



CONGRESSO

ROMA, 25 - 27 Giugno 2026

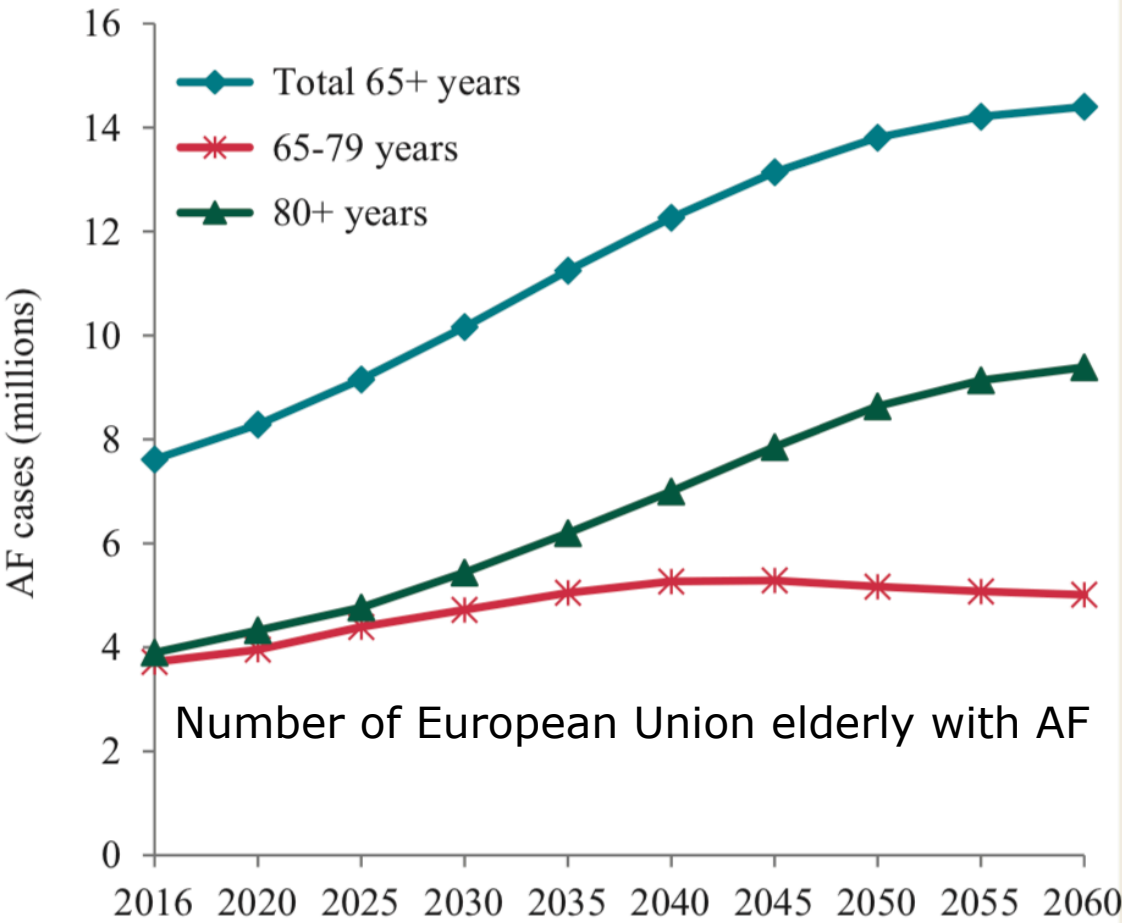
LAAC

Giacomo Boccuzzi, MD, FESC

S.C Cardiologia

Ospedale San Giovanni Bosco, Torino, Italy

AF is a Growing Problem Associated with Greater Morbidity and Mortality



ESC
European Society
of Cardiology

Prevalence of atrial fibrillation in the Italian elderly population and projections from 2020 to 2060 for Italy and the European Union: the FAI Project

CLINICAL RESEARCH

ORIGINAL RESEARCH

Minimum National Prevalence of Diagnosed Atrial Fibrillation Inferred From California Acute Care Facilities



CONCLUSIONS The prevalence of diagnosed AF in the United States is higher than previously estimated. More efficient prevention and treatment strategies are needed to curb the burden of AF in the United States. (JACC. 2024;84:1501-1508) © 2024 by the American College of Cardiology Foundation

In the next years we will face a “wave”
of new AF patients



ESC

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of Cardiology

European Heart Journal (2024) **45**, 3314–3414

<https://doi.org/10.1093/eurheartj/ehae176>

ESC GUIDELINES

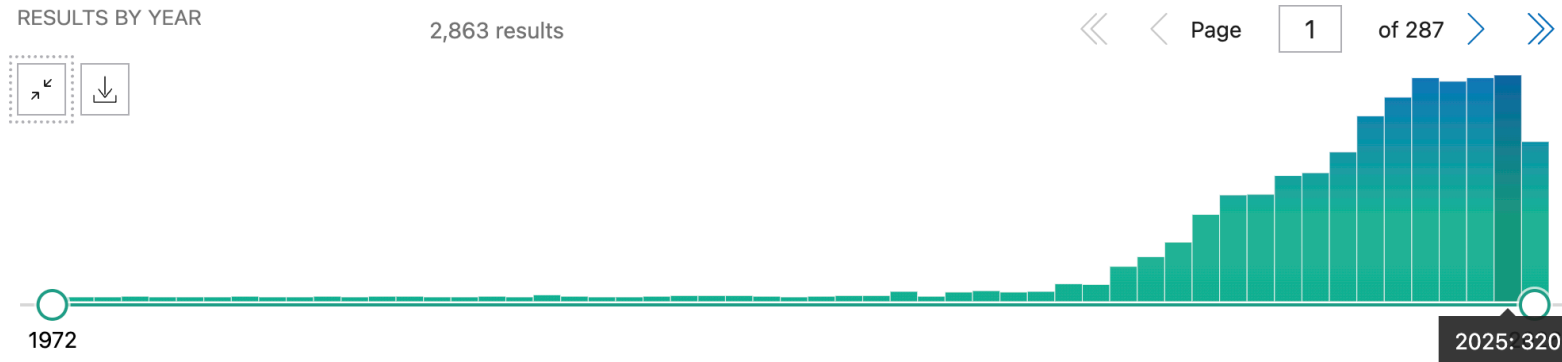
2024 ESC Guidelines for the management of atrial fibrillation developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS)

