Clinical case: atrial fibrillation

A. Moustaghfir MD

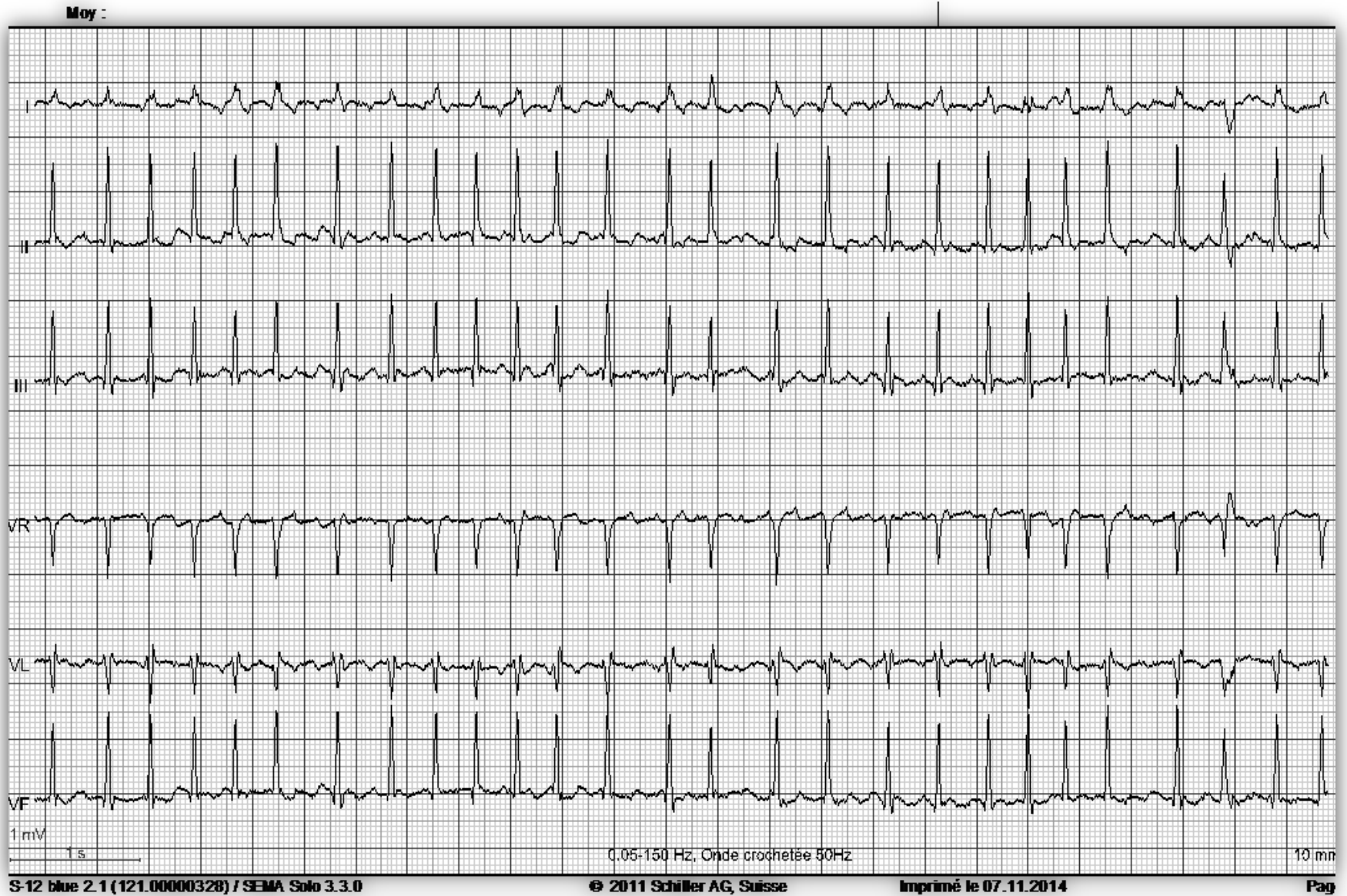Casablanca

A H, Women. 64 years old

No cardiovascular risk factors: diabetes, hypertension,

Consults for palpitations since one week, without any syncope

AP: 135/80 mmHg

Clinical examination: fast irregular rhythm, no signs of heart failure

ECG on admission

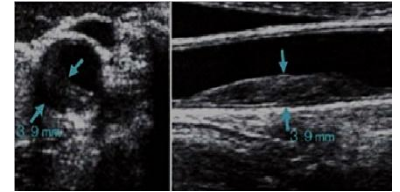# Tranthoracic echocardiography

Good Left ventricular

LA surface: 26 cm2

No pulmonary hypertension

valvular heart valves normal but reworked

No pericardial effusion

Other tests

Systematic Echocardiography TSA: plaque at the left carotid bulb: 50%

Serum creatinine : 22 mg/l without antecedents of any kidney disease

creatinine clearance (CrCl): 47 mL/min

Serum electrolytes, hepatic balance : normal

Hemostasis, Blood count: normal

What's the risk of thromboembolism in this clinical case?

