ECOCARDIOCHIRURGIA 2014

Milano 5-7 maggio 2014

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Utilizzo delle indagini strumentali nella diagnosi e nella stratificazione del rischio embolico della FA.

Quando un impiego ragionato delle tecniche strumentali disponibili può fare fa differenza

G Corrado, FANMCO, FESC
Unità Operativa di Cardiologia
Ospedale Valduce – Como (IT)

H. Valduce 1879

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CONFLITTI D'INTERESSI: NESSUNO

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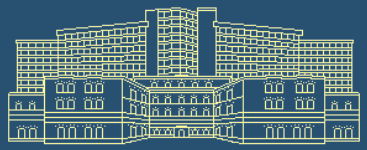

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FA: PREVALENZA

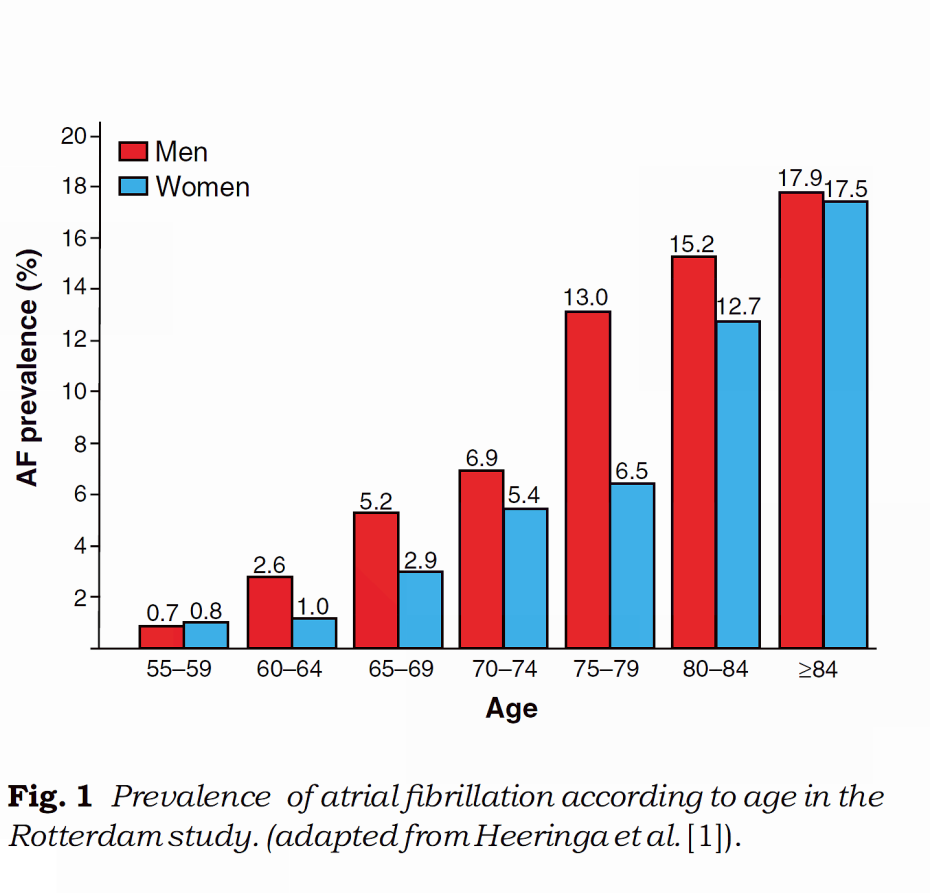


Fig. 1 *Prevalence of atrial fibrillation according to age in the Rotterdam study. (adapted from Heeringa et al.* [1]).

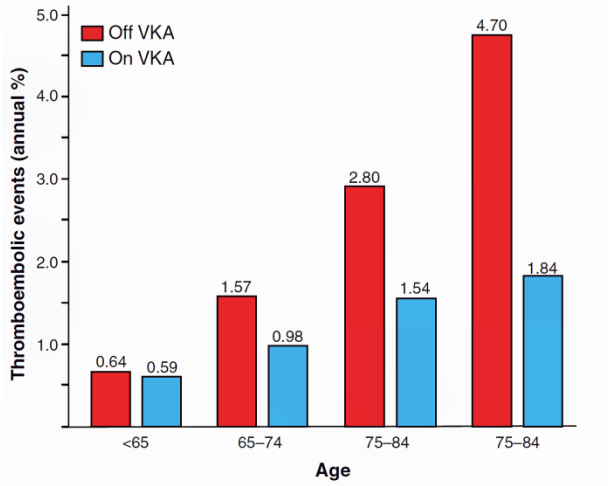


Fig. 2 *Rates (annual rate/100) of thromboembolic events per age (adapted from Singer et al.* [7]).

Review
Journal of INTERNAL MEDICINE
doi: 10.1111/j.1365-2796.2011.02464.x

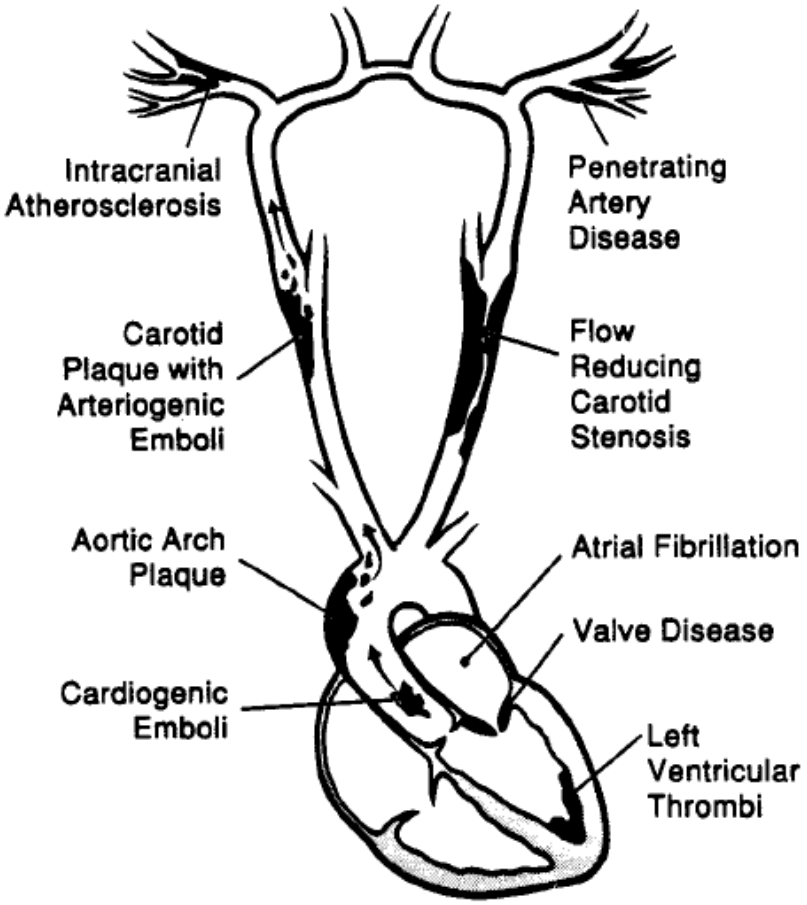
Stroke prevention in elderly patients with atrial fibrillation: challenges for anticoagulation

P. R. Sinnaeve[1], M. Brueckmann[2], A. Clemens[2], J. Oldgren[3], J. Eikelboom[4] & J. S. Healey[4]

From the [1]Department of Cardiovascular Medicine, University Hospitals Leuven, Leuven, Belgium, [2]Boehringer Ingelheim, Global Clinical Development and Medical Affairs, Ingelheim am Rhein, Germany, [3]Uppsala Clinical Research Centre and Department of Medical Sciences, Uppsala University, Uppsala, Sweden, and [4]Population Health Research Institute, Hamilton, Canada

FA E RISCHIO EMBOLICO

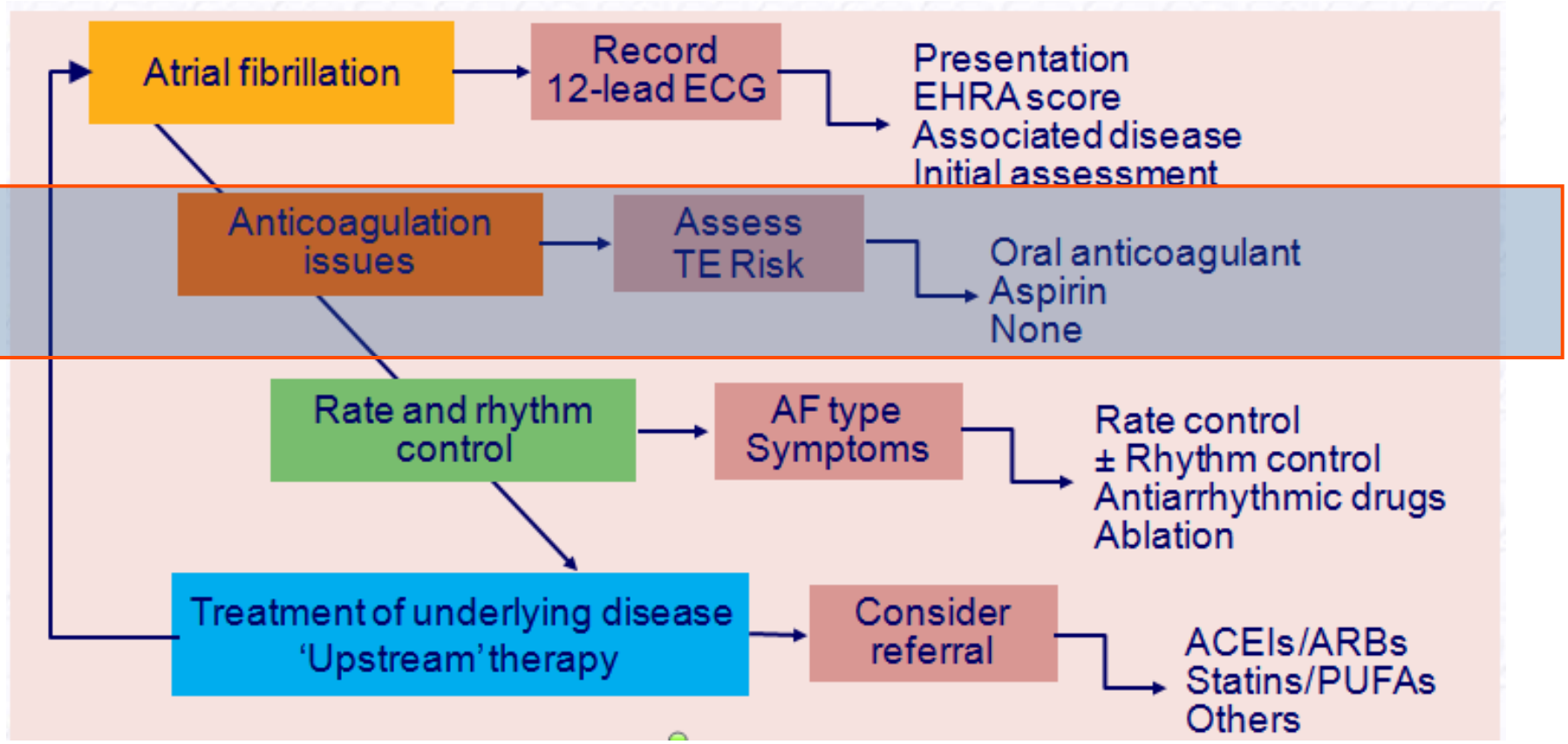
The most frequent sites of arterial and cardiac abnormalities causing ischemic stroke.



CHEST 2004; 126:483S–512S

AF increases of stroke risk 4-5 fold

FA E RISCHIO EMBOLICO



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European Heart Journal (2010) 31, 2369-2429

PERCHE' LA TAO FUNZIONA NELLA FA

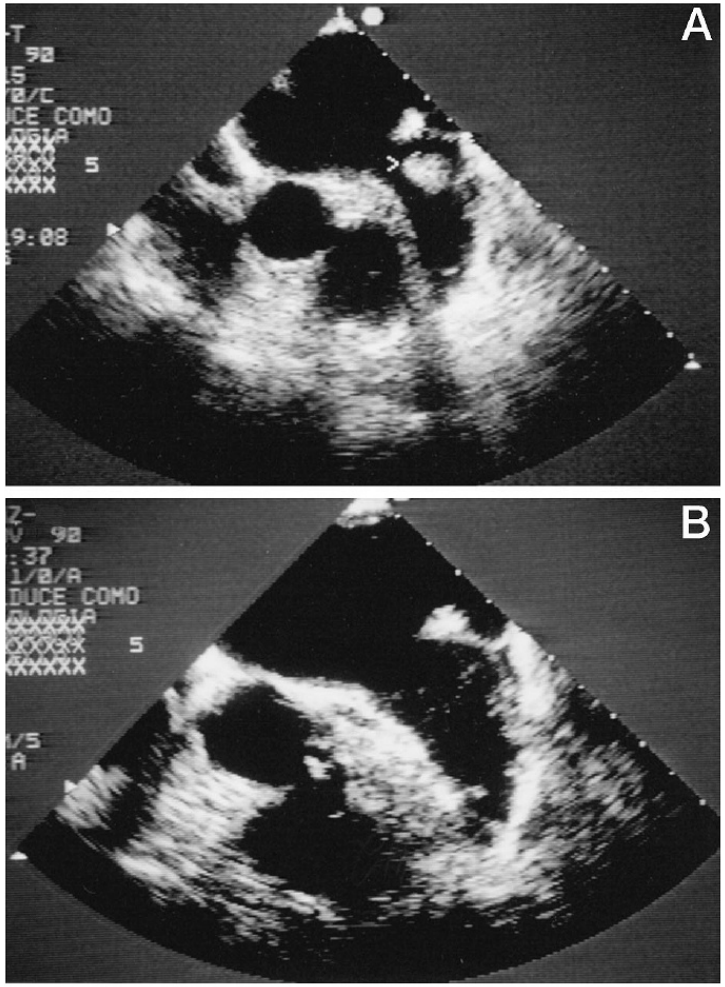

FIGURE 1. TEEs (horizontal plane) of the left atrium and left atrial appendage (patient No. 4 of the table). Panel A shows the left atrium and appendage in a 60-year-old woman affected by mitral stenosis and aortic regurgitation. The duration of atrial fibrillation was unknown. Note the pedunculated thrombus (white arrow) at the mouth of left atrial appendage. Panel B shows the same patient after 4 weeks of warfarin. The thrombus had completely resolved. Scant spontaneous echocontrast can be seen in left atrial appendage.