- Lifelong anticoagulation continues to carry a **clinically significant bleeding risk, with an annual incidence of major bleeding of approximately 3%**
- Treatment discontinuation approaching **20% to 30% at 2 years.**

Interesse della comunità scientifica

LAA Closure
Index PubMed: 2800

320 articoli nel 2025



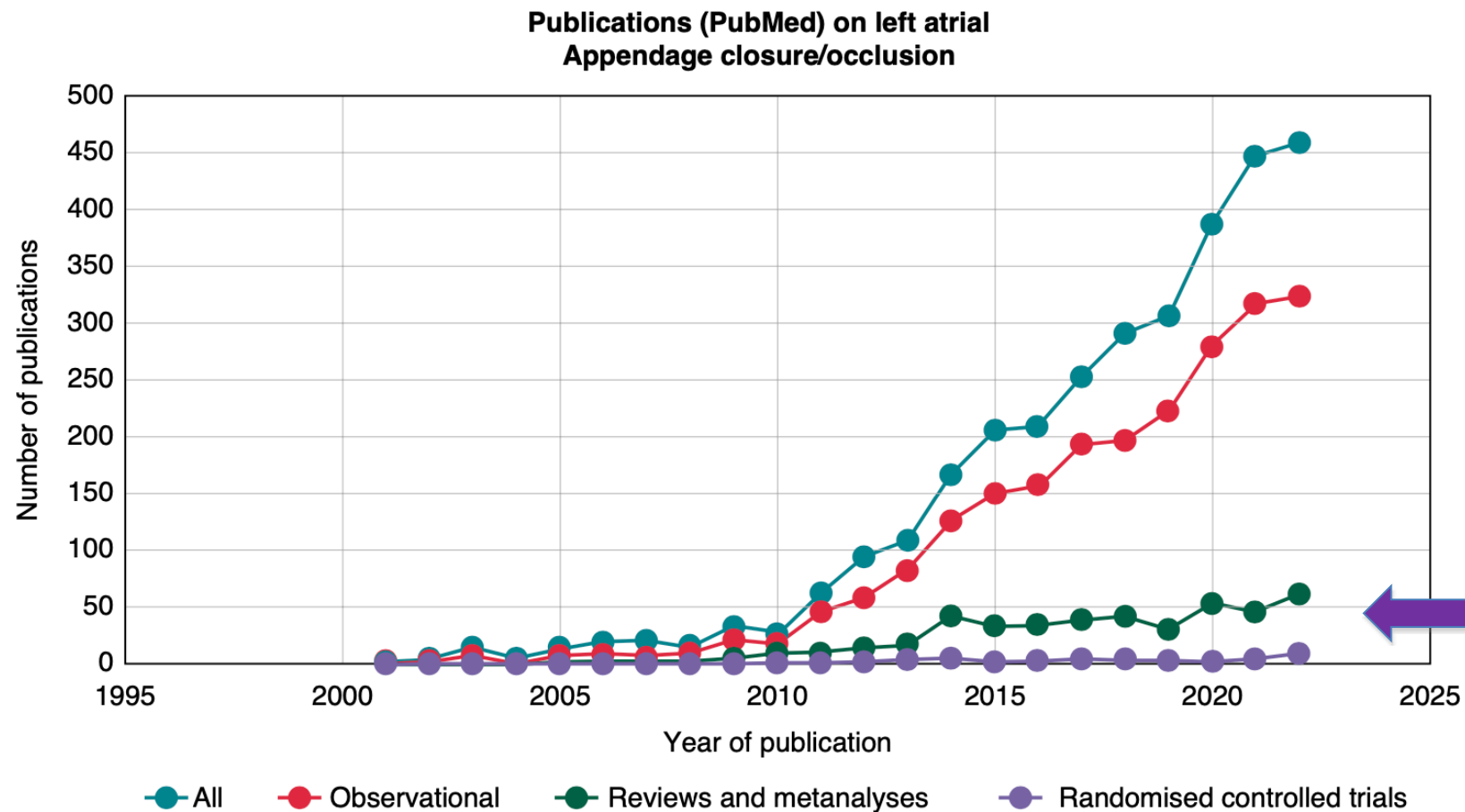


Figure 1 Search on PubMed for publications relating to 'left atrial appendage closure OR left atrial appendage occlusion' from 2001 to 2022. Reviews and meta-analyses and RCT (randomized controlled trial) data are obtained using the appropriate NCBI filters and the observational data are derived by adding 'AND observational OR registry' to the search terms.

CLOSURE AF

CHAMPION AF

OPTION

PRAGUE 17



ESC

European Society
of Cardiology

Europace (2023) 00, 1–9

<https://doi.org/10.1093/europace/euad067>

STATE OF THE ART REVIEW

Interesse della comunità scientifica

Clinical trial. gov :135 STUDIES

☐	Study Title	NCT Number	Status	Conditions	Interventions	Sponsor	Study Type
☐ 1	Intracardiac Versus Transesophageal Echocardiographic Guidance for Left Atrial Appendage Occlusion	NCT06348394	Recruiting	• Left Atrial Appendage Closure	• Other: Intracardiac Echocardiography	Baylor Research Institute	Interventional
☐ 2	Oral Anticoagulation Versus Left Atrial Appendage Occlusion Added to Direct Oral Anticoagulation in Patients with Stroke Despite Oral	NCT06869811	Recruiting	• Left Atrial Appendage Closure	• Device: LAA Closures	Hospital Clinic of Barcelona	Interventional
☐ 3	Comparison of Amplatzer Amulet and Watchman Device in Patients Undergoing Left Atrial Appendage Closure. (SWISS-APERO)	NCT03399851	Unknown status *	• Left Atrial Appendage Closure	• Device: Amplatzer Amulet for left atrial appendage closure • Device: Watchman/FLX for left atrial appendage closure	Insel Gruppe AG, University Hospital Bern	Interventional
☐ 4	Preventing Neurologic Complications in Valve Surgery New	NCT07382362	Not yet recruiting	• Left Atrial Appendage Closure	• Procedure: Left Atrial Appendage (LAA) Suture Closure • Procedure: Surgical Valve Surgery	China National Center for Cardiovascular Diseases	Observational
☐ 5	Austrian Left Atrial Appendage Closure Registry	NCT03409159	Recruiting	• Atrial Fibrillation • Left Atrial Appendage Closure	• Device: LAAC	Medical University of Graz	Observational
☐ 6	Transcatheter Leak Closure With Detachable Coils Following Incomplete Left Atrial Appendage Closure Procedures	NCT03503253	Unknown status *	• Left Atrial Appendage Incomplete Closure	• Device: Interlock-35 Fibered IDC Occlusion System • Device: Corson System • Device: Azura	Texas Cardiac Arrhythmia Research Foundation	Interventional
☐ 7	Atrial Appendage Closure Prospective Observational Study	NCT02309268	Withdrawn	• Atrial Fibrillation • Left Atrial Appendage Closure			