1. Important

2. Way

3. Low

4. Very weak

What's the CHA_2DS_2-VASc score?

Score= 0

Score = 1 or 2

In this acute acess : Which antithrombotic treatment?

1. HPM

2. AVK

3. Oral anticoagulants direct

4. Aspirin

5. Clopidogrel

Wich antiarrhythmic treatment given?

1. Amiodarone intra-venous

2. Amiodarone oral

3. Flecaine intra-venous

4. Flecainide oral

5. Sotalol

6. None of the treatments above

CHA$_2$DS$_2$-VASc score

Congestive heart failure Signs/symptoms of heart failure or objective evidence of reduced left-ventricular ejection fraction	+1
Hypertension Resting blood pressure >140/90 mmHg on at least two occasions or current antihypertensive treatment	+1
Age 75 years or older	+2
Diabetes mellitus Fasting glucose >125 mg/dL (7 mmol/L) or treatment with oral hypoglycaemic agent and/or insulin	+1
Previous stroke, transient ischaemic attack, or thromboembolism	+2
Vascular disease Previous myocardial infarction, peripheral artery disease, or aortic plaque	+1
Age 65–74 years	+1
Sex category (female)	+1

Atrial fibrillation and Gender

Female sex does not appear to increase stroke risk in the absence of other stroke risk factors [1,2].

Recommendations	Class[a]	Level[b]
Oral anticoagulation therapy to prevent thromboembolism is recommended for all male AF patients with a CHA_2DS_2-VASc score of 2 or more.	I	A
Oral anticoagulation therapy to prevent thromboembolism is recommended in all female AF patients with a CHA_2DS_2-VASc score of 3 or more.	I	A

1. Mikkelsen AP, Lindhardsen J, Lip GY, Gislason GH, Torp-Pedersen C, Olesen JB. Female sex as a risk factor for stroke in atrial fibrillation: a nationwide cohort study. J Thromb Haemost 2012;10:1745 – 1751.

2. Wagstaff AJ, Overvad TF, Lip GY, Lane DA. Is female sex a risk factor for stroke and thromboembolism in patients with atrial fibrillation? A systematic review and meta-analysis. QJM 2014;107:955 – 967.

Left atrium size and atrial fibrillation

The LA size is a powerful prognostic marker in atrial fibrillation, stroke, myocardial infarction, mitral insufficiency [1].

The LA expansion is also a marker of seniority of the FA and severity of diastolic dysfunction [2].

1. TSANG TS, BARNES ME, GERSH BJ et al. Left atrial volume as a mor- phopysiologic expression of left ventricular dysfunction and rela- tion to cardiovascular risk burden. Am J Cardiol, 2002; 90: 1 284-90.
2. . CASACLANG-VERZOSA G, GERSH BJ, TSANG TS. Structural and functio- nal remodeling of the left atrium : clinical and therapeutic implica- tions for atrial fibrillation. J Am Coll Cardiol, 2008; 51: 1-11.

Left Atrial appendage

Usefulness of Left Atrial Appendage Volume as a Predictor of Embolic Stroke in Patients With Atrial Fibrillation

Lance D Burrell, MS*, Benjamin D. Horne, PhD, Jeffrey L. Anderson, MD, J. Brent Muhlestein, MD, and Brian K. Whisenant, MD

Stroke prevention in atrial fibrillation (AF) is guided by clinical factors with inadequate predictive power. Most thrombi observed in AF are observed in the left atrial appendage (LAA). This study was designed to determine (1) the association between LAA and the incidence of AF-related stroke and (2) the power of LAA to predict stroke. Patients (n = 48) with a history of AF and stroke were compared with control subjects (n = 48) with a history of AF but no history of stroke. Magnetic resonance images from both case and control populations were manually segmented to determine LAA volume. Patients with a history of stroke had larger LAA mean volumes than control subjects (28.8 ± 13.5 cm^3 vs 21.7 ± 8.27 cm^3, p = 0.002). Stroke risk is highest in patients with a LAA volume >34 cm^3 (multi-variable OR 7.11, p = 0.003). In conclusion, larger LAA volume is associated with stroke in the setting of AF, and this measure can potentially improve risk stratification for stroke risk management in AF patients. © 2013 Elsevier Inc. All rights reserved. (Am J Cardiol 2013;112:1148−1152)