Atrial Thrombi Resolution After Prolonged Anticoagulation in Patients With Atrial Fibrillation*

A Transesophageal Echocardiographic Study

Giovanni Corrado, MD; Giorgio Tadeo, MD; Sandro Beretta, MD; Luca Mario Tagliagambe, MD; Giovanni Foglia Manzillo, MD; Manuela Spata, MD; and Mauro Santarone, MD

Background: **Cardioversion of atrial fibrillation in nonanticoagulated patients may be associated with clinical thromboembolism. Prolonged anticoagulation with warfarin before cardioversion of atrial fibrillation produces a marked reduction of cardioversion-related thromboembolism. The benefit of anticoagulant therapy is generally believed to be due to atrial thrombi organization.**
Patients and methods: **Transesophageal echocardiography (TEE) is highly accurate for diagnosis of atrial thrombi and gives the possibility to serially evaluate the effects of anticoagulant therapy. One hundred twenty-three patients with atrial fibrillation lasting longer than 2 days underwent TEE before cardioversion. An atrial thrombus was identified in 11 patients (9%), and was always confined to the left atrial appendage. TEE was repeated after a median of 4 weeks of oral warfarin. Atrial thrombus had completely resolved in 9 of 11 patients (81.8%; 95% CI, 48.2 to 97.7%); in two patients, clot was still present. No patient had clinical thromboembolism between the two TEE studies.**
Conclusions: **In the population of our study, a prolonged course of warfarin therapy was associated with resolution of atrial thrombi in the majority of patients. According to these data, the mechanism of thromboembolism reduction with 4 weeks of anticoagulation before cardioversion in patients with atrial fibrillation seems to be related mainly to thrombus lysis rather than organization. Due to the possibility of thrombus persistence even after prolonged anticoagulation, follow-up with TEE before cardioversion is necessary to document thrombus resolution.**
(CHEST 1999; 115:140–143)

Key words: anticoagulation; echocardiography; fibrillation

Abbreviations: AF = atrial fibrillation; TEE = transesophageal echocardiography; TTE = transthoracic echocardiography

STRATIFICAZIONE DEL RISCHIO TROMBOEMBOLICO

Major risk factors
Previous stroke
TIA or systemic embolism
Age ≥ 75 years

Clinically relevant non-major risk factors
CHF or moderate to severe LV systolic dysfunction [e.g. LV EF ≤ 40%]
Hypertension
Diabetes mellitus
Age 65-74 years
Female sex
Vascular disease

AF= atrial fibrillation; EF = ejection fraction (as documented by echocardiography, radionuclide ventriculography, cardiac catheterization, cardiac magnetic resonance imaging, etc.); LV = left ventricular; TIA = transient ischaemic attack.

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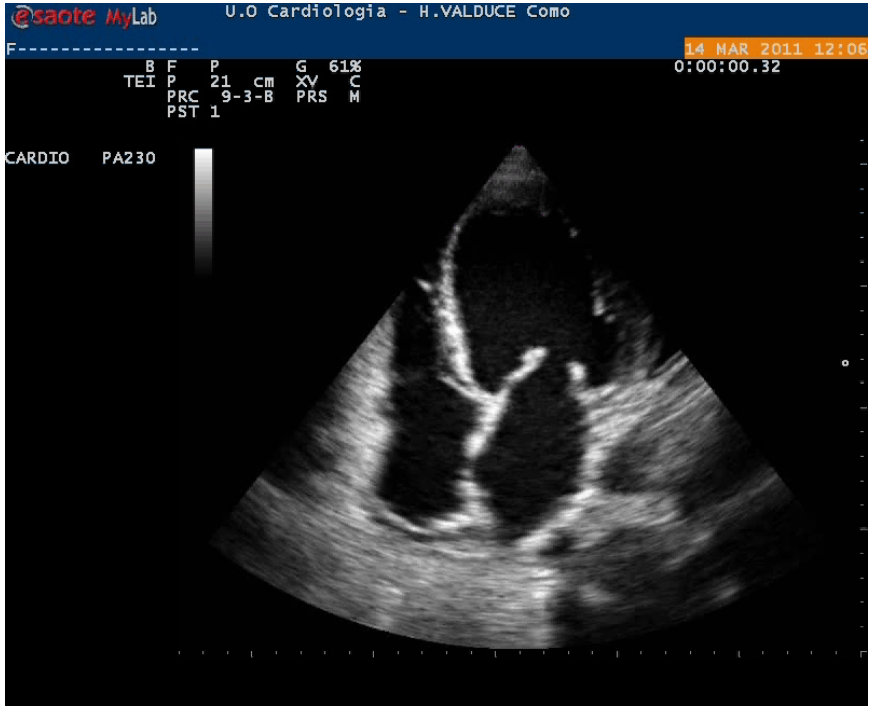
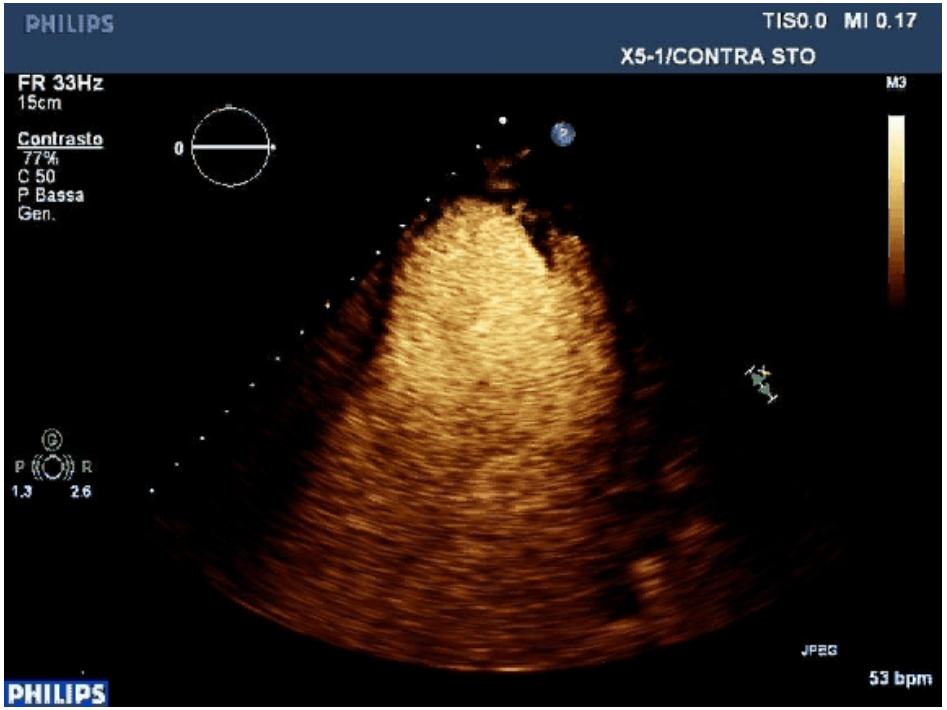
European Heart Journal (2010) 31, 2369-2429

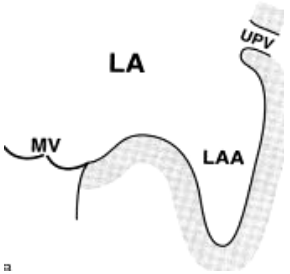
ECOCARDIOGRAFIA





La stima della FE è l'unico contributo dell'imaging nella FA ?

TROMBOSI AS/AuS



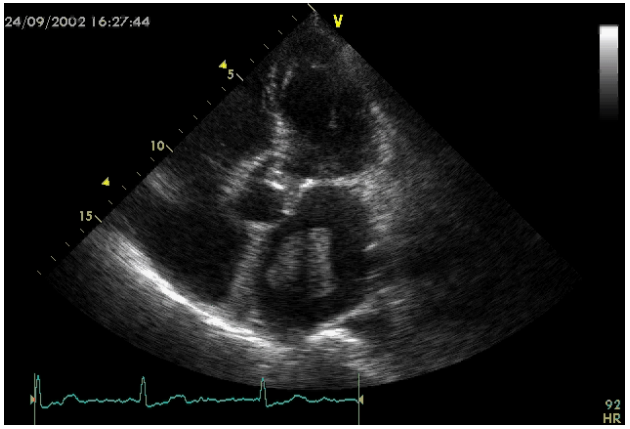
- Trombo: massa ecoriflettente circoscritta, con caratteristiche diverse dalla parete atriale [1]
- L'ETE è metodica accurata nella diagnosi di trombosi atriale sinistra [2]

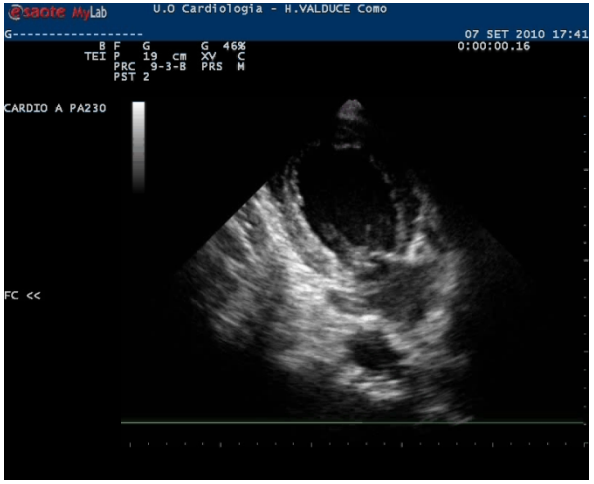
Sensibilità	100%
Specificità	99%
Valore predittivo positivo	86%
Valore predittivo negativo	100%

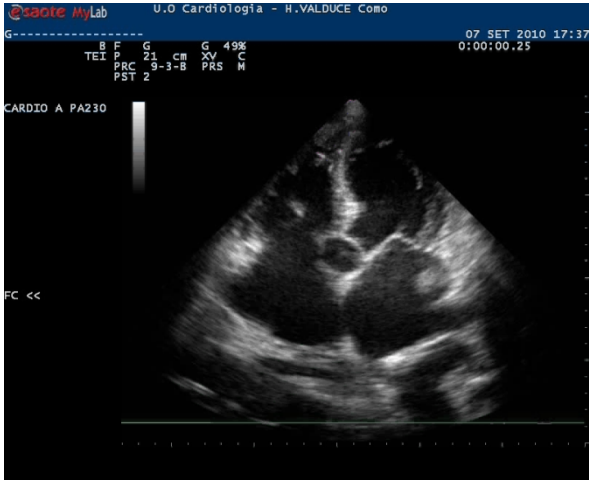
1. Seward JB, et al. Critical appraisal of transesophageal echocardiography: limitations, pitfalls, and complications. *J Am Soc Echocardiogr.* 1992;5:288.