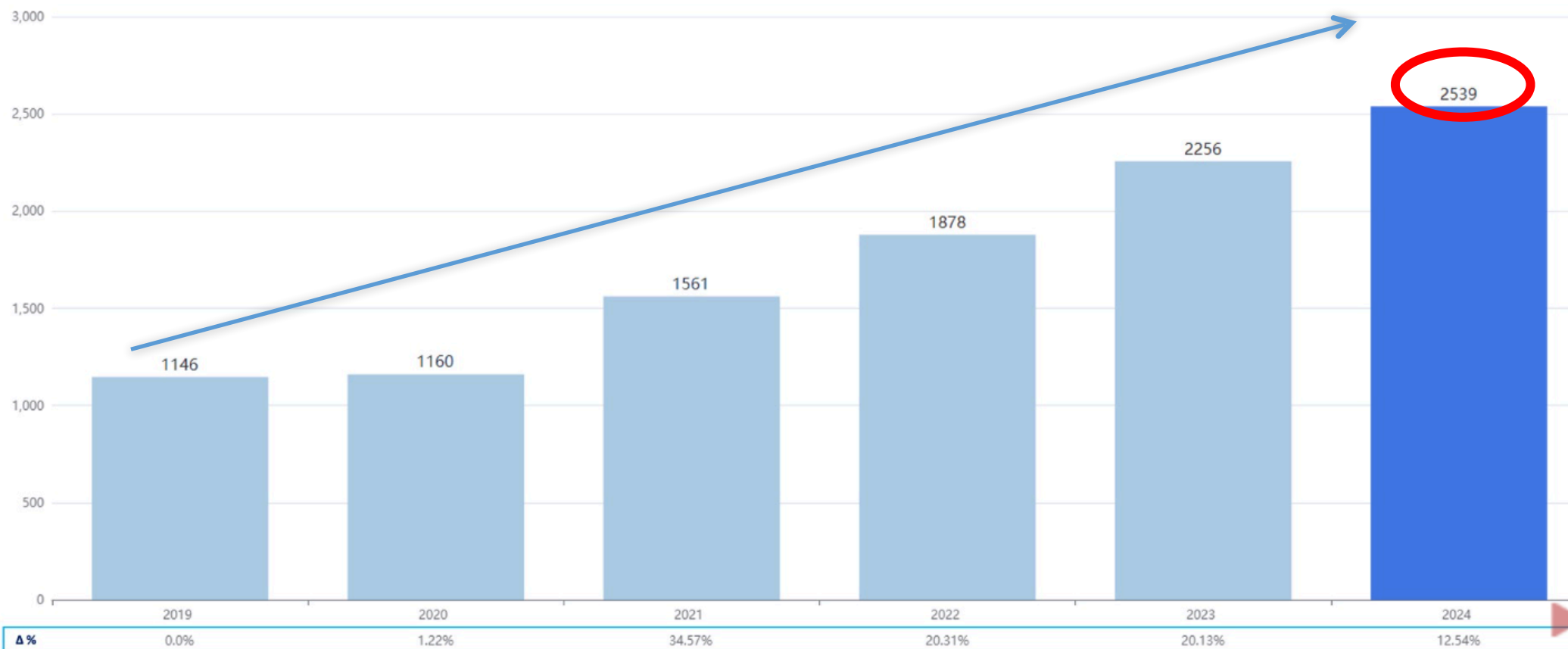
135 studies for: Left Atrial Appendage Closure