Stroke Risk Factors Beyond the CHA$_2$DS$_2$-VASc Score: Can We Improve Our Identification of "High Stroke Risk" Patients With Atrial Fibrillation?

Filip M. Szymanski, MD[a,*], Gregory Y.H. Lip, MD[b,c], Krzysztof J. Filipiak, MD[a], Anna E. Platek, MD[a], Anna Hrynkiewicz-Szymanska, MD[d], and Grzegorz Opolski, MD[a]

The prevention of stroke and other thromboembolic events plays a crucial role in the management of patients with atrial fibrillation. Not all patients with atrial fibrillation are equal in terms of thromboembolic risk; therefore, not all will benefit from oral anticoagulation treatment. The general principle is that the expected benefit of anticoagulation in reduction of thromboembolic risk must exceed the expected harm caused by possible bleeding. Some guidelines have focused on a categorical approach to stroke prevention, with a focus on identifying patients at high risk for oral anticoagulation. Various current guidelines recommend assessment of stroke risk using the CHADS$_2$ or CHA$_2$DS$_2$-VASc scores to initially detect patients at low risk who require no antithrombotic therapy. However, the scores do not incorporate all possible risk factors causing a high thromboembolic risk. Factors such as impaired renal function, obstructive sleep apnea, and echocardiographic and biochemical or coagulation parameters can also predict adverse thromboembolic events. The present review aims to describe biomarkers whether blood, urine, imaging (cardiac or cerebral), or clinical that go beyond the CHA$_2$DS$_2$-VASc score and potentially aid stroke risk assessment. Although useful in some cases, the presented parameters should be perhaps used to further refine initial identification of patients at low risk, after which effective stroke prevention can be offered to those with ≥1 additional stroke risk factors.   © 2015 Elsevier Inc. All rights reserved. (Am J Cardiol 2015;116:1781−1788)
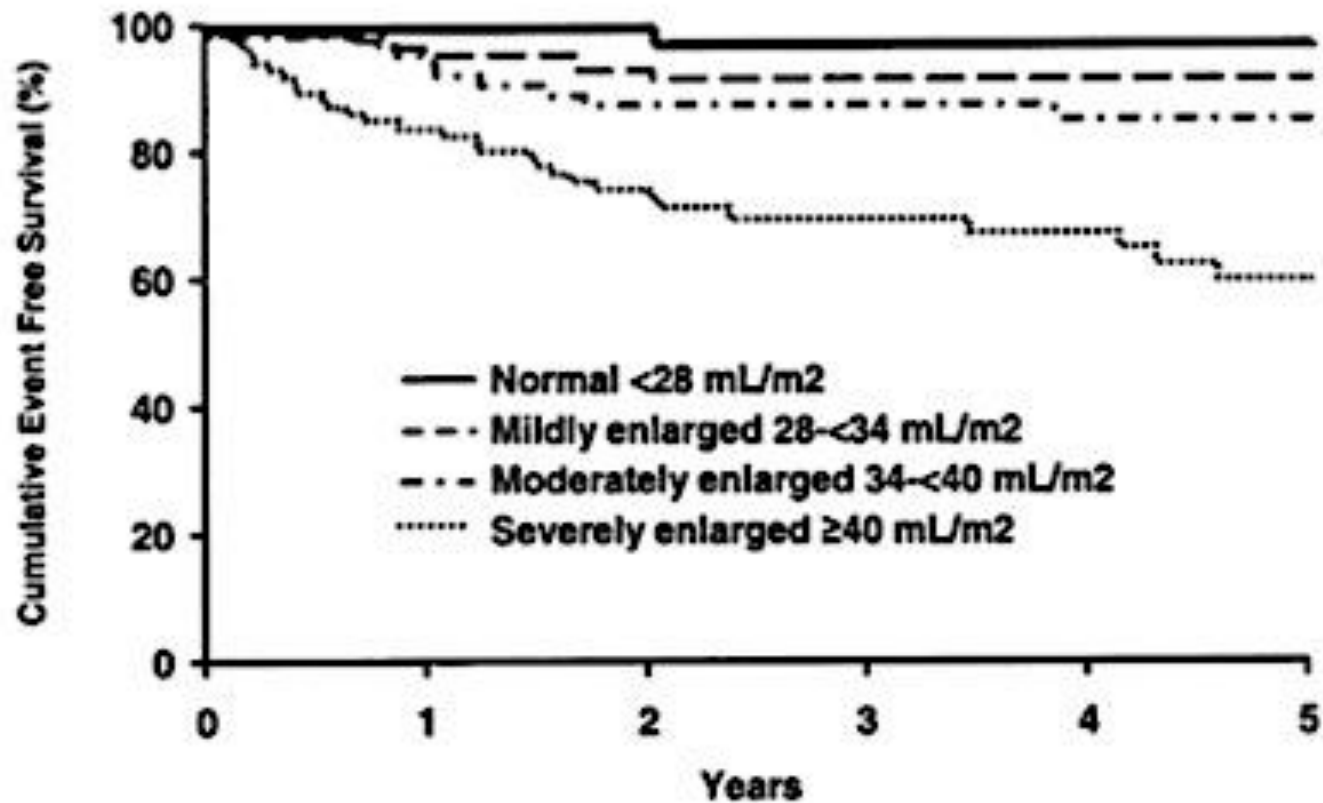
Figure 2. Graded relationship between Kaplan-Meier cumulative event-free survival and categorical increment of indexed left atrial (LA) volume.