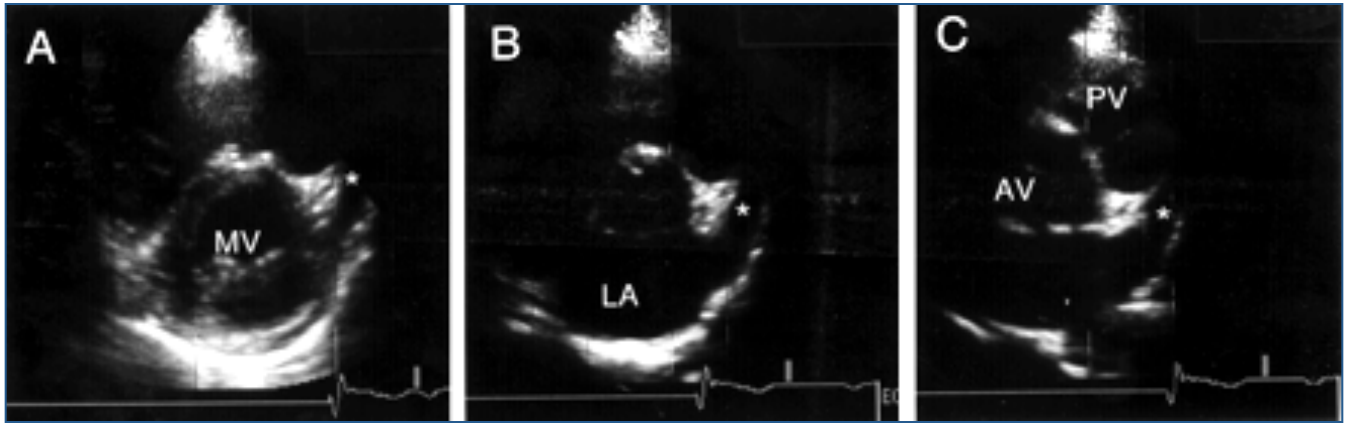
2. Manning W.J. et al., Accuracy of transesophageal echocardiopraphy for identifying left atrial thrombi. A prospective intraoperative study. Ann Int Med 1995;123:817.

TROMBOSI AS/AuS: ETE vs ETT



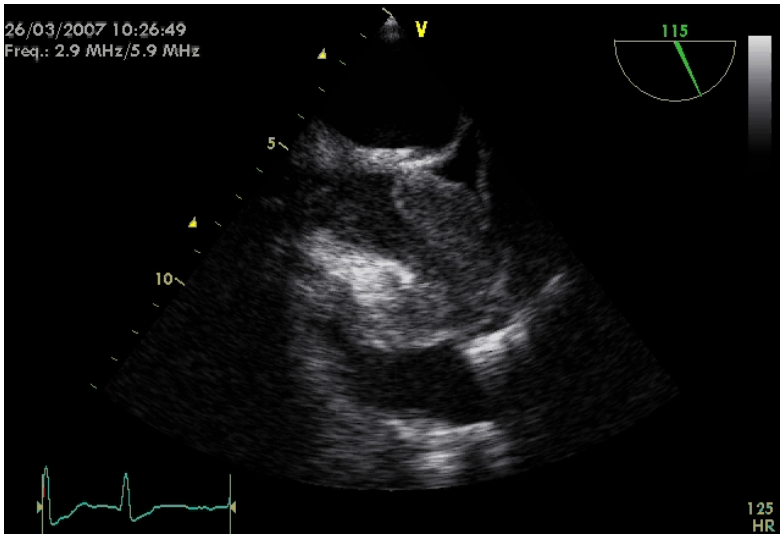


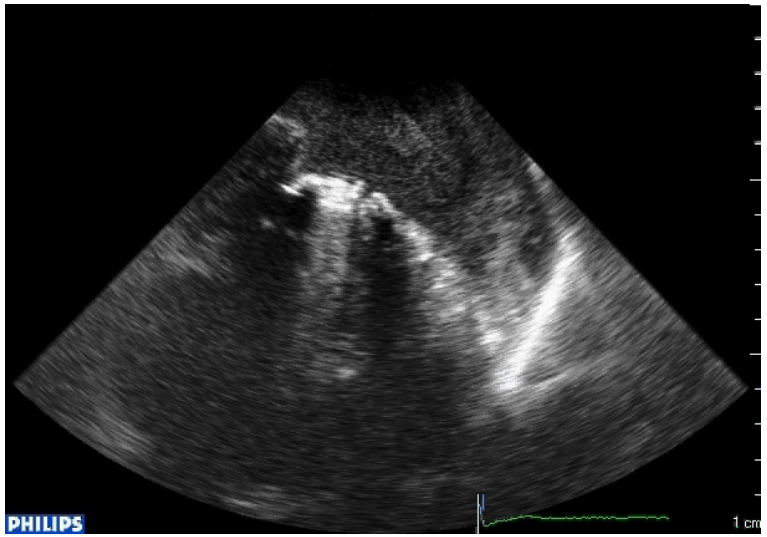




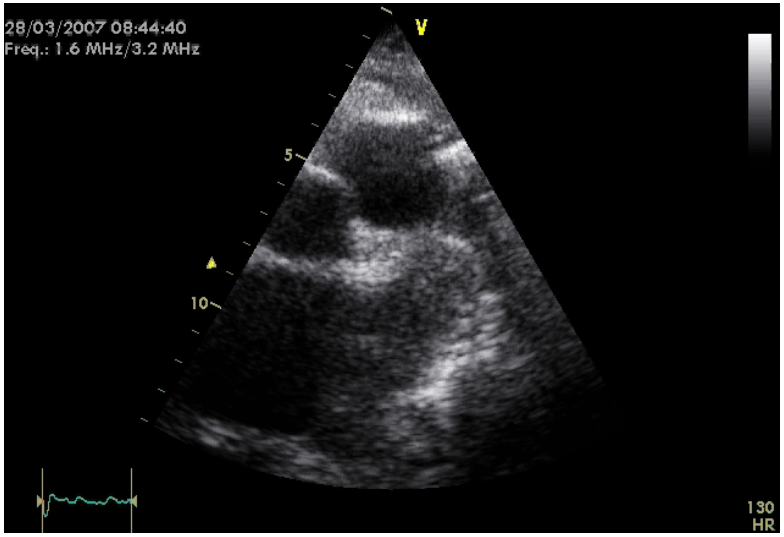
Herzog CA et al. Two-dimensional echocardiographic imaging of left atrial appendage thrombi. *J Am Coll Cardiol* 1984;3:1340.