Interesse della comunità scientifica

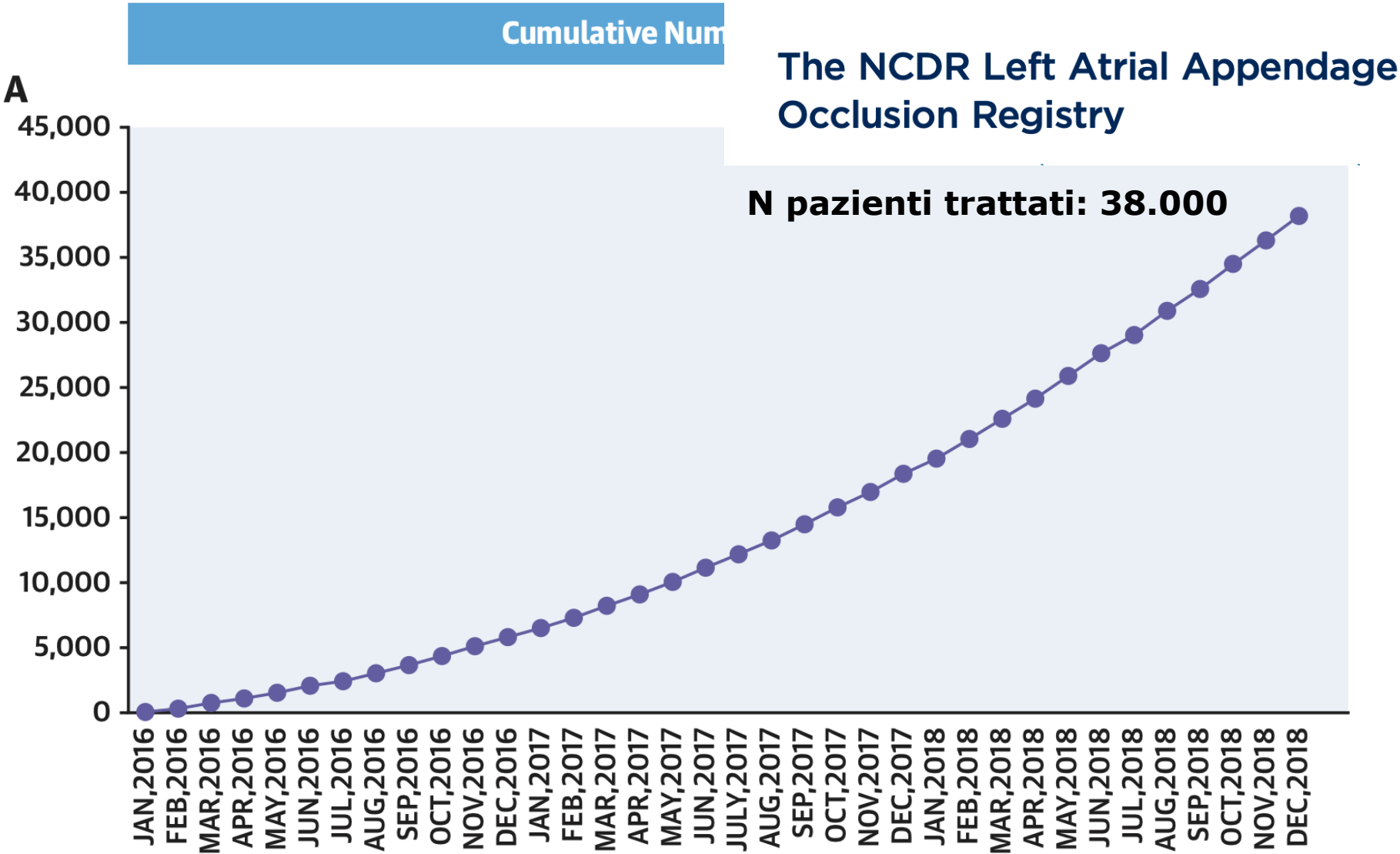
Clinical trial. gov : 135 studies



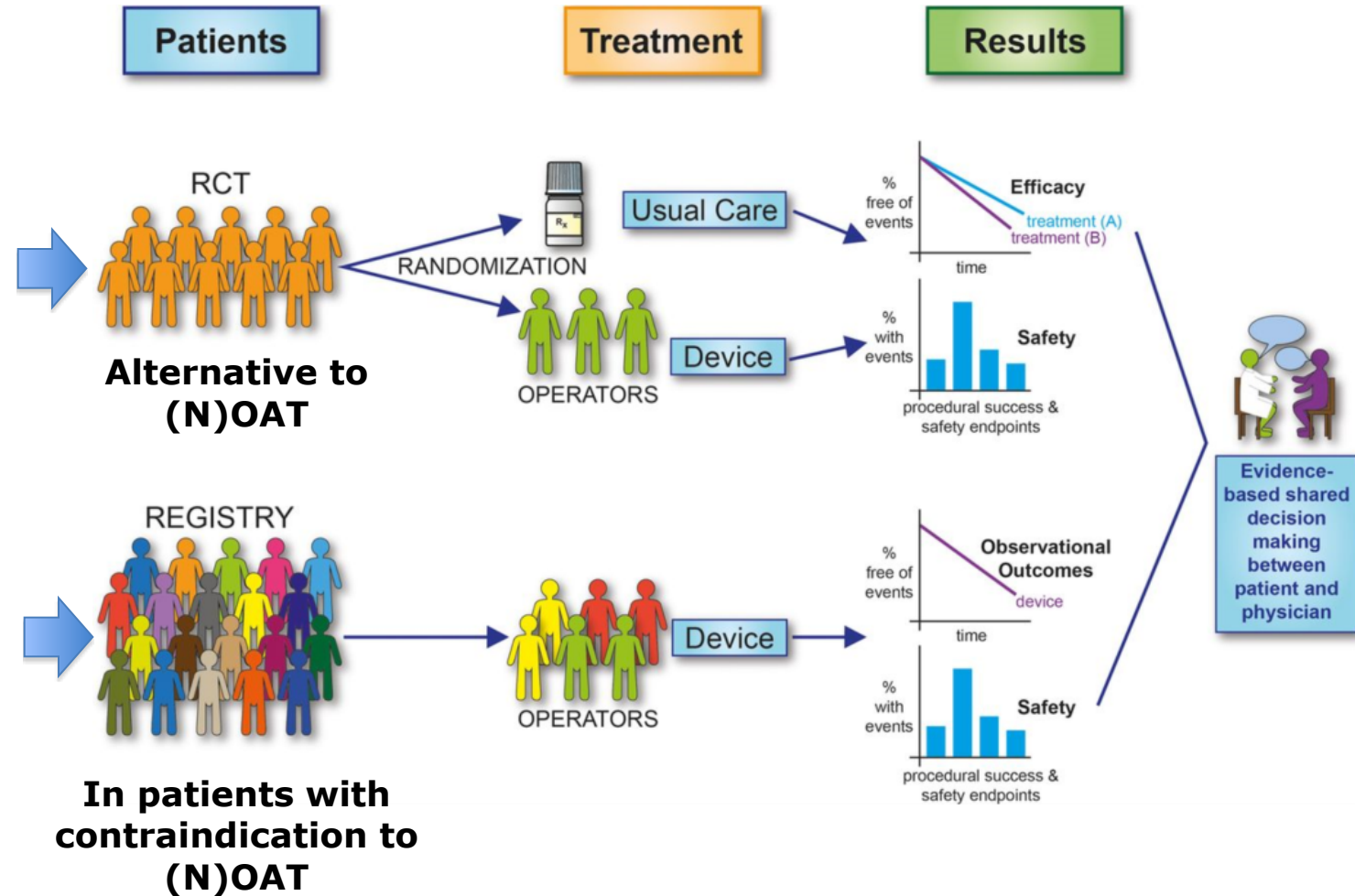
Chiusura Auricola Sinistra Serie storica Italia