Diagnosing Paroxysmal Atrial Fibrillation in Patients With Ischemic Strokes and Transient Ischemic Attacks Using Echocardiographic Measurements of Left Atrium Function

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Twenty-five to 35 percentage of stroke cases are cryptogenic, and it has been demonstrated that paroxysmal atrial fibrillation (AF) is the causal agent in up to 25% of these incidents. The purpose of this study was to investigate if left atrial (LA) parameters have value for diagnosing paroxysmal AF in patients with ischemic stroke (IS) and transient ischemic attack (TIA). We retrospectively analyzed 219 patients who after acute IS or TIA underwent a transthoracic echocardiographic examination. Patients were designated as patients with paroxysmal AF if they had one or more reported incidents of AF before or after their echocardiographic examination. Patients in the paroxysmal AF group were significantly older and had higher CHA_2DS_2-VASc score than patients without paroxysmal AF (p <0.05 for both). None of the conventional echocardiographic parameters were significantly associated with paroxysmal AF. However, the atrial measurements evaluating LA function (min LA volume and LA emptying fraction) were significantly different (LA emptying fraction: 45% ± 10% vs 50% ± 10%, p = 0.004; minimal LA volume: 30.2 ml ± 17.3 ml vs 24 ml ± 10 ml, p = 0.035 in patients with paroxysmal AF, even after adjustment for age, gender, CHA_2DS_2-VASc score, and stroke severity [p <0.05 for both]). By combining the cut-off values of age, LA emptying fraction, and minimal LA volume the diagnostic accuracy of paroxysmal AF was improved, resulting in a sensitivity of 95% and negative predictive value of 97%. In conclusion, in patients with IS and TIA, LA function measurements (minimal LA volume and LA emptying fraction) are independently associated with paroxysmal AF and may improve risk stratification for paroxysmal AF presence after IS or TIA. © 2016 Elsevier Inc. All rights reserved. (Am J Cardiol 2016;117:91—99)

Kideney Disease and atrial fibrillation

AF and Kidney disease: 15 à 20% [1]

Mortality:

AF : 23%

Sinusal R : 6%

Stroke:

AF : 35%

Sinusal R: 4%

1. Manisha DA et all. Cardiology in Review. 2006;14: 14-17
2. Vazquez E et al. Am Heart J. 2000;140:886-90.
3. Kocheril AG. Semin Nephrol 2001; 57-65.

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Conclusion

CHA_2DS_2-VASc = 0 or 1?
Female before 65 years?

Two situations are not uncommon but difficult to manage

What is the impact of asymptomatic arterial injury?

Kidney disease, atrial size ?

This patient

VKA after 3 days of HPM, Bisoprolol 5 mg oral per day
After six weeks:
sinusal rythm got with amiodarone Then
VKA,
flecainide oral 50 mg twice day
And Bisoprolol oral 2,5 mg
nephrology specialist supervision