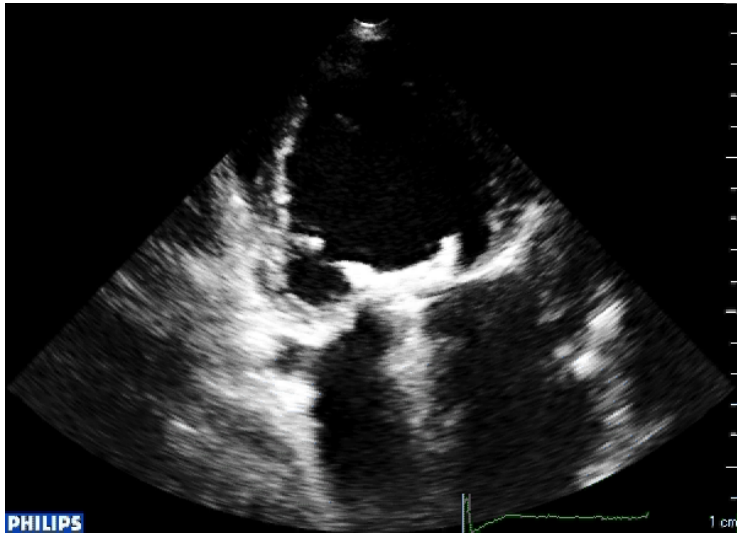
TROMBOSI AS/AuS: ETE vs ETT





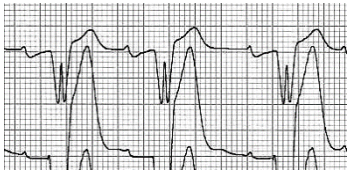
ETE

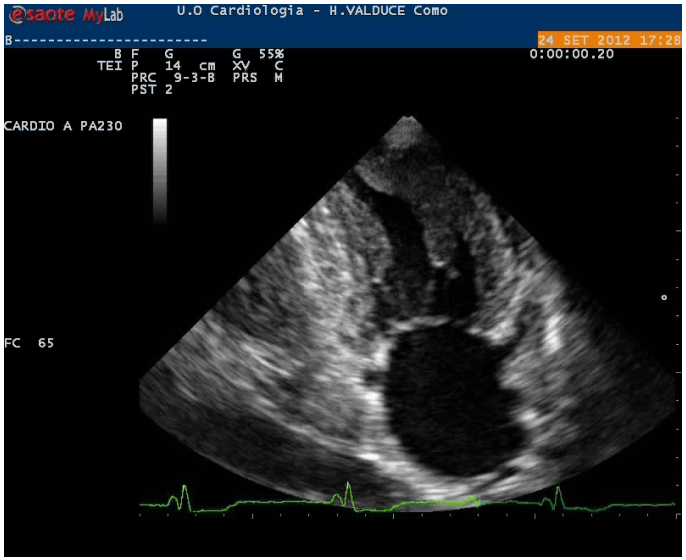


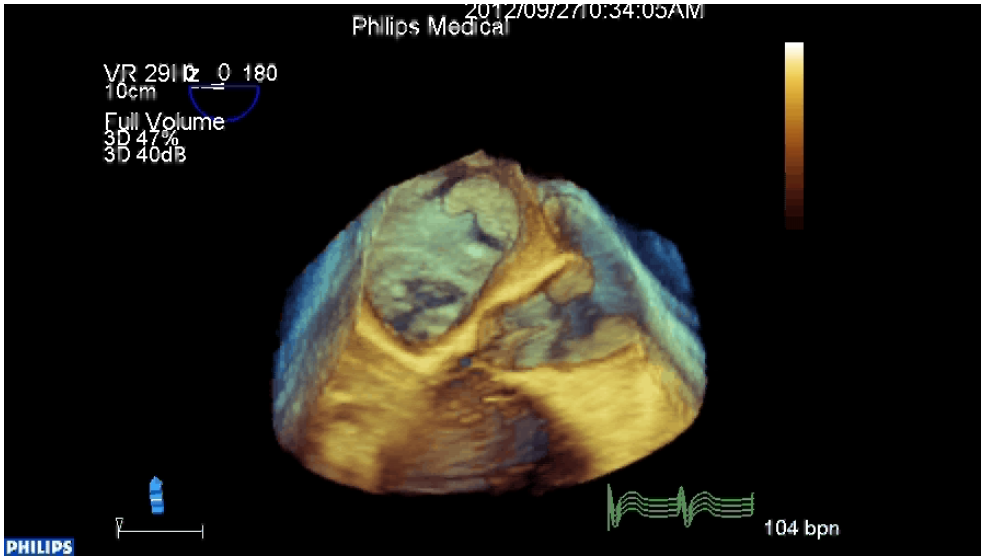


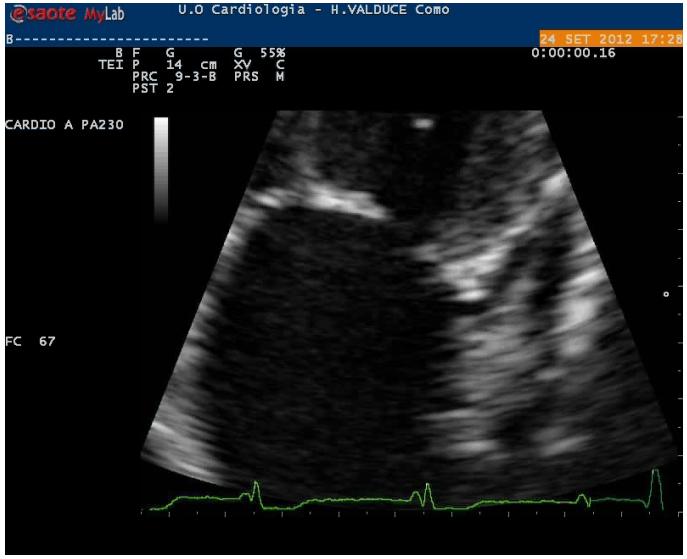
ETT

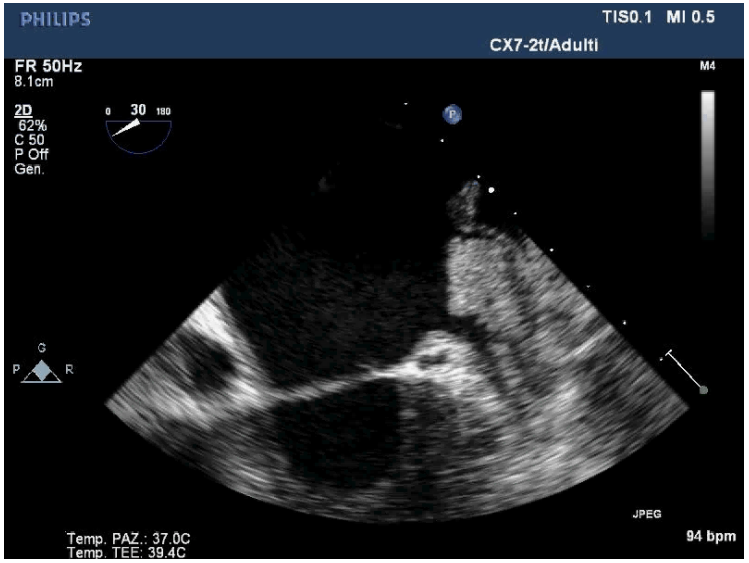
TROMBOSI AS/AuS: ETE vs ETT

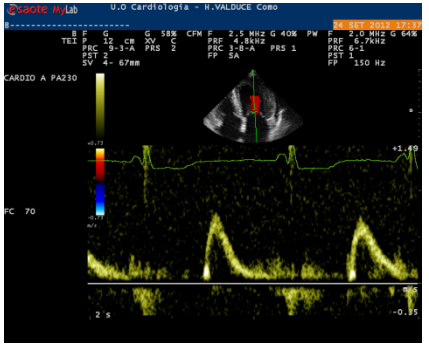






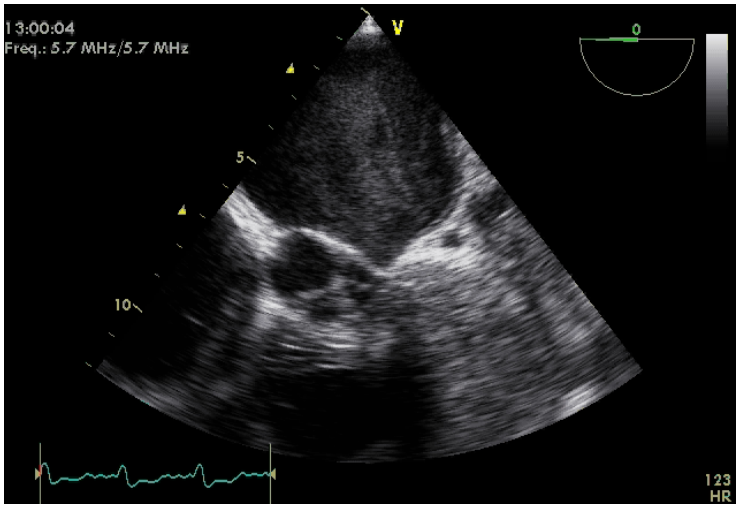




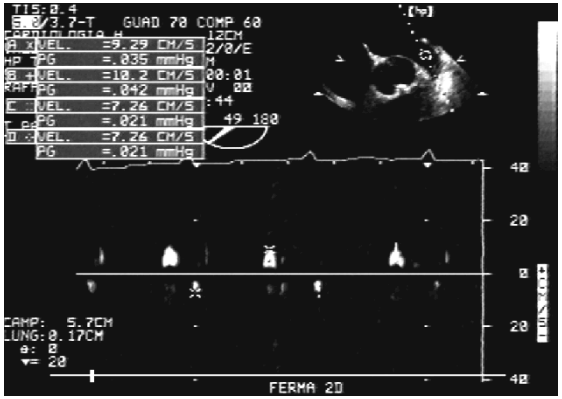


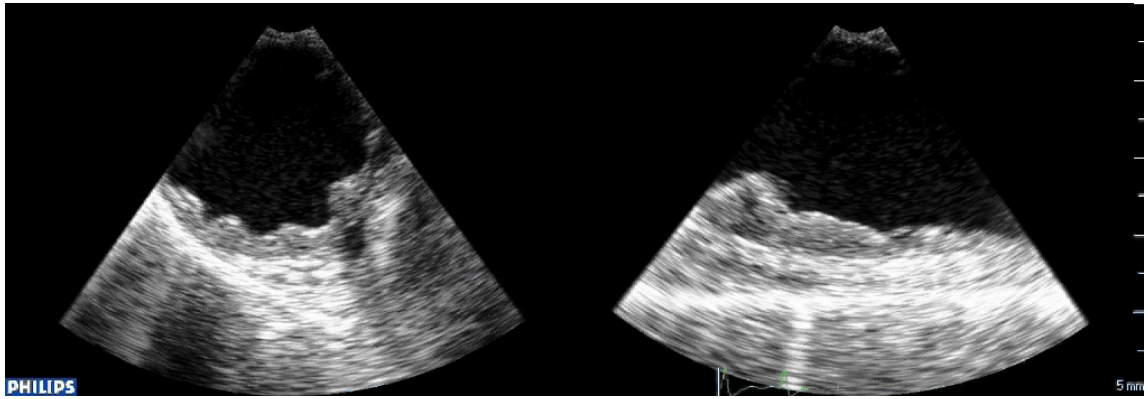
MARKERS ETE DI ALTO RISCHIO TE

- Trombosi AuS
- ECS denso
- Vel max Aus ≤ 20 cm/sec
- Placche aortiche complesse



SPAF III JACC 1998





FATTORI DI RISCHIO TE CLINICI ED ECO

CARDIOVASCULAR MEDICINE

Atrial fibrillation: relation between clinical risk factors and transoesophageal echocardiographic risk factors for thromboembolism

S Illien, S Maroto-Järvinen, G von der Recke, C Hammerstingl, H Schmidt, S Kuntz-Hehner, B Lüderitz, H Omran

Heart 2003;**89**:165–168

Objective: To correlate clinical risk factors for thromboembolism with transoesophageal echocardiography (TOE) markers of a thrombogenic milieu.
Design: Clinical risk factors for thromboembolism and TOE markers of a thrombogenic milieu were assessed in consecutive patients with non-rheumatic atrial fibrillation. The following TOE parameters were assessed: presence of spontaneous echo contrast, thrombi, and left atrial appendage blood flow velocities. A history of hypertension, diabetes mellitus, or thromboembolic events, patient age > 65 years, and chronic heart failure were considered to be clinical risk factors for thromboembolism.
Setting: Tertiary cardiac care centre.
Patients: 301 consecutive patients with non-rheumatic atrial fibrillation scheduled for TOE.
Results: 255 patients presented with clinical risk factors. 158 patients had reduced left atrial blood flow velocities, dense spontaneous echo contrast, or both. Logistic regression analysis showed that a reduced left ventricular ejection fraction and age > 65 years were the only independent predictors of a thrombogenic milieu (both $p < 0.0001$). The probability of having a thrombogenic milieu increased with the number of clinical risk factors present ($p < 0.0001$). 17.4% of the patients without clinical risk factors had a thrombogenic milieu whereas 41.2% of the patients presenting one or more clinical risk factors had none.
Conclusion: There is a close relation between clinical risk factors and TOE markers of a thrombogenic milieu. In addition, TOE examination allows for the identification of patients with a thrombogenic milieu without clinical risk factors.

See end of article for authors' affiliations

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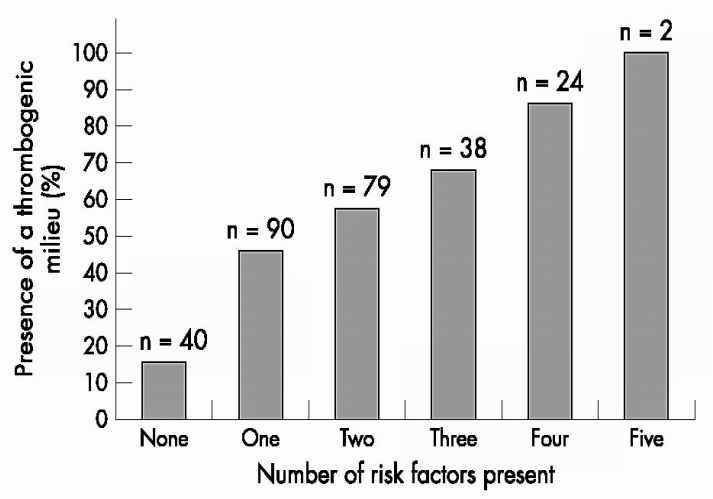
Accepted 2 October 2002

2003



- **There is a close relation between clinical risk factors and TEE markers of a thrombogenic milieu.**

Nevertheless……

- **TEE allows for the identification of patients with a thrombogenic milieu without clinical risk factors (17%).**

FATTORI DI RISCHIO TE CLINICI ED ECO

Utility of Transesophageal Echocardiography in Identification of Thrombogenic Milieu in Patients With Atrial Fibrillation (an ACUTE Ancillary Study)

Senthil K. Thambidorai, MD[a], R. Daniel Murray, PhD[a], Kapil Parakh, MD[a], Tushar K. Shah, MD[a], Ian W. Black, MD[c], Susan E. Jasper, RN, BSN[a], Jianbo Li, PhD[b], Carolyn Apperson-Hansen, Mstat[b], Craig R. Asher, MD[a], Richard A. Grimm, DO[a] and Allan L. Klein, MD[a,*], for the ACUTE Investigators[†]

2005

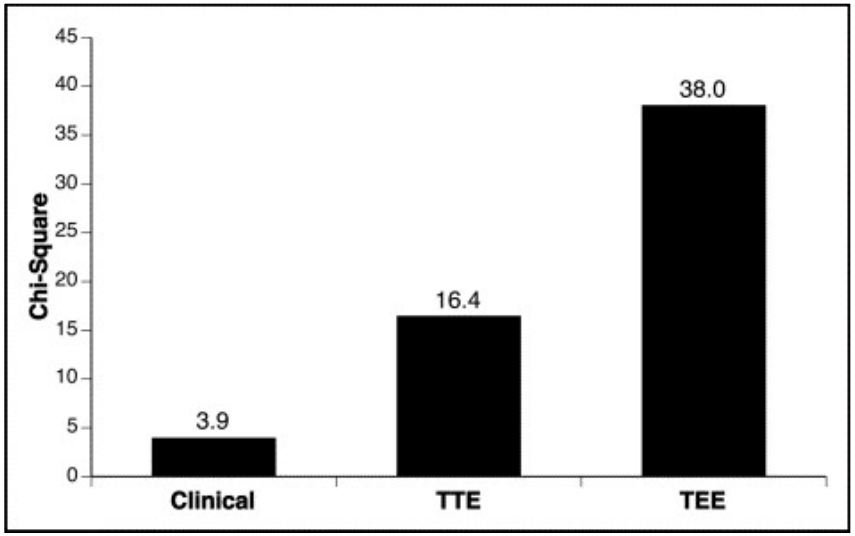


Figure 2. Chi-square and incremental value of clinical examination ($p > 0.05$), transthoracic echocardiography (TTE) ($p < 0.01$), and TEE ($p < 0.001$) from the full model show that TEE had the most significant incremental value in predicting a thromboembolic milieu (patients who had thrombi and a patient who had an embolic event, n = 85).

- **Clinical, TTE, and TEE RF contributed significantly to the prediction of composite thrombus/embolism.**
- **However, TEE thromboembolic RF were the strongest predictors of TE and provided statistically significant incremental value (chi-square 38.0, p <0.001) for identification of risk.**

ALCUNE AURICOLE SEMBRANO PIÙ EMBOLIGENE DI ALTRE

Journal of the American College of Cardiology
© 2012 by the American College of Cardiology Foundation
Published by Elsevier Inc.
Vol. 60, No. 6, 2012
ISSN 0735-1097/$36.00
http://dx.doi.org/10.1016/j.jacc.2012.04.052

Atrial Fibrillation

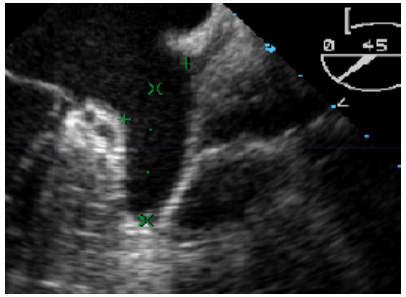
Does the Left Atrial Appendage Morphology Correlate With the Risk of Stroke in Patients With Atrial Fibrillation?

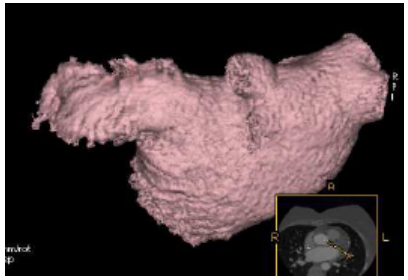
Results From a Multicenter Study

Luigi Di Biase, MD, PhD,*†‡ Pasquale Santangeli, MD,*‡ Matteo Anselmino, MD, PhD,§ Prasant Mohanty, MBBS, MPH,* Ilaria Salvetti, MD,§ Sebastiano Gili, MD,§ Rodney Horton, MD,* Javier E. Sanchez, MD,* Rong Bai, MD,* Sanghamitra Mohanty, MD,* Agnes Pump, MD,* Mauricio Cereceda Brantes, MD,* G. Joseph Gallinghouse, MD,* J. David Burkhardt, MD,* Federico Cesarani, MD,‖ Marco Scaglione, MD,¶ Andrea Natale, MD,*† Fiorenzo Gaita, MD§

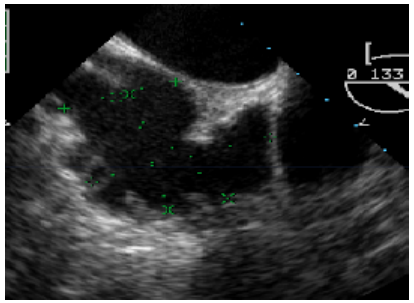
Austin, Texas; and Foggia, Turin, and Asti, Italy

The Wind Sock

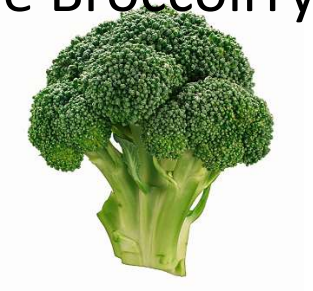


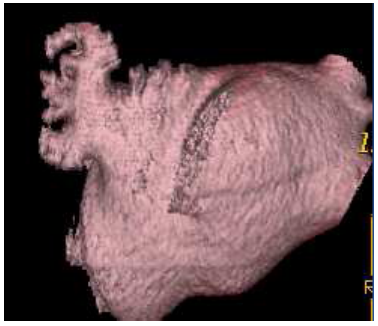


The Chicken Wing



The BroccoliType





2012

ALCUNE AURICOLE SEMBRANO PIÙ EMBOLIGENE DI ALTRE

Multivariate analysis revealed CHADS2 score (P=0.002), LVEF (P=0.01), degree of spontaneous echo contrast (P=0.02), left atrial volume (P=0.02), and number of LAA lobes (P<0.001) to be independently associated with thrombus formation. independently of clinical risk and blood stasis.