ORIGINAL INVESTIGATIONS

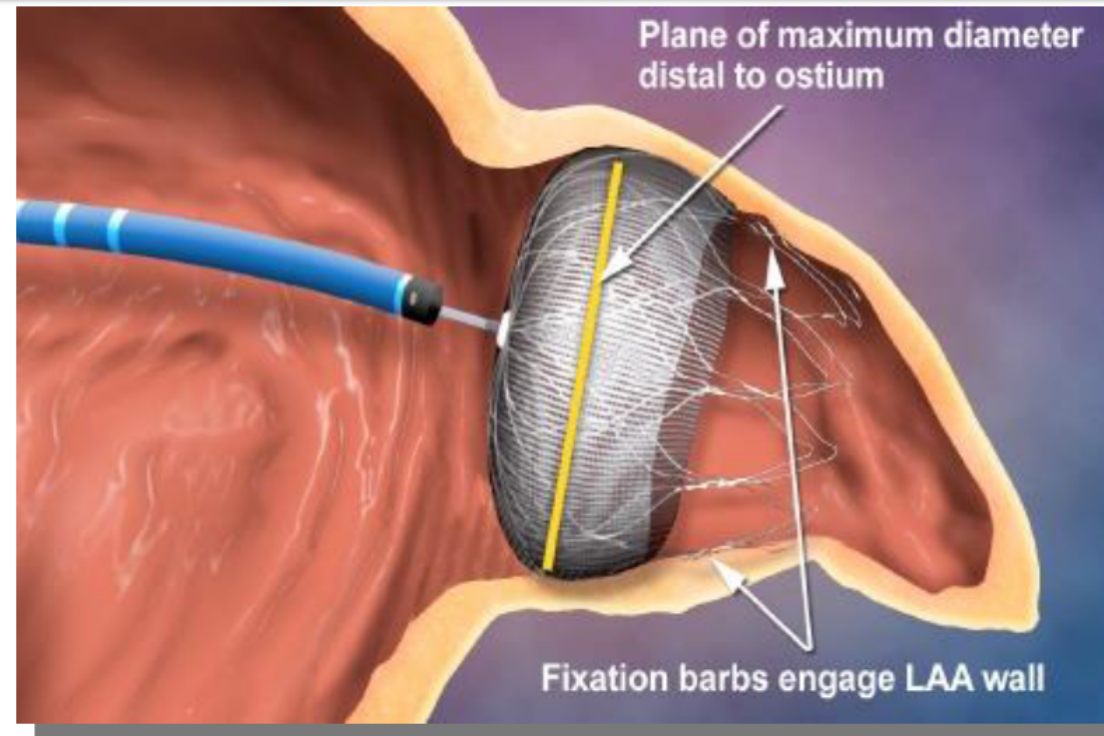


Evidenze scientifiche



Percutaneous closure of the left atrial appendage versus warfarin therapy for prevention of stroke in patients with atrial fibrillation: a randomised non-inferiority trial

David R Holmes, Vivek Y Reddy, Zoltan G Turi, Shephal K Doshi, Horst Sievert, Maurice Buchbinder, Christopher M Mullin, Peter Sick, for the PROTECT AF Investigators*



Lancet 2009; 374: 534–42

- Prospective RCT, WATCHMAN vs warfarin (2:1 ratio) (707 patients randomly assigned, 93 roll-in)
- Patients with NVAF **eligible** for warfarin, $CHADS_2 \geq 1$
- Noninferiority and superiority bayesian sequential design (analysis at 600 pt-y and every 150 pt-y thereafter till 1500 pt-y; follow-up to 5 y)
- 59 centers in Europe and United States, Feb 2005 to June 2008
- Exclusion criteria:
 - **Contraindications to warfarin**
 - Comorbidities requiring chronic warfarin use
 - LAA thrombus
 - PFO with atrial septal aneurysm + R-L shunt
 - Mobile aortic atheroma
 - Symptomatic carotid disease
 - LVEF < 30%

Anticoagulation Regimen

Implant to 6 wk

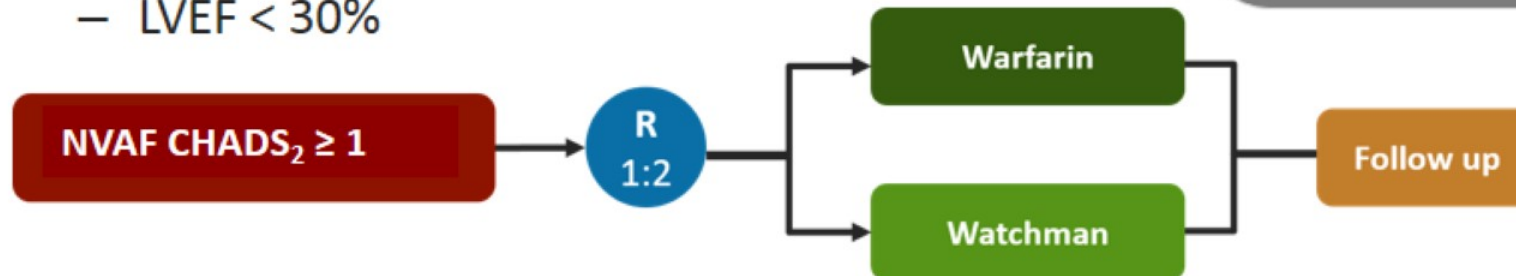
- Warfarin (INR 2 to 3) for 6 wk
- Aspirin (81 to 325 mg)

6 wk to 6 mo

- Clopidogrel (75 mg)
- Aspirin (81 to 325 mg)

After 6 mo

- Aspirin (81 to 325 mg)



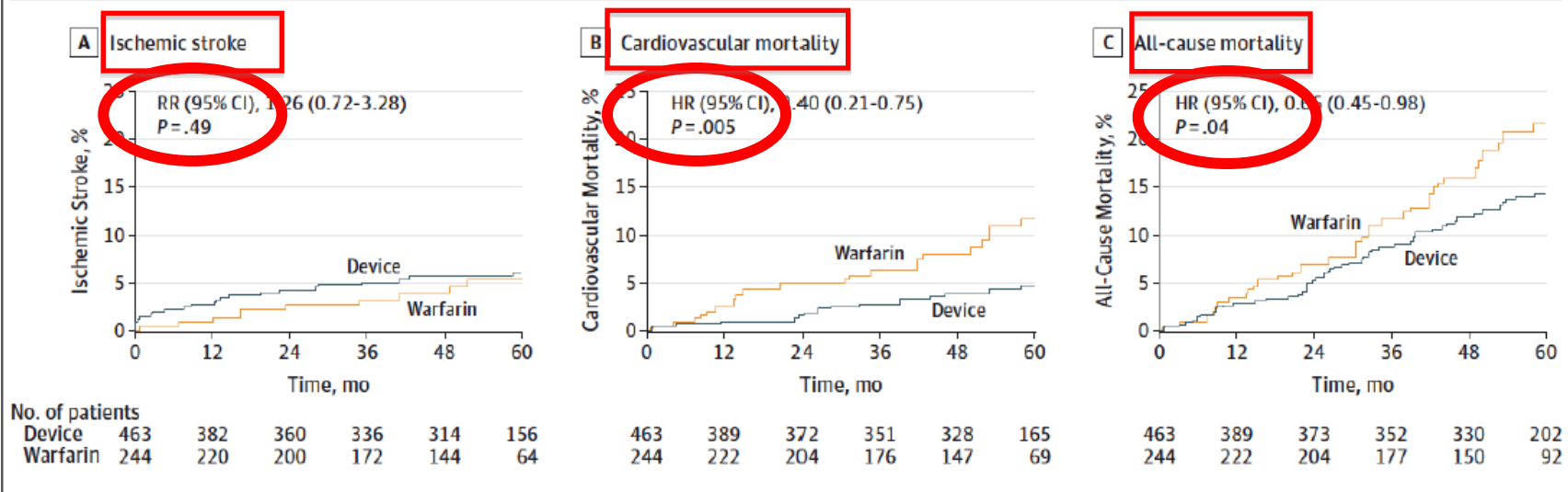
PROTECT AF : 4 years follow up

Original Investigation

Percutaneous Left Atrial Appendage Closure vs Warfarin for Atrial Fibrillation A Randomized Clinical Trial

Vivek Y. Reddy, MD; Horst Sievert, MD; Jonathan Halperin, MD; Shephal K. Doshi, MD; Maurice Buchbinder, MD; Petr Neuzil, MD, PhD; Kenneth Huber, MD; Brian Whisenant, MD; Saibal Kar, MD; Vijay Swarup, MD; Nicole Gordon, BSEE; David Holmes, MD; for the PROTECT AF Steering Committee and Investigators

Figure 3. Kaplan-Meier Curves for Ischemic Stroke, Cardiovascular Mortality, and All-Cause Mortality



HR indicates hazard ratio; RR, rate ratio.

WATCHMAN clinical Program

Post-FDA Approval US Experience (n = 3822)

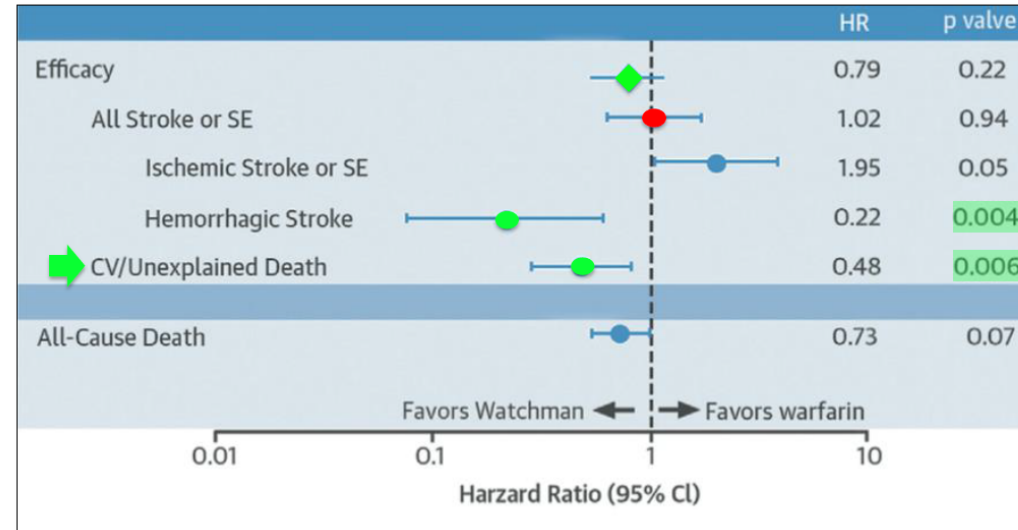
Trial	Description	N
Pilot	Early feasibility, > 6 y follow-up	66
PROTECT AF	Primary efficacy, CV death, all-cause death superior to warfarin at 4 y	800
CAP registry	Significantly improved safety results	566
ASAP	Expected stroke rate reduced by 77%, patients contraindicated to warfarin	150
PREVAIL	Improved implant success and procedural study (new and experienced operators)	461

2015 : FDA Approval

Meta analysis Watchman studies

Left Atrial Appendage Closure as an Alternative to Warfarin for Stroke Prevention in Atrial Fibrillation

A Patient-Level Meta-Analysis



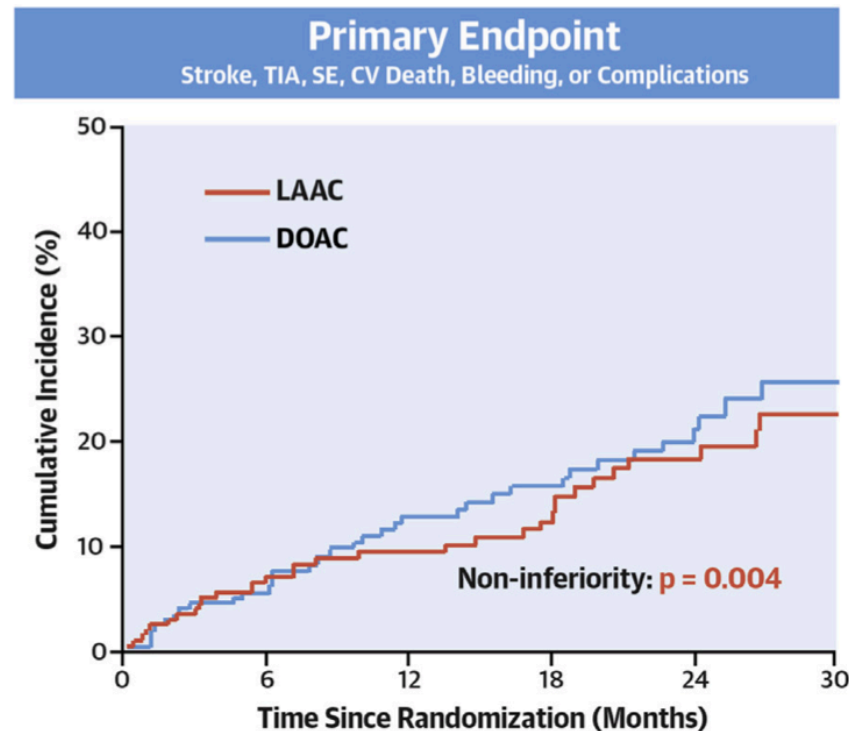
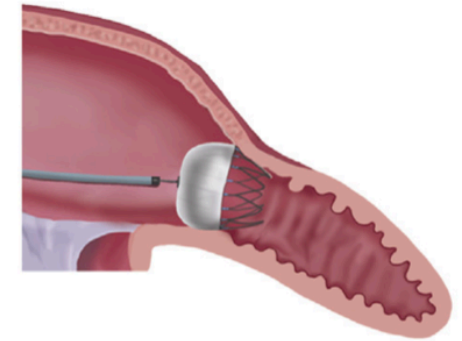
- WATCHMAN is indicated to reduce the risk for thromboembolism from the LAA in patients with NVAF who are at increased risk for stroke and SE based on CHADS₂ or CHA₂DS₂-VASc scores
- Patients who are deemed by their physicians to be suitable for warfarin and have an appropriate rationale to seek a nonpharmacologic alternative to warfarin

FDA Approval

Left Atrial Appendage Closure Versus Direct Oral Anticoagulants in High-Risk Patients With Atrial Fibrillation



- 402 High-Risk AF Pts → Randomized
CHA₂DS₂-VASc = 4.7 ± 1.5
HAS-BLED = 3.1 ± 0.9
- Follow-up: 20.8 ± 10.8 mo (695 pt-year)



	sHR (95% CI)	p value
Primary Endpoint		
mITT	0.84 (0.53-1.31)	0.44
Per Protocol	0.82 (0.52-1.30)	0.40
On-Treatment	0.79 (0.49-1.25)	0.31
All-Stroke/TIA	1.00 (0.40-2.51)	0.99
CV Death	0.75 (0.34-1.62)	0.46
Major + NMCR Bleeding		
All	0.81 (0.44-1.52)	0.51
Nonprocedural	0.53 (0.26-1.06)	0.07

Left Atrial Appendage Closure Versus Direct Oral Anticoagulants in High-Risk Patients With Atrial Fibrillation

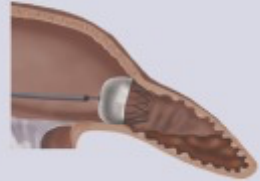
4-Year follow-up

CENTRAL ILLUSTRATION: A Summary Slide of Primary and Secondary Endpoints

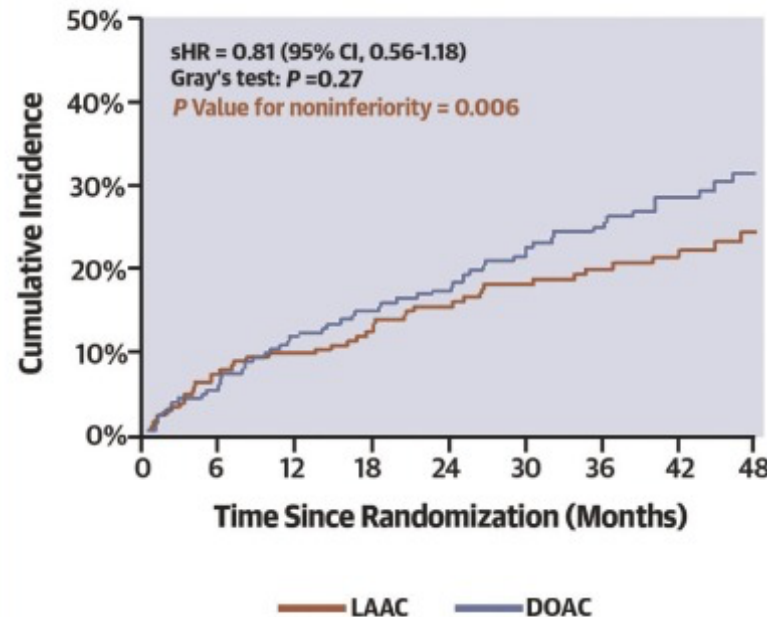
PRAGUE-17 Trial: Long-Term (4-Year) Follow-Up



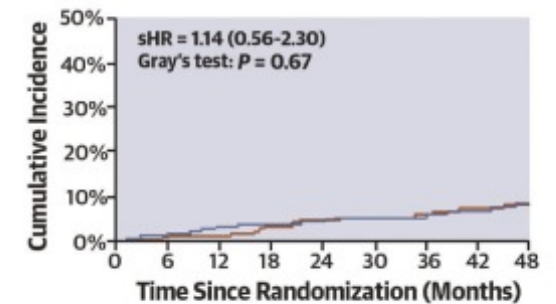
- 402 High-risk AF pts → Randomized
 - CHA₂DS₂-VASc = 4.7 ± 1.5
 - HAS-BLED = 3.1 ± 0.9
- Median Follow-up: 3.5 years (IQR 2.6-4.3), 1,354 pt-year



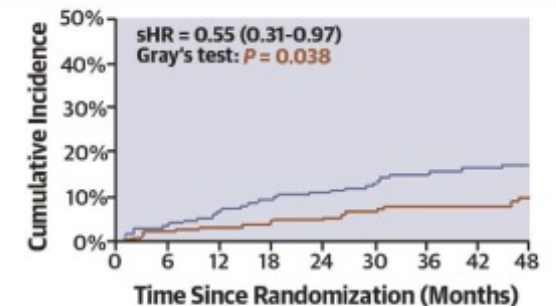
Primary Endpoint Stroke, TIA, SE, CV Death, Bleeding or Complications



Stroke or TIA



Non-Procedural Clinically Relevant Bleeding



ORIGINAL ARTICLE

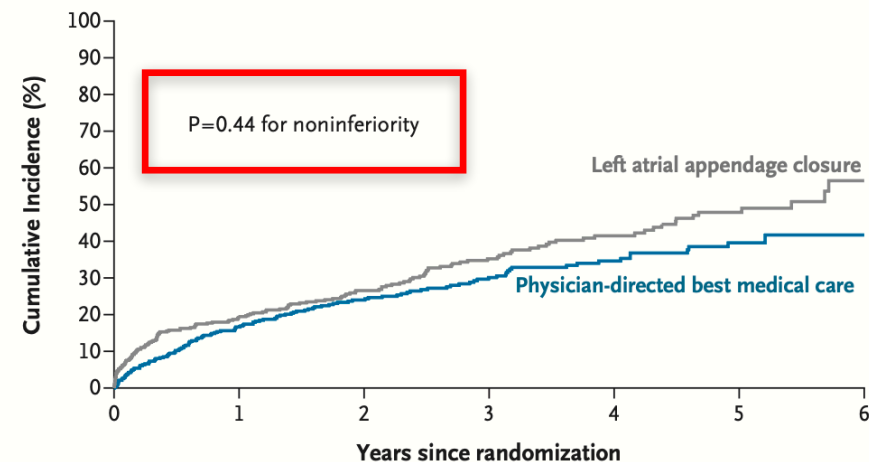
Left Atrial Appendage Closure or Medical Therapy in Atrial Fibrillation

U. Landmesser,¹⁻³ C. Skurk,^{1,2} P. Kirchhof,⁴⁻⁶ T. Lewalter,⁷ J. Hartung,^{1,2} A. Rroku,¹ B. Pieske,⁸ J. Brachmann,⁹ I. Akin,¹⁰ C. Jacobshagen,¹¹ B. Meder,^{12,13} A. Zeiher,^{14,15} S.D. Anker,^{2,16} H. Thiele,¹⁷ S. Blankenberg,^{4,5} S. Massberg,^{18,19} H. Schunkert,^{19,20} N. Frey,^{12,13} A. Joost,^{5,21} M. Bergmann,²² R.S. von Bardeleben,²³ T. Friede,^{24,25} M. Placzek,^{24,25} A. Suling,²⁶ K.G. Haeusler,²⁷ M. Endres,^{2,28} K. Wegscheider,^{5,26} L.-H. Boldt,^{2,29} and I. Eitel,^{5,21} for the CLOSURE-AF Trial Investigators*

CONCLUSIONS

Among patients with atrial fibrillation at high risk for stroke and bleeding, left atrial appendage closure was not noninferior to physician-directed best medical care with regard to a composite end point of stroke, systemic embolism, major bleeding, or cardiovascular or unexplained death. (Funded by the German Center for Cardiovascular Research; CLOSURE-AF ClinicalTrials.gov number, NCT03463317.)

A Primary End Point



No. at Risk

Physician-directed best medical care	442	306	203	136	77	40	7
Left atrial appendage closure	446	304	202	117	71	33	9

Left Atrial Appendage Closure — Another Overused Method in Cardiology?

Petr Widimský, M.D., Dr.Sc.^{1,2}

«The findings in the CLOSURE-AF trial are very important and should have immediate clinical effect. The message for the clinician is clear: **left atrial appendage closure failed to fulfill its theoretical promise to become an alternative treatment to best medical therapy** — at least for older patients such as those enrolled in the trial. **Best individualized medical therapy should remain standard treatment for older patients.**»

Left Atrial Appendage Closure in High-Risk Patients: Are We Asking the Right Question?

Journal of Cardiothoracic and Vascular Anesthesia 000 (2026) 1–3

«The findings in this trial should be interpreted not as a signal against LAAO as a therapeutic concept but rather as a reminder that we still do not know **who may benefit the most from LAAO**. The central clinical question is not whether LAAO can reduce thromboembolic risk but **in whom the benefit of preventing stroke and anticoagulation-related bleeding outweighs the risk of periprocedural complications.**»

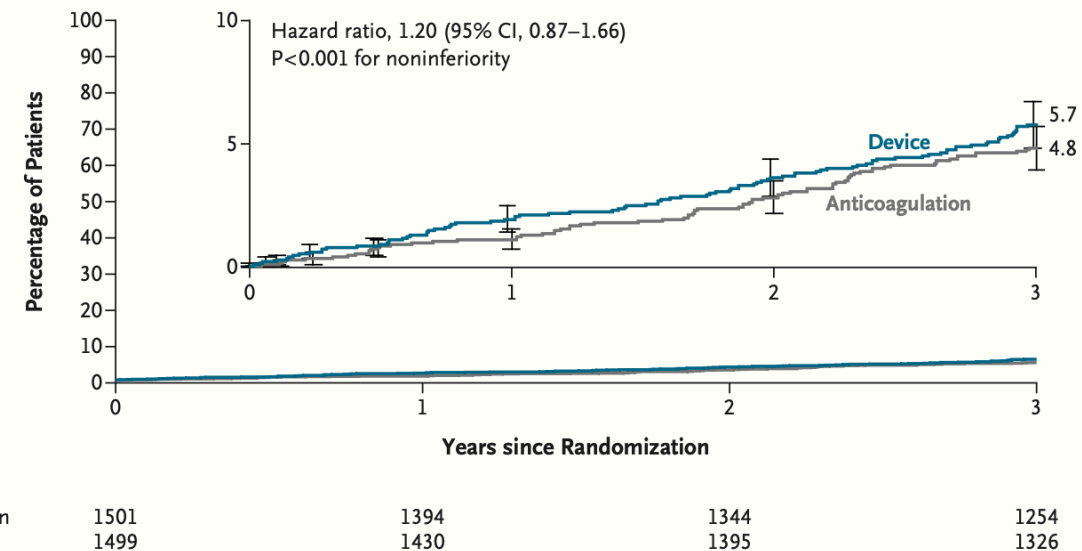
Left Atrial Appendage Closure or Anticoagulation for Atrial Fibrillation

S.K. Doshi,^{1,2} S. Kar,³ D.G. Nair,⁴ T. Waggoner,⁵ H. Agarwal,⁶ M. Moussavian,⁷ A. Kashani,⁸ S. Oza,⁹ L. Feldman,¹⁰ A. Sadhu,¹¹ D. DeLurgio,¹² O. Alli,¹³ J.E. Nielsen-Kudsk,¹⁴ M. Yamamoto,¹⁵ M. Alkhouli,¹⁶ A.J. Camm,¹⁷ M. Coylewright,¹⁸ C.M. Gibson,¹⁹ C.B. Granger,²⁰ M.E. Gurol,²¹ K.C. Huber,²² M. Mansour,²¹ A. Natale,^{23,24} S.J. Pocock,²⁵ V.Y. Reddy,²⁶ W.I. Saliba,²⁷ F.M. Asch,²⁸ S. Wehrenberg,²⁹ K. Frost,²⁹ T. Christen,²⁹ B.S. Sutton,²⁹ K.M. Stein,²⁹ M.B. Leon,³⁰ and K.A. Ellenