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Clinical and Therapeutic Aspects of Ischemic Stroke in Atrial Fibrillation at the Neurology Department of CHU Conakry

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ABSTRACT

Introduction: The main cause of ischemic stroke in our setting is atrial fibrillation. The aim of this study was to evaluate the clinical and therapeutic aspects of atrial fibrillation during ischemic stroke.

Material and Methods: We conducted a retrospective descriptive study lasting one year from November 1, 2020 to November 31, 2021, involving all patients with ischemic stroke diagnosed by CT or MRI. We included patients with atrial fibrillation confirmed by a 12-lead électrocardiogrammes (ECG) or a 24-hour ECG holter. Thromboembolic risk was assessed by the CHA2DS2Vasc score and bleeding risk by the HAS-BLED score.

Results: A total of 1,400 patients (19.64%) were enrolled. Mean age was 57.3 +/-16.64 years, predominantly female (54.5%), with hypertension as a risk factor (45.09%). The mean NIHSS score was 17.9 +/-3.2, associated with disorders of consciousness (44.36%) and hemiplegia (100%). atrial fibrillation was persistent in 54.90% of cases. A CHA2DS2-VASc score ≥ 2 was found in 94.9% of cases, and a low HAS-BLED score in 73% of cases, for whom Rivaroxaban was the first-line treatment in 76.72% of cases.

Conclusion: This study has shown that atrial fibrillation is common in cardioembolic cerebral infarctions with age and hypertension as risk factors.

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Introduction

Ischemic stroke is necrosis of brain tissue secondary to ischemia caused by ces Emboligenic heart disease accounts for 30% of dalys, with high mortality, early recurrence and a 6.6-fold increase in the risk of hospitalization sation of blood flow [1-5].

The major risk factor for dalys in cardiac arrhythmias is atrial fibrillation (AF), with an annual rate of 5% [6-8]. Its prevalence is expected to triple over the next 50 years [9-11].

AF leads to the disappearance of organized atrial electrical activity in the form of rapid, anarchic depolarization, responsible for the loss of atrial contraction and acceleration of ventricular rate [12,13].

Sequential screening is recommended, with a repeat electrocardiogram (ECG) including 12 leads, telemetry monitoring, and an ECG holter for 24 to 72 hours within 6 months of ischemic stroke [14,15].

Although there are no absolute criteria for diagnosis, the required elements are: compatible clinical picture, presence of emboligenic heart disease, exclusion of carotid and/or cerebral atherosclerosis or another cause of stroke [16].

Atrial fibrillation is the leading cause of ischemic stroke in people over 65, with increased morbidity and mortality due to arterial thromboembolism [17-22]. Its management, alone or in association with a stroke, is difficult and costly, and requires the use of antithrombotic drugs [23].

Oral anticoagulants are the basis of effective stroke prevention (70%) [24-26].

Some anticoagulants such as antivitamin K have a pharmacodynamics that is difficult to predict, They need continuous monitoring [27].

The risk of thromboembolism, especially cerebral thromboembolism, is major from the onset of AF and could reach 6.8% in the first few months [28].

This thromboembolic risk is assessed using the CHA 2 DS2-VASc score prior to anticoagulation [29-31].

The first year of oral anticoagulant therapy is marked by a 1.5% risk of bleeding, determined using the HAS-BLED score [32,33].

Materials and Methods

We conducted a retrospective descriptive study lasting one year from November 1, 2020 to November 31, 2021, involving all patients hospitalized in the neurology department of the Conakry university hospital, presenting with ischemic stroke diagnosed by cerebral computed tomography (CT) and/or magnetic resonance imaging (MRI).

We included all patients with AF confirmed by a standard 12-lead electrocardiogram (ECG) or 24-hour ECG holter with a precise typology.

To identify cardiovascular risk factors, we used the recommendations of the European Society of Hypertension/ European society of cardiology [34].

Thromboembolic risk was assessed using the CHA2 DS2VascCHA2DS2 VascCHA2DS2Vasc score, enabling us to divide our patients into two groups (low and high risk).

Hemorrhagic risk stratification was based on the HAS-BLED score. This enabled us to divide our patients into three groups (low, moderate and removed risk).

To determine the severity of the stroke, we used the NIHSS score, which enabled us to classify patients into four groups.

All Our variables were qualitative and quantitative, broken down according to socio-demographic, clinical and paraclinical characteristics.

Our data were analyzed using SPSS 21.0 and Microsoft Excel software from the 2016 office pack. our patients received antithrombotic and/or antiarrhythmic therapy.

Results

Table 1: Distribution of Patients According to Socio-Demographic Characteristics and Risk Factors.

Socio-Demographic Characteristics and Risk Factors	Effectifs N=275	Proportions (%)
Age (year)		
<15	4	1,4
>74	50	18,1
15_29	12	4,3
30_44	45	16,3
45_59	55	20,2
60_74	109	39,6
Average	57,3±16,4 ans	
Sexe		
Male	125	45,4
Se Female	150	54,5 0,83
Marital status		
Married	181	65,8
Single	24	8,7
Widowed	40	14,5
Divorced	30	10,9
Risk factors		
HTA	124	45,09
Diabètes	52	18,90
Heart disease	47	17,09
Alcohol	13	4,71
Tobacco	10	3,7
Sedentary lifestyle	29	10,50
Total	275	100,0

Table 2: Distribution of Patients by Clinical Characteristics

Clinical signs	Numbers (N=275)	Proportions(%)
Consciousness disorder	111	44,36
Arythmie cardiaque	221	80,36
Heart murmur	99	36,23
Palpitation	23	8,36
Dyspnea	69	25,09
Agitation	17	6,10
Speech disorders Bronchial congestion	217	78,90
Hemiplegia	74 275	26,90 100

Table 3: Distribution of Patients by NIHSS Score

NIHSS on Admission	Workforce (N=275)	Proportions
1 – 4 (Minor stroke)	55	6.7
5 – 14 (Moderate stroke)	62	22,54
15 – 20 (Severe stroke)	113	41,09
› 20 serious	45	23,63
Average NIHSS at admission = 17,9 ± 3,2		Extremes : 1 et 20

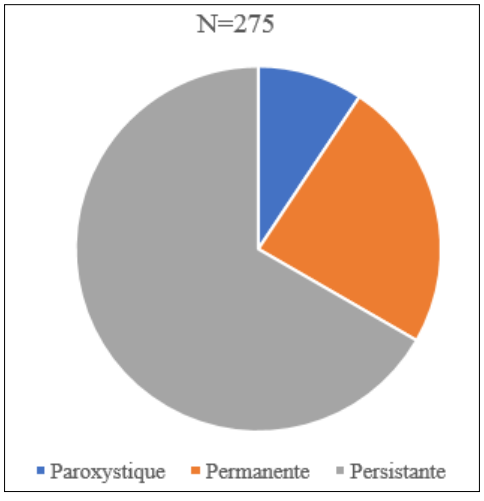

Figure 1: Distribution of Patients by type of Atrial Fibrillation

Table 4: Distribution of Patients According to Electrocardiographic Signs Associated with Signs of Atrial Fibrillation

Electrocardiographic Signs	Workforce (n=275)	Proportions (%)
Left Ventricular Hypertrophy	72	26,16
ST segment sub-shift	49	17,81
Left branch block	47	17,09
ST segment elevation	36	13,09
Left atrial hypertrophy	36	13,09
Right atrial hypertrophy	35	12,72

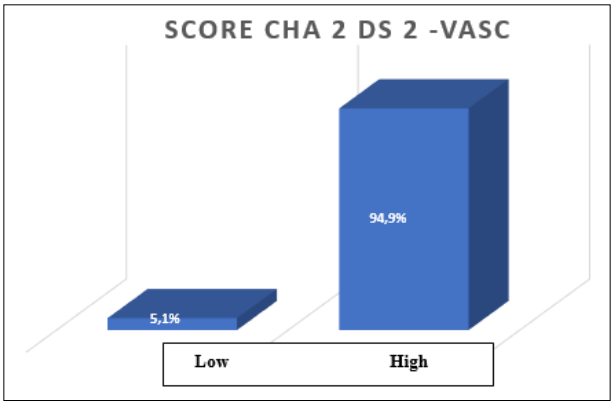

Figure 2: Distribution of Patients According to CHA2DS2-VASc Score

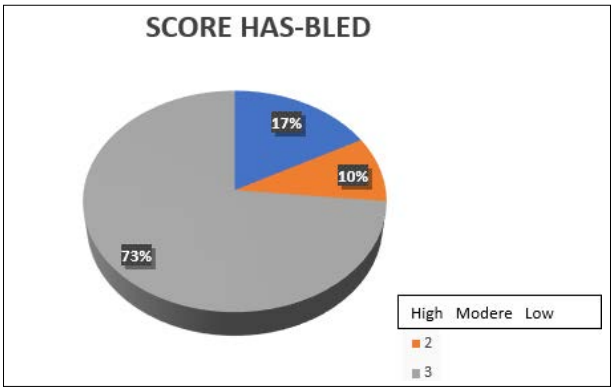

Figure 3: Distribution of Patients at Risk of Bleeding According to HAS-BLED Score

Table 5: Distribution of Patients According to AF Drug Treatment

Treatment	Workforce (n=275)	Proportions (%)
Anticoagulation		
Rivaroxaban	**211**	**76, 72**
Enoxaparine	157	57,09
Acénocoumarol	112	40,72
Anti-arrhythmic		
Beta-blocker	**109**	**39,63**
Digitallique	95	34,54
Amiodarone	55	2
Antiplatelet agents		
Aspirine	242	88

Discussion

Our study was one of the first to provide a hospital frequency of atrial fibrillation (19.64%) during ischemic stroke at Conakry University Hospital.

This frequency is lower in our study than in those of other authors [35-37].

This may be explained by the quality of the AF screening methods used in our setting after the onset of ischemic stroke.

The mean age of our patients was 57.3±16.4 years. This result corroborates those of Coulibaly et al in 2010 in Côte d'Ivoire and of Ntep-Gweth in Cameroon in 2010 [38].

The frequency of atrial fibrillation increases with age and may be rare before the age of 40 (<0.5%), but the rate reaches 5% after the age of 65, and over 20% after the age However, we found a female predominance of 54.5%, which contrasts with the literature, according to which the lifetime risk of AF is estimated at 36% in men and 30% in women of 80.

Although the most frequent risk factor in our study was HTA (45.09), the same finding was made by Liatakis et al in 2019.

The main reason for consultation was hemiplegia followed by disturbed consciousness and cardiac arrhythmia. The combination of these signs was often encountered in severe ischemic stroke.

This result can be explained by the existence of risk factors such as hypertension and others that can aggravate the clinical picture.

Almost half (40.09) of our patients had a mean NIHSS score on admission of 17.9 ± 3.2. This result is identical to that of Steger C et al in England.

In our study, the CHA2DS2-VASc score was 94.9% high and ≥ 2 indicating a high risk of thromboembolism, necessitating the introduction of Rivaroxaban in 76.72% of cases.

In addition, 73% of patients in our study had a low risk of bleeding (HAS-BLED score), suggesting safer initiation of anticoagulant therapy.

Conclusion

The systematic search for atrial fibrillation in all elderly hypertensive subjects during cardioembolic cerebral infarctions is essential to improve morbidity and mortality by introducing primary preventive treatment.

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