Table 3. Univariate and Multivariate Analysis for Presence of LAA Thrombus

	Univariate		Multivariate	
Variable	**OR (95% CI)**	**p Value**	**OR (95% CI)**	**p Value**
AF type (Non-paroxysmal AF)	4.785 (2.26-10.10)	<0.001		0.41
$CHADS_2$ score	1.915 (1.486-2.467)	<0.001	1.752 (1.237-2.483)	0.002
Degree of spontaneous echo contrast	3.128 (2.262-4.326)	<0.001	1.783 (1.102-2.740)	0.02
Left ventricular ejection fraction (%)	0.935 (0.914-0.956)	<0.001	0.962 (0.934-0.992)	0.01
LA volume (ml)	1.031 (1.021-1.041)	<0.001	1.018 (1.003-1.032)	0.02
LAA emptying velocity (cm/s)	0.947 (0.925-0.970)	<0.001		0.60
LAA volume (ml)	1.038 (1.007-1.070)	0.02		0.86
Number of LAA lobes	3.318 (2.179-5.052)	<0.001	2.469 (1.495-4.078)	<0.001

2014

Complex Left Atrial Appendage Morphology and Left Atrial Appendage Thrombus Formation in Patients With Atrial Fibrillation Yamamoto et al: *Circ Cardiovasc Imaging. 2014;7:337-343, published online before print February 12 2014, doi:10.1161/CIRCIMAGING.113.001317*

ATRIO SINISTRO

European Heart Journal (2005) 26, 2556–2561
doi:10.1093/eurheartj/ehi483

Clinical research

Left atrial volume predicts cardiovascular events in patients originally diagnosed with lone atrial fibrillation: three-decade follow-up

Martin Osranek[1], Francesca Bursi[1], Kent R. Bailey[2], Brandon R. Grossardt[2], Robert D. Brown Jr[3], Stephen L. Kopecky[1], Teresa S. Tsang[1], and James B. Seward[1]*

[1] *Division of Cardiovascular Diseases, Mayo Clinic, 200 First Street SW, Rochester, MN 55905, USA;* [2] *Division of Biostatistics, Mayo Clinic, Rochester, MN, USA; and* [3] *Department of Neurology, Mayo Clinic, Rochester, MN, USA*

2005

In this historical cohort study, we demonstrated that patients originally diagnosed with lone AF may follow divergent courses based on LAV. Those patients who retained small atria throughout the three decade follow-up consistently experienced a benign clinical course. Patients originally diagnosed with benign lone AF, who had unrecognized LAV enlargement at diagnosis or later during the long-term follow-up, experienced adverse events. LAV measurement is a promising tool for risk stratification and monitoring of patients presenting with AF.

ATRIO SINISTRO

ORIGINAL ARTICLE

Increased Left Atrial Volume Index: Potent Biomarker for First-Ever Ischemic Stroke

KANIZ FATEMA, MBBS, PHD; KENT R. BAILEY, PHD; GEORGE W. PETTY, MD; IRENE MEISSNER, MD; MARTIN OSRANEK, MD; AHMED A. ALSAILEEK, MD; BIJOY K. KHANDHERIA, MD; TERESA S. TSANG, MD; AND JAMES B. SEWARD, MD

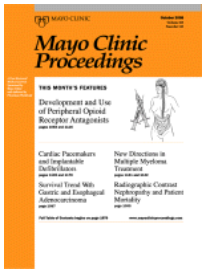
TABLE 2. **Baseline Characteristics of Patients and Controls Stratified by $CHADS_2$ Scores**[a]

Characteristics	Patients (N=306)	Controls (N=397)	*P* value	Age- and sex-adjusted *P* value
Age (y), mean ± SD	75±12	68±11	<.001	
Male	41	51	.01	
History				
Congestive heart failure	14	5	<.001	.01
Hypertension	81	48	<.001	<.001
Diabetes mellitus	19	10	.001	<.001
Transient ischemic attack	13	4	<.001	<.001
LAVI (mL/m^2), mean ± SD	42±21	32±24	<.001	<.001
LAVI ≥28 mL/m^2	75	52	<.001	<.001
$CHADS_2$ score, mean ± SD	1.9±1.2	0.9±1.0	<.001	<.001

[a] Values are percentages unless otherwise indicated. $CHADS_2$ = congestive heart failure, hypertension, age, diabetes mellitus, and stroke or transient ischemic attack; LAVI = left atrial volume index.

Increased LAVI (LAVI ≥28 mL/m2)

- was present in most patients (75%) with first-ever ischemic stroke;
- was more prevalent in older patients and in those who had a higher number of common cardiovascular risk factors;
- affected most patients in all ischemic stroke subtypes but was highly prevalent (94%) in the cardioembolic subtype
- was more prevalent in patients with stroke than in age- and sex-matched controls, and log (LAVI) was independently associated with stroke risk after con controlling for age, sex, and the CHADS2 score;
- was predictive of survival in patients with stroke, independent of age, sex, and risk factor score.



2008

Mayo Clin Proc. 2008;83(10):1107-1114

ATRIO SINISTRO

Association of $CHADS_2$, CHA_2DS_2-VASc, and R_2CHADS_2 Scores With Left Atrial Dysfunction in Patients With Coronary Heart Disease (from the Heart and Soul Study)

Farnaz Azarbal, MD[a,b], Christine C. Welles, MD[c,d], Jonathan M. Wong, MD[e,f], Mary A. Whooley, MD[c,d,g], Nelson B. Schiller, MD[d,h], and Mintu P. Turakhia, MD, MAS[a,b,*]

The predictive ability of the $CHADS_2$ index to stratify stroke risk may be mechanistically linked to severity of left atrial (LA) dysfunction. This study investigated the association between the $CHADS_2$ score and LA function. We performed resting transthoracic echocardiography in 970 patients with stable coronary heart disease and normal ejection fraction and calculated baseline LA functional index (LAFI) using a validated formula: (LA emptying fraction × left ventricular outflow tract velocity time integral)/LA end-systolic volume indexed to body surface area. We performed regression analyses to evaluate the association between risk scores and LAFI. Among 970 subjects, mean $CHADS_2$ was 1.7 ± 1.2. Mean LAFI decreased across tertiles of $CHADS_2$ (42.8 ± 18.1, 37.8 ± 19.1, 36.7 ± 19.4, $p < 0.001$). After adjustment for age, sex, race, systolic blood pressure, hyperlipidemia, myocardial infarction, revascularization, body mass index, smoking, and alcohol use, high $CHADS_2$ remained associated with the lowest quartile of LAFI (odds ratio 2.34, $p = 0.001$). In multivariable analysis of component co-morbidities, heart failure, age, and creatinine clearance <60 ml/min were strongly associated with LA dysfunction. For every point increase in $CHADS_2$, the LAFI decreased by 4.0%. Secondary analyses using CHA_2DS_2-VASc and R_2CHADS_2 scores replicated these results. Findings were consistent when excluding patients with baseline atrial fibrillation. In conclusion, $CHADS_2$, CHA_2DS_2-VASc, and R_2CHADS_2 scores are associated with LA dysfunction, even in patients without baseline atrial fibrillation. These findings merit further study to determine the role of LA dysfunction in cardioembolic stroke and the value of LAFI for risk stratification. Published by Elsevier Inc. (Am J Cardiol 2014;113:1166–1172)

2014

ATRIO SINISTRO

European Heart Journal Advance Access published December 2, 2013

European Heart Journal
doi:10.1093/eurheartj/eht500

FASTTRACK CLINICAL RESEARCH
Atrial fibrillation

Left atrial structure and function in atrial fibrillation: ENGAGE AF-TIMI 48

2013

Deepak K. Gupta[1], Amil M. Shah[1], Robert P. Giugliano[2], Christian T. Ruff[2], Elliott M. Antman[2], Laura T. Grip[2], Naveen Deenadayalu[2], Elaine Hoffman[2], Indravadan Patel[3], Minggao Shi[3], Michele Mercuri[3], Veselin Mitrovic[4], Eugene Braunwald[2], and Scott D. Solomon[1]*, for the Effective aNticoaGulation with factor xA next GEneration in AF-Thrombolysis In Myocardial Infarction 48 (ENGAGE AF-TIMI 48) Echocardiographic Study Investigators

[1]Cardiovascular Division, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, 75 Francis St, Boston, MA 02115, USA; [2]TIMI Study Group, Cardiovascular Division, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA; [3]Daiichi-Sankyo Pharma Development, Edison, NJ, USA; and [4]Kerckhoff Clinic Nauheim, Bad Nauheim, Germany

Received 6 September 2013; revised 23 October 2013; accepted 30 October 2013

In a contemporary AF population, LA structure and function were increasingly abnormal with a greater electrical burden of AF and higher stroke risk estimated by the $CHADS_2$ score.
Moreover, LA dysfunction was present despite normal LA size and sinus rhythm, suggesting that the assessment of LA function may add important incremental information in the evaluation of AF patients.

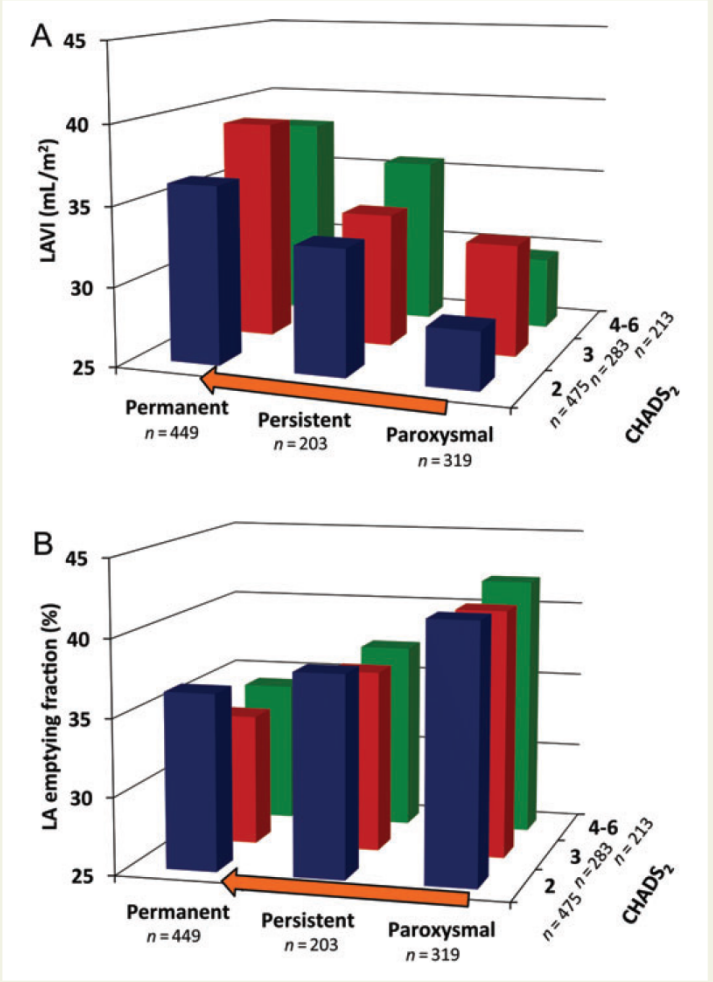
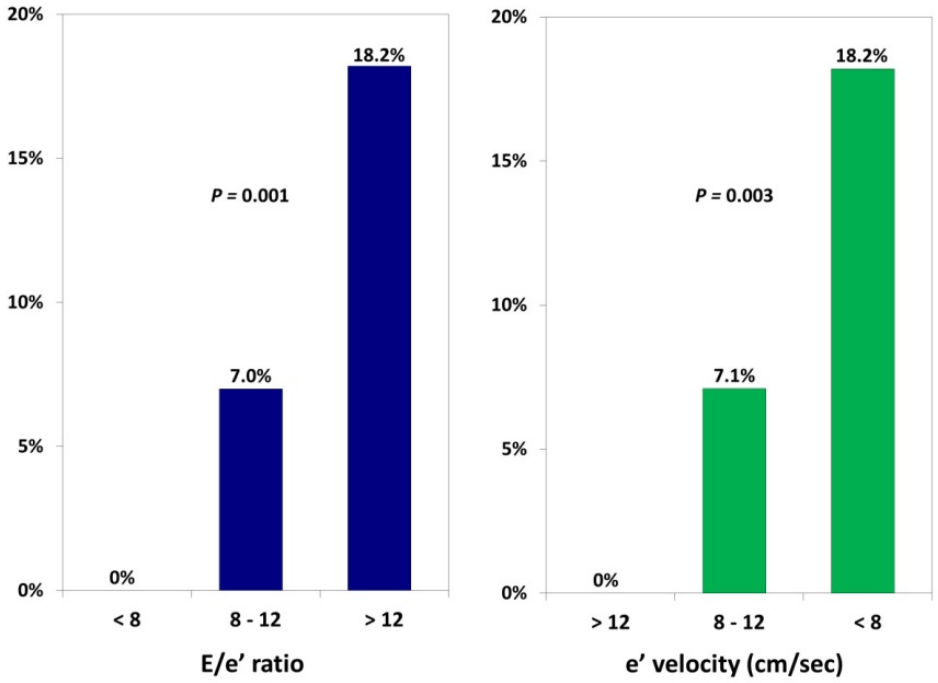


Figure 3 Relationship between left atrial size and function according to type of atrial fibrillation and stroke risk expressed in the $CHADS_2$ score. (*A*) Increasing left atrial size, measured by left atrial volume index, appears more strongly related to type of atrial fibrillation ($P < 0.001$) than to stroke risk expressed in the $CHADS_2$ score ($P = 0.007$). (*B*) Worsening left atrial emptying fraction appears more strongly related to type of atrial fibrillation ($P < 0.001$), than to the $CHADS_2$ score ($P = 0.041$).

TROMBOSI AuS E FUNZIONE DIASTOLICA VS

2014



Prevalence of left atrial appendage thrombus based on E:e' ratio and e' velocity.

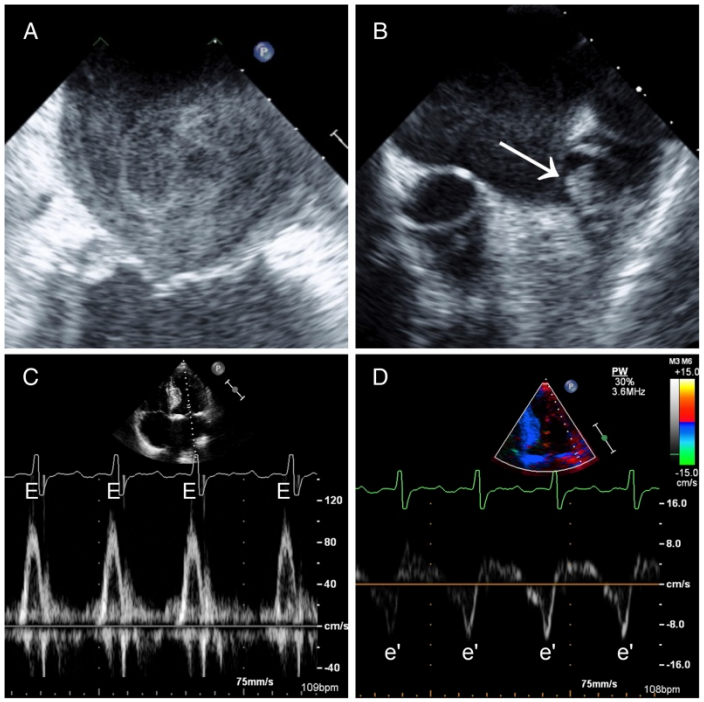
Doukky *et al. Cardiovascular Ultrasound* 2014, **12**:10
http://www.cardiovascularultrasound.com/content/12/1/10

CARDIOVASCULAR ULTRASOUND

RESEARCH Open Access

The value of diastolic function parameters in the prediction of left atrial appendage thrombus in patients with nonvalvular atrial fibrillation

Rami Doukky[1,2*], Enrique Garcia-Sayan[3], Heather Gage[1], Vijaiganesh Nagarajan[2], Anna Demopoulos[1], Marek Cena[2], Noreen T Nazir[1], George J Karam[1], Richard G Trohman[1] and Rasa Kazlauskaite[4]



TROMBOSI AS/AuS: ETE vs CT

Comparison of Transesophageal Echocardiography Versus Computed Tomography for Detection of Left Atrial Appendage Filling Defect (Thrombus)

Matthew J. Budoff, MD[a,*], Adekunle Shittu, MD[a], Yalcin Hacioglu, MD[a], Eli Gang, MD[b], Dong Li, MD, PhD[a], Harpreet Bhatia, MD[b], Juan Alvergue, MD[b], and Ronald P. Karlsberg, MD[b]

(Am J Cardiol 2014;113:173–177)

2014

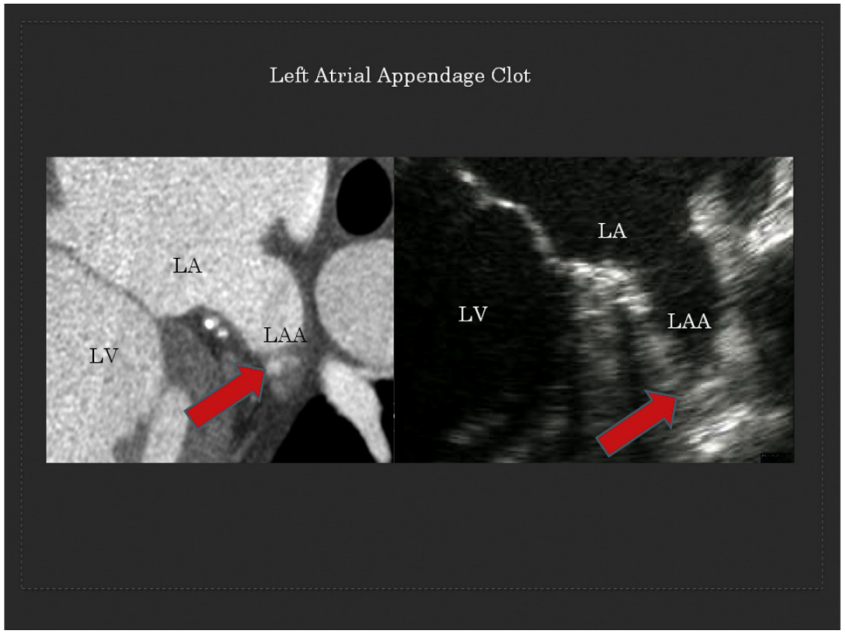


Figure 2. Left atrial appendage clot *(arrow)*, by computed tomography *(left panel)* and TEE *(right panel)*. LV = left ventricle.

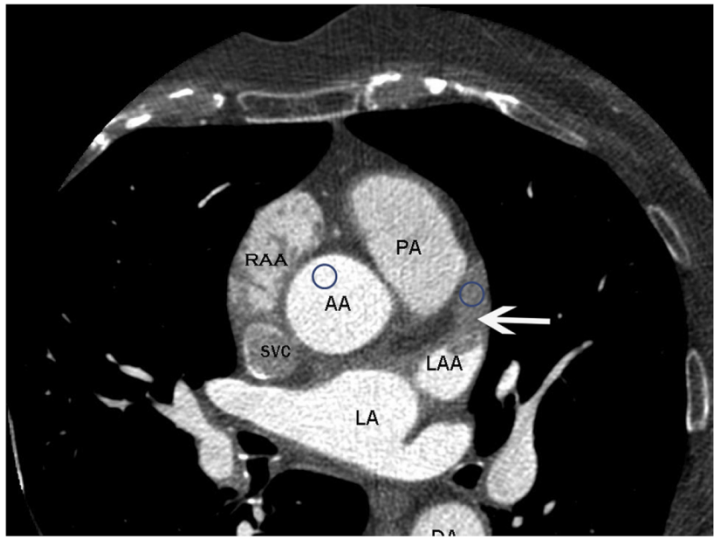
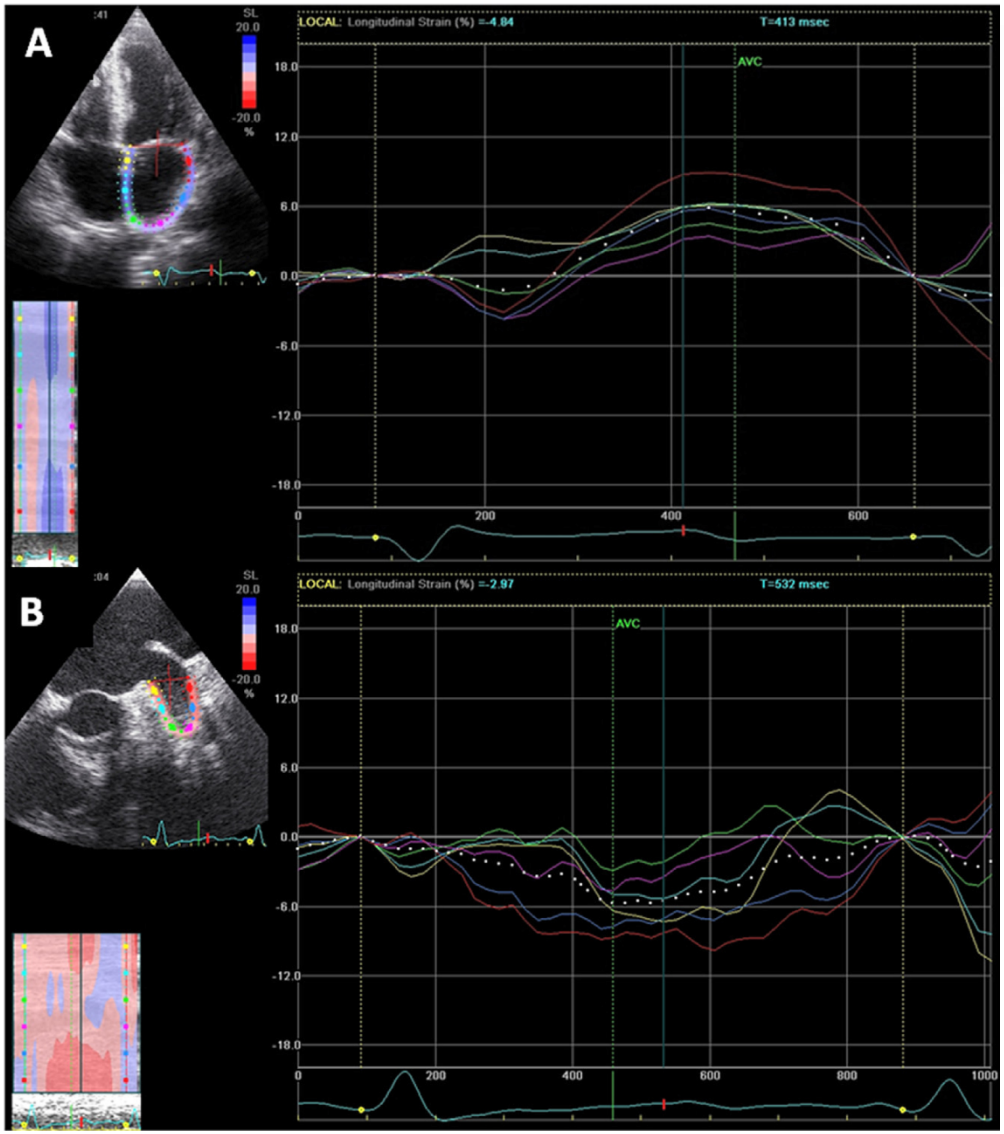


Figure 1. A region of interest on a single axial slice is placed in the LAA (*blue circle*) over the visualized clot (*arrow*) and aorta (*dark blue circle*) simultaneously to measure mean density. PA = pulmonary artery; RAA = right atrial appendage; SVC = superior vena cava.

RUOLO DELL'IMAGING AVANZATO



STATE-OF-THE-ART REVIEW ARTICLES

The Role of Echocardiography in Thromboembolic Risk Assessment of Patients with Nonvalvular Atrial Fibrillation

Rui Providência, MD, MSc, Joana Trigo, MD, Luís Paiva, MD, MSc, and Sérgio Barra, MD, *Coimbra, Portugal*

2014

ECOCARDIOCHIRURGIA 2014

Milano 5-7 maggio 2014

ECOCARDIOCHIRURGIA.it

Utilizzo delle indagini strumentali nella diagnosi e nella stratificazione del rischio embolico della FA.

Quando un impiego ragionato delle tecniche strumentali disponibili può fare fa differenza

G Corrado, FANMCO, FESC
Unità Operativa di Cardiologia
Ospedale Valduce – Como (IT)

H. Valduce 1879

RITORNO AL PASSATO

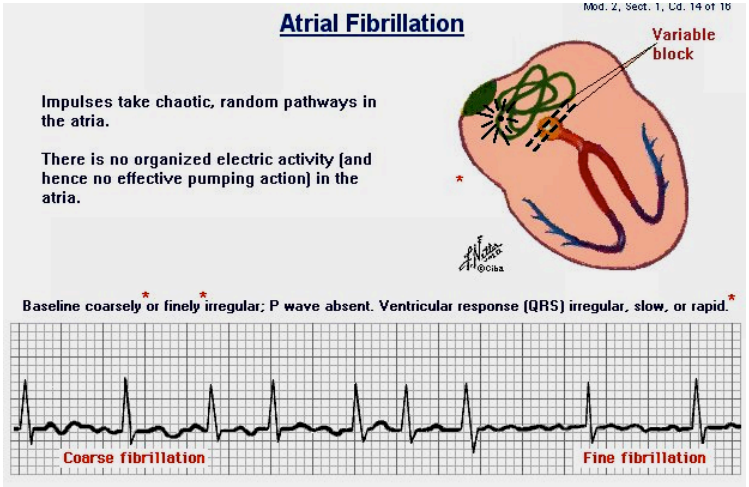
IMPIEGO RAGIONATO DELLE TECNICHE STRUMENTALI

Johann Jacob Wepfer,1658

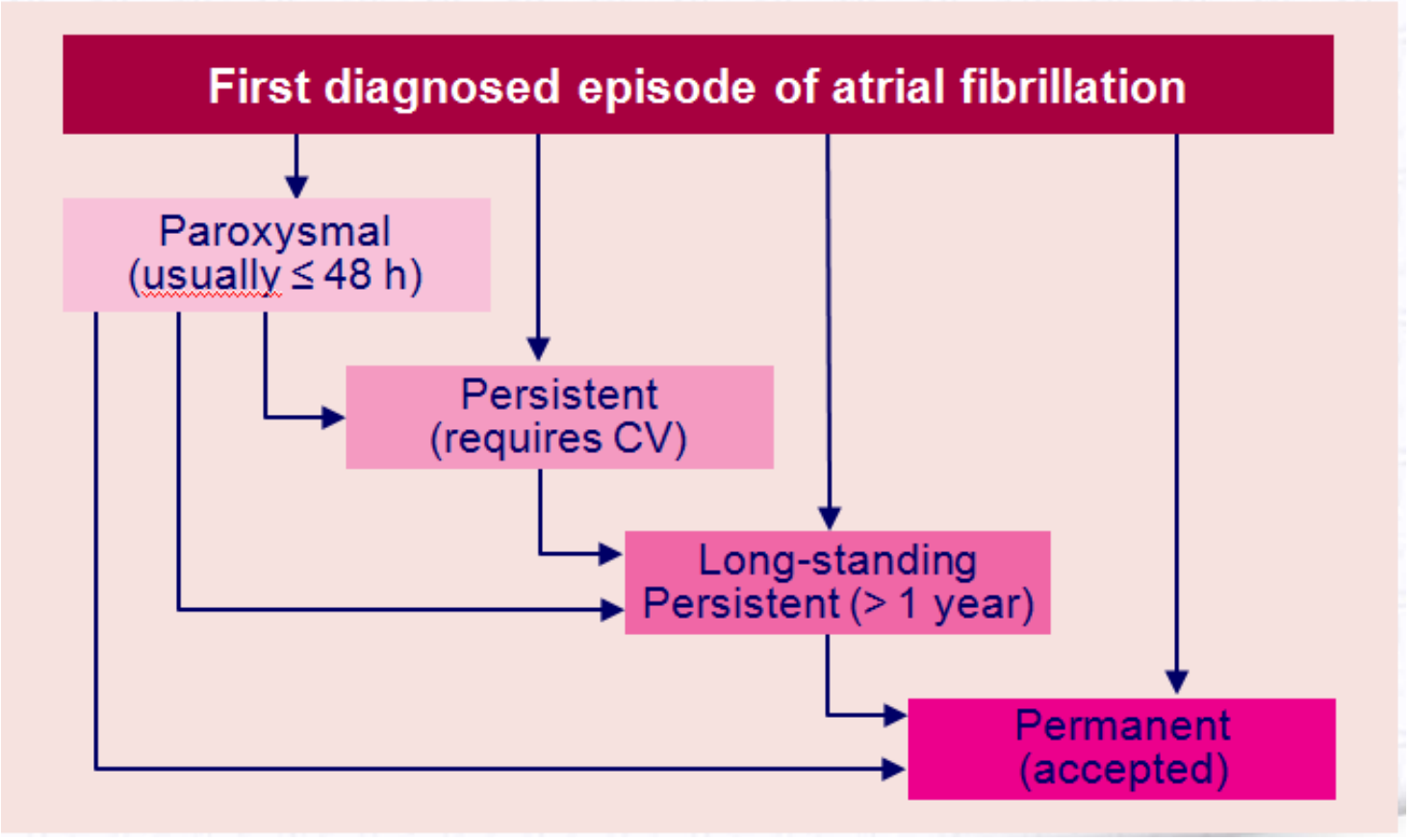
To this variety of apoplexy those are most liable who lead an idle life, who are obese, whose face and hands are constantly livid and whose pulse constantly unequal

CLINCA + ECG

- Il gold standard per la diagnosi di FA è la visualizzazione dell'ECG
- Un polso irregolare può far sospettare una FA, ma **l'ECG è necessario per la diagnosi.**

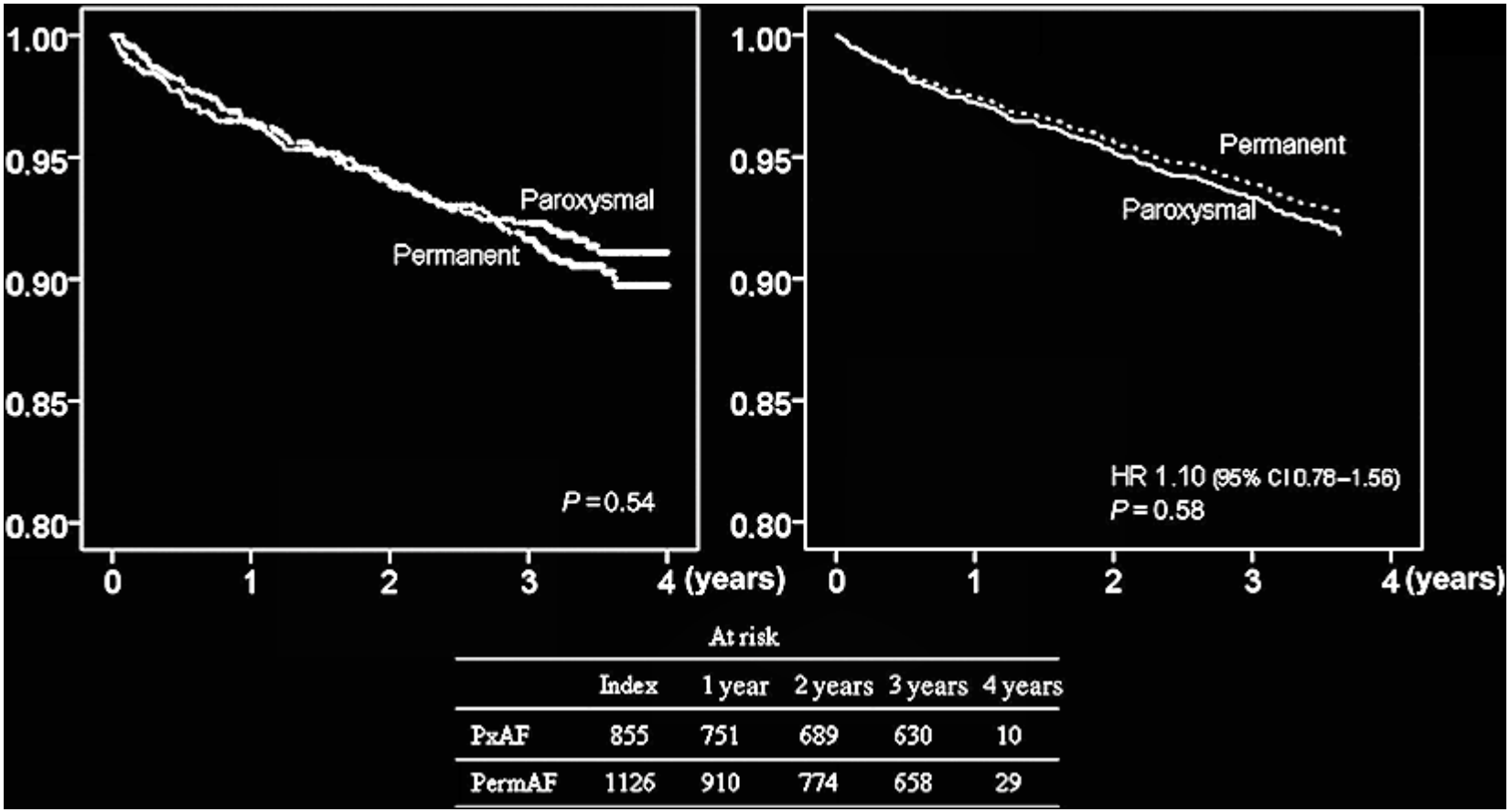


TYPES OF ATRIAL FIBRILLATION



European Heart Journal (2010) 31, 2369-2429

TIPI DI FA E RISCHIO EMBOLICO



At risk

	Index	1 year	2 years	3 years	4 years
PxAF	855	751	689	630	10
PermAF	1126	910	774	658	29

Survival free from ischaemic stroke in paraoxysmal atrial fibrillation (AF) and permanent AF. Unadjusted incidence to the left, multivariably adjusted to the right

European Heart Journal

Friberg L et al. Eur Heart J 2010;31:967-975

1/3 + 1/3 + 1/3

- Circa 1/3 dei pz con FA sono asintomatici.
- Circa 1/3 dei pz con FA presentano la forma parossistica.
- In circa 1/3 degli ictus ischemici la causa non viene individuata nonostante una valutazione accurata (ictus criptogenetico).

DIAGNOSI DI FA

When you are in deep sh .... LOOK STRAIGHT AHEAD, KEEP YOUR MOUTH SHUT & SAY NOTHING

Diagnosi di FA basata solo su sintomi ed ECG standard

L'FA CHE NON VEDIAMO

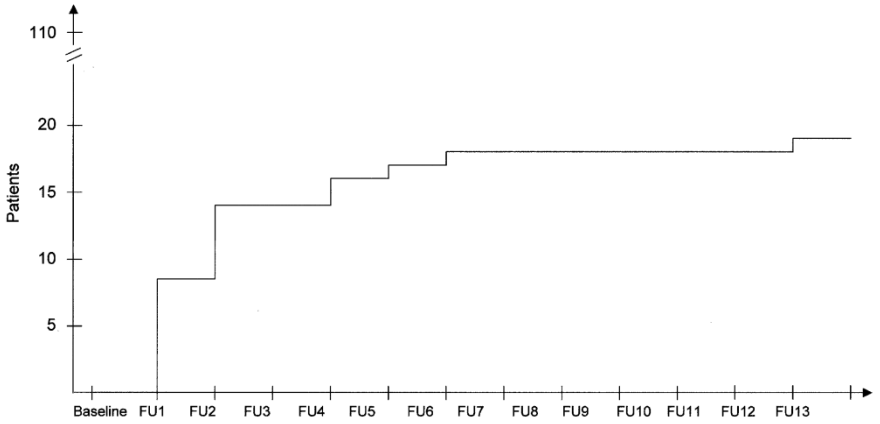


Figure 1. Cumulative incidence of asymptomatic atrial fibrillation recurrence >48 h not detected by serial electrocardiographic recordings during follow-up (FU) visits.

Journal of the American College of Cardiology
© 2004 by the American College of Cardiology Foundation
Published by Elsevier Inc.
Vol. 43, No. 1, 2004
ISSN 0735-1097/04/$30.00
doi:10.1016/j.jacc.2003.08.027

Long-Term Risk of Recurrent Atrial Fibrillation as Documented by an Implantable Monitoring Device

Implications for Optimal Patient Care

Carsten W. Israel, MD, Gerian Grönefeld, MD, Joachim R. Ehrlich, MD, Yi-Gang Li, MD, Stefan H. Hohnloser, MD, FACC, FESC
Frankfurt, Germany

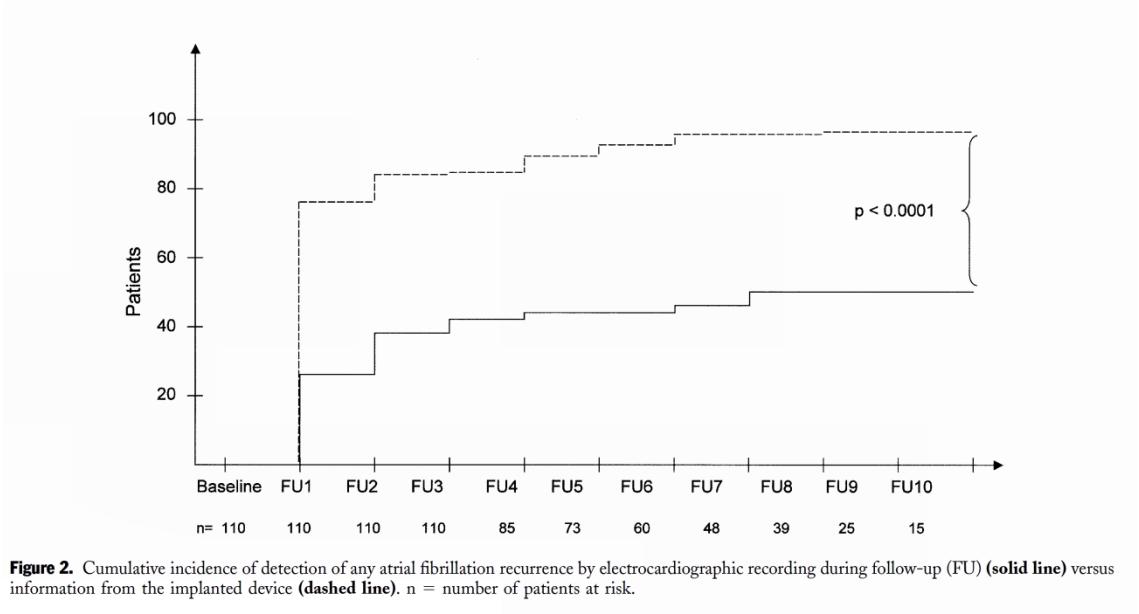


Figure 2. Cumulative incidence of detection of any atrial fibrillation recurrence by electrocardiographic recording during follow-up (FU) **(solid line)** versus information from the implanted device **(dashed line)**. n = number of patients at risk.

FA ASINTOMATICA: IL KILLER SILENZIOSO

The following incidences of AF in U-S/TIA patients have been reported:

- **Standard ECG on admission: 2.7%**
- **Repeated ECG (within 5 days of admission): further 4.1%**
- **24-hour Holter exam: further 5%**
- **7-day ambulatory ECG monitoring: further 5.7%**

U-S/TIA: unexplained stroke and transient ischaemic attack

LOOKING FOR AF

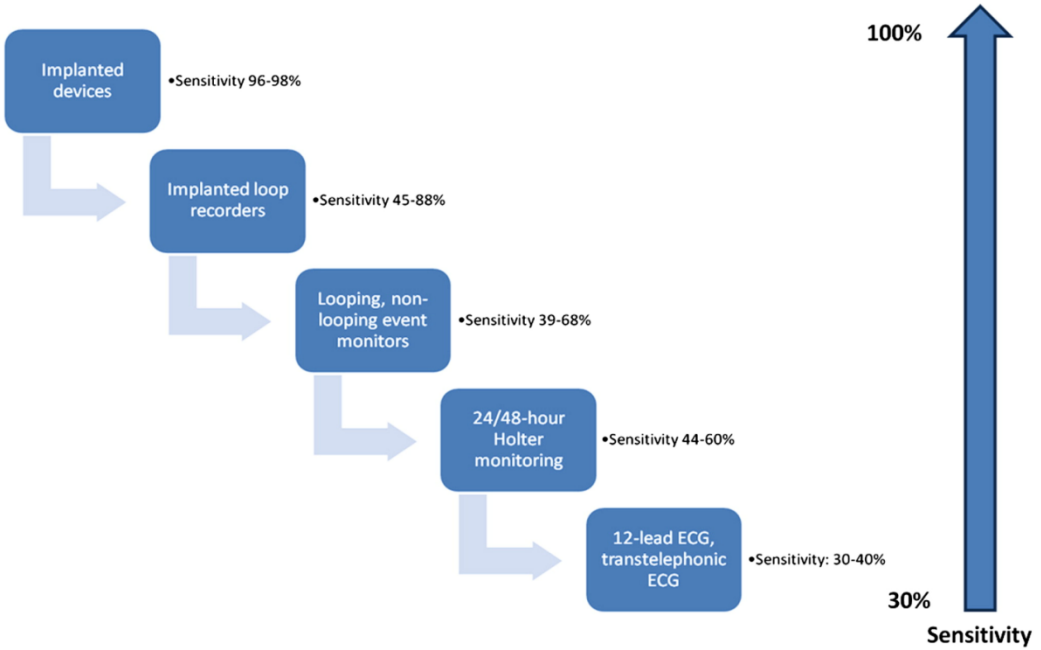


Fig 1 – Summary of ambulatory ECG monitoring tools with respected ranges of diagnostic accuracy.

PROGRESS IN CARDIOVASCULAR DISEASES 56 (2013) 143–152

Available online at www.sciencedirect.com

ScienceDirect

www.onlinepcd.com

ELSEVIER

Ambulatory ECG Monitoring in Atrial Fibrillation Management

Spencer Z. Rosero[a,1], *Valentina Kutyifa*[a,1], *Brian Olshansky*[b], *Wojciech Zareba*[a,*]

[a]Cardiology Division, University of Rochester Medical Center, Rochester, NY, USA

[b]University of Iowa, Iowa City, IA, USA

Table 1 – Arrhythmia yield using various modalities.

Arrhythmia Yield Using Various Modalities			
	Holter Monitor	Loop Event Monitor	Autodetect Feature
	N = 600	N = 600	N = 600
Patients	37	108	216
Diagnostic yield	6.2%	17%	36%

AF Detection:

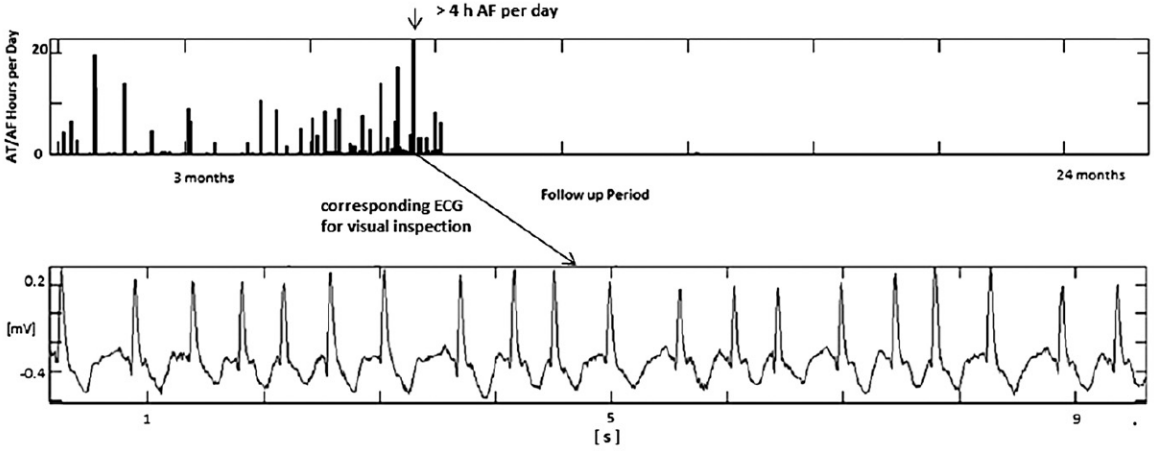
24-h Holter: Something Like a Disaster

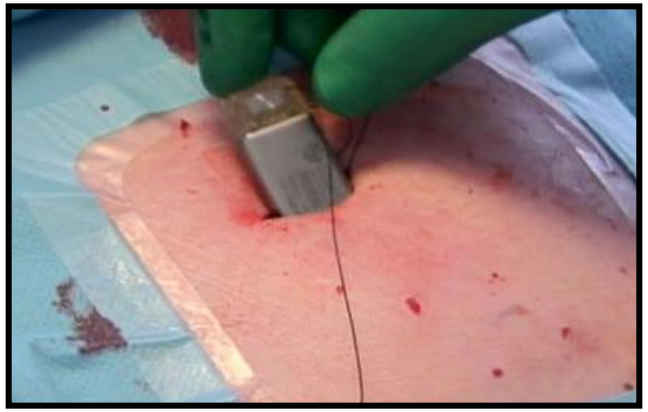
- 425 Holter ECGs after cerebral ischemic event
- 18.2% of all Holter ECGs in the hospital

	AF diagnosis	OAC start
Number of patients	9 (2.1%)	5 (1.2%)
Holters needed	47	85
Costs per case	$9,400	$17,000

Schaer B. Stroke 2004; 35: e68-70

LOOKING FOR AF





LOOKING FOR AF

Se non la cerchi,

non la troverai….

MA SE LA TROVI DEVI ESSERE CONSEGUENTE….

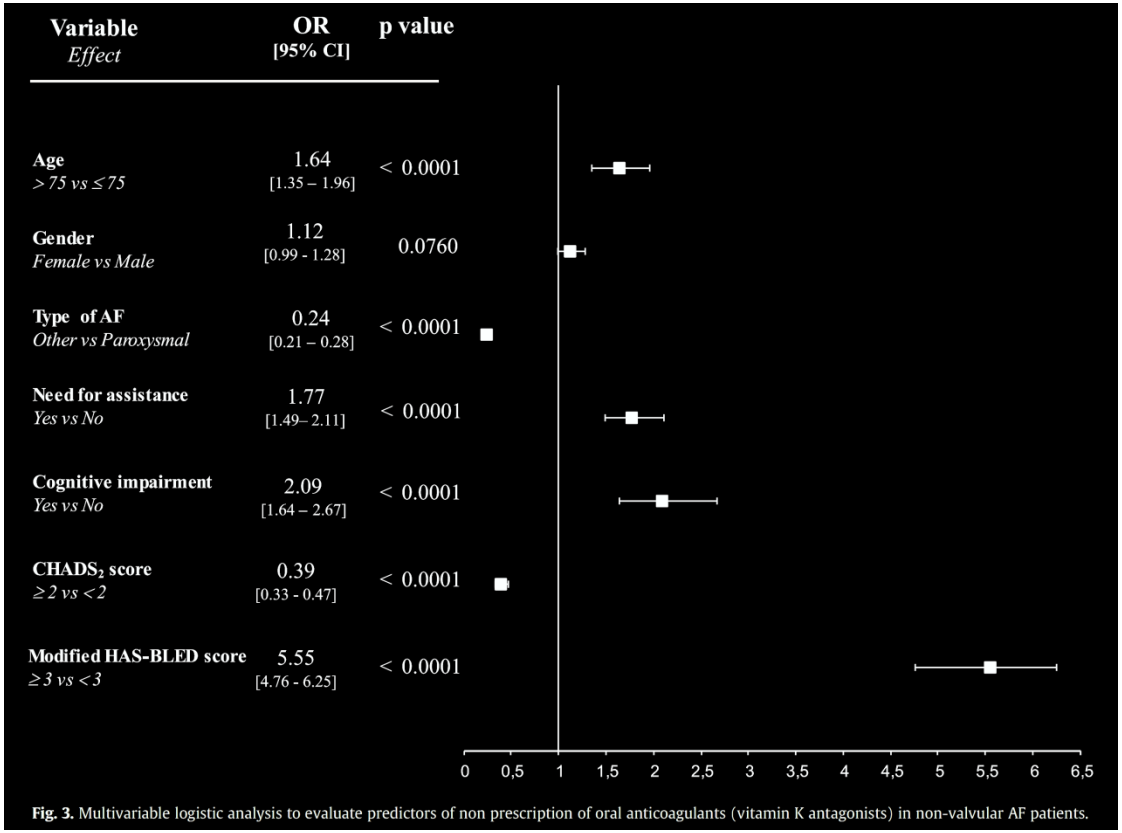


Fig. 3. Multivariable logistic analysis to evaluate predictors of non prescription of oral anticoagulants (vitamin K antagonists) in non-valvular AF patients.

Contents lists available at SciVerse ScienceDirect

European Journal of Internal Medicine

journal homepage: www.elsevier.com/locate/ejim

Original article

Decision making for oral anticoagulants in atrial fibrillation: The ATA-AF study

Gualberto Gussoni [a,*], Giuseppe Di Pasquale [b], Giorgio Vescovo [a,c], Michele Gulizia [d], Giovanni Mathieu [e], Marino Scherillo [f], Domenico Panuccio [g], Donata Lucci [h], Carlo Nozzoli [i], Gianna Fabbri [h], Fabrizio Colombo [j], Letizia Riva [b], Concetta I. Baldo [a], Aldo P. Maggioni [h], Antonino Mazzone [k], on behalf of ATA-AF Steering Committee and Investigators [l]

[a] FADOI Foundation Research Department, Milano, Italy
[b] Department of Cardiology, Maggiore Hospital, Bologna, Italy
[c] Department of Internal Medicine, Hospital "San Bortolo", Vicenza, Italy
[d] Department of Cardiology,"Garibaldi-Nesima" Hospital, Catania, Italy
[e] Department of Internal Medicine, Pinerolo Hospital, Italy
[f] Department of Interventional Cardiology, Azienda Ospedaliera Rummo, Benevento, Italy
[g] Department of Internal Medicine, Maggiore Hospital, Bologna, Italy
[h] ANMCO Research Center, Firenze, Italy
[i] Department of Internal Medicine, Azienda Ospedaliera Careggi, Firenze, Italy
[j] Department of Internal Medicine, Azienda Ospedaliera Niguarda Ca' Granda, Milano, Italy
[k] Department of Internal Medicine, Hospital of Legnano, Italy

Age ≥ 75 years, paroxysmal AF, cognitive impairment, need for assistance, $CHADS_2$ < 2 and bleeding score ≥ 3 were independent predictors of non-use of VKA.

ITER DELLA FA

- Diagnosticare la fibrillazione atriale
- Stratificare il rischio tromboembolico
- Applicare le linee guida al mondo reale

≠

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GRAZIE PER L'ATTENZIONE

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