients with cognition impairment reported by caregivers, and those who did not sign the consent form.

A questionnaire with seven questions related to AF disease and its treatment was applied to the participants. Question 1 was about the patient's identification (age and gender). Question 2 asked if the patient had attended at least one medical appointment after receiving the diagnosis of AF. If the answer was 'yes' we continued with the next five questions. Question 3: "What is the treatment suggested by your doctor?" Question 4: "Did someone explain to you the risks in case of nonadherence to the anticoagulant treatment?" Question 5: "If so, do you know what those risks are?" Question 6: "Have you ever had a stroke?" Finally, question 7 asked about information used to calculate the $CHADS_2$ risk score (Table 1). For better accuracy, we asked what the medications in use were.

We classified the patients as "with basic knowledge" and "without basic knowledge" according to what the authors expected patients would answer as complications of nonadherence to antithrombotic therapy (question 5). Therefore, answers such as "stroke", "thrombus formation", "hypercoagulability", "embolic situations" or other vascular complications were considered as correct in connection with risks (group A). The only vascular exception was myocardial infarction or heart attack. Different answers not involving a vascular system were considered "without basic knowledge" about antithrombotic therapy (group B).

Table 1. $CHADS_2$ score for thromboembolic risk stratification.

ABBREVIATION	RISK FACTOR	POINTS
C	Congestive heart failure	1
H	Hypertension	1
A	Age ≥ 75	1
D	Diabetes mellitus	1
S_2	Prior stroke or transient ischemic attack	2

$CHADS_2$ ≥ 2 indicates treatment with anticoagulation.

Data analysis

Data were analyzed with Software R (*R Core Team, 2015; version 3.2.3*). Data description was made through absolute and relative frequencies, means and standard deviations. Fisher's Exact Test was used to correlate variables from questions 4 and 5 and the Difference Between Two Proportions Test, which indicates the probability of a correct decision based on the alternate hypothesis, was applied on data from question 3. The significance level considered was $p < 0.05$.

Ethical aspects

The study was approved by the Human Research Ethics Committee (protocol 1.207.053), in agreement with Brazilian National Commission for Ethics in Research.

RESULTS

A total of 150 patients from Brazil's Public Health System were initially interviewed. Seven patients answered "NO" to question 2 and did not follow through on the questionnaire. They were excluded from the statistical analysis and results.

The mean age was 67 ± 10.65 years old (about one third of patients were < 65 years; one third ≥ 65 and ≤ 74 years; and one third ≥ 75 years). Gender distribution was approximately 1:1. In total, 131 (91.6%) were on anticoagulation therapy with warfarin, and the rest were using antiplatelet agents (Table 2). No-one was using a non-vitamin K antagonist oral anticoagulant.

Ninety-one (63.6%) patients felt they were informed about the risks of lack of adherence to the treatment (question 4), but when asked to identify what those risks were, only 37 (25.9%) identified "stroke". Fifty-four (37.7%) patients said they didn't know of any risk; 20 (14.0%) identified "blood thickening"; 16 (11.2%) identified other vascular complications

such as "thrombosis" and "pulmonary thromboembolism"; 14 (9.8%) identified "thrombus formation", "hypercoagulability" or "embolic situations" and 2 (1.4%) identified "death". No one identified hemorrhagic stroke (Figure).

According to question 5, 67 (46.9%) patients were included in group A (with basic knowledge) and 76 (53.1%) patients were included in group B (without basic knowledge).

Among the 91 patients who had been informed about the risks, 63 (69.2%) showed a basic knowledge (group A) and 28 (30.8%) did not (group B). Thirty-five (38.4%) identified "stroke" as a risk factor; 15 (16,5%) identified other vascular complications; 13 (14.3%) identified "thrombus formation", "hypercoagulability" or "embolic situations"; 16 (17.6%) identified "blood thickening"; 11 (12.1%) said they did not know, and 1 (1.1%) identified "death" as a risk factor.

On the other hand, among the 52 patients who said they had never been informed about the risks, 4 (7.7%) showed a basic knowledge and 48 (92.3%) did not. Two (3.9%) of them identified stroke as a risk; 1 (1.9%) identified other vascular complications; 1 (1.9%) identified "thrombus formation", "hypercoagulability" or "embolic situations"; 4 (7.7%) identified "blood thickening"; 43 (82.7%) said they did not know and 1 (1.9%) identified "death". The correlation between the variables "had been informed" and "not had been informed" was statistically significant ($p < 0.0001$).

Forty-two (29.4%) patients had a previous history of stroke, 27 (64.3%) of whom were women. Among these 42 patients who had already had a stroke, 16 (38.0%) identified stroke as a complication from AF in the case of treatment nonadherence and 26 (62.0%) did not.

Table 2. Sample characteristics (%).

Variable	Total		With basic knowledge		Without basic knowledge	
	n	%	n	%	n	%
Female	75	52.4	37	49.3	38	50.7
Male	68	47.6	30	44.1	38	55.9
Age < 65 years	52	36.4	31	59.6	21	40.4
65 ≥ age ≤ 74 years	45	31.4	20	44.4	25	55.6
Age ≥ 75 years	46	32.2	16	34.8	30	65.2
Anticoagulation	131	91.6	64	48.9	67	51.1
No anticoagulation	12	8.4	3	25.0	9	75.0
$CHADS_2 < 2$	23	16.0	11	47.8	12	52.2
$CHADS_2 \geq 2$	120	84.0	56	46.7	64	53.3
Previous stroke	42	29.4	25	59.5	17	40.5
No previous stroke	101	70.6	42	41.6	59	58.4
Previous orientation	91	63.6	63	69.2	28	30.8
No orientation	52	36.4	4	7.7	48	92.3

n: number of patients; %: percentage of patients; $CHADS_2$: congestive heart failure, hypertension, age ≥ 75 years, diabetes mellitus, stroke.

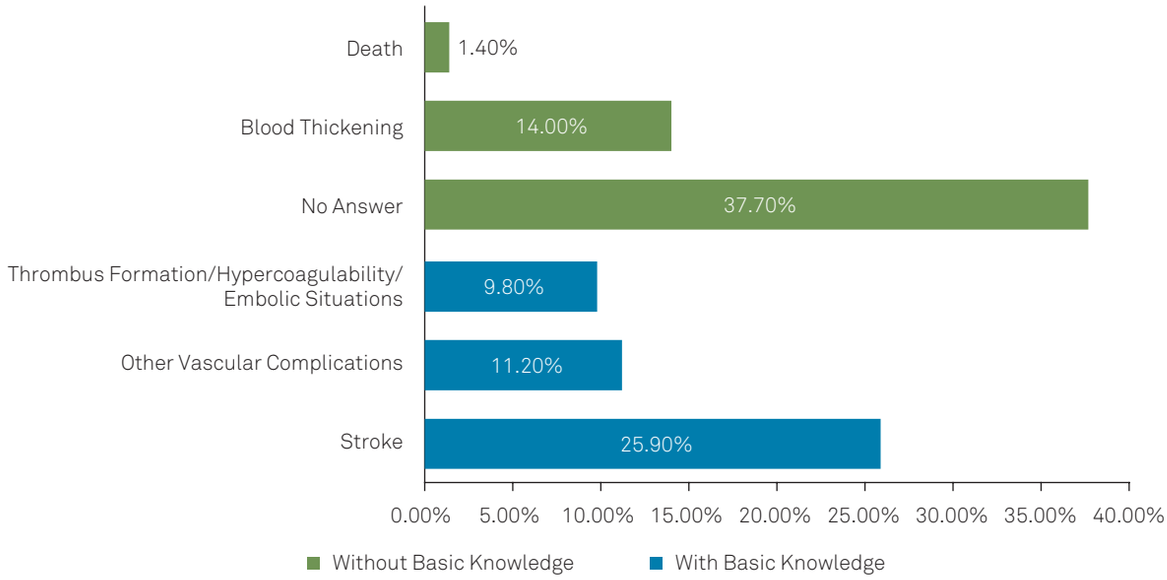

Figure. Patients' knowledge

Of all the patients with $CHADS_2 \geq 2$, 109 (90.8%) were on anticoagulation and 11 (9.2%) were taking antiplatelet agents. Of 23 patients with $CHADS_2 < 2$, 22 (95.7%) were on anticoagulation and 1 (4.3%) was taking an antiplatelet agent.

DISCUSSION

According to Hobbs et al.[2], the worldwide incidence of AF is 1% to 2% of the total population. Although the incidence is higher among men, the morbidity and mortality associated with the illness is higher in women[12,19,20]. There were no statistical differences in sex in our sample. The patients' ages were also equivalent to the mean average in other studies.

Our patients showed a good correlation of the $CHADS_2$ score with treatment. Of the patients who were on anticoagulation, only 25.9% identified stroke as a risk of nonadherence to AF anticoagulant treatment. This alarming number shows us why patients with AF continue to frequently be seen in stroke units, even in the face of a well-known primary risk[21,22]. The crucial role of anticoagulation and adherence to therapy in AF should be as evident for patients as it is to physicians. The level of information should be as clear as possible. Considering the risks of anticoagulation therapy, mainly of warfarin, both types of stroke must be addressed.

An interesting point was that no patient mentioned hemorrhagic stroke or any other hemorrhagic complication of anticoagulation. Although there was no specific question about this, it was expected that patients with full understanding about antithrombotic therapy would mention those risks at some point. However, this result may be a bias from interpretation of the questionnaire.

To improve communication with patients, we should try to understand their reality. Warfarin is the only oral anticoagulant available in Brazil's Public Health System[23]. It is well known that warfarin has many food and drug interactions and demands a strict and frequent control of the international normalized ratio (INR) to avoid risks that are obstacles for optimal treatment[24,25]. Therefore, the patients' education about the disease and its risks is essential to improve adherence and reduce complications[26,27,28].

The alarming lack of knowledge about basic concepts of AF and stroke shown in this study might also help explain the high rate of stroke incidence and recurrence. We found that 62.0% of patients with a previous history of stroke had no knowledge about stroke as a complication of AF. We cannot assume that this lack of knowledge is totally explained by the negligence of medical assistants. Among the 67 patients categorized in group A (with basic knowledge), 63 said they had received previous information about the risks. However, more than two-thirds of the sample did not mention stroke risk in any way, so we can assume that there was a problem in the communication. Inadequate language and lack of effort in teaching the patients may be interrelated. A low socioeconomic and educational level may also have contributed to the patients' poor comprehension, which may be a limitation to the generalization of results. We did not evaluate this.

Anticoagulation therapy had been prescribed for the majority of patients with $CHADS_2 \geq 2$, but not for 11 of them. On the other hand, 22 of 23 patients with $CHADS_2 < 2$ were on warfarin and only one patient was on antiplatelet therapy. We assume that some patients had been recently hospitalized and could be under acute treatment for AF, or that anticoagulation therapy was indicated or contraindicated because of concomitant treatment of other pathologies that were not evaluated by this study[29,30]. The $CHADS_2$ is not the only determinant of anticoagulation. Overall, we found it to be a good therapeutic indication.

The non-vitamin K antagonist oral anticoagulants are an alternative to stroke prevention in patients with AF. The wider use of these may improve adherence by providing a better quality of life and fewer drug and food interactions, but the risks of stroke and the need for education will still remain a concern[9,31]. In addition, since INR monitoring is not required, the patients' contact with health care professionals may be less frequent, as well as the opportunities to receive effective education.

Better approaches to achieving patient understanding should be considered. Educational campaigns, teaching manuals and adequacy of language could be useful. The physician's compliance with the use of anticoagulants can never be forgotten, irrespective of which drug is administered. We reinforce this with our results.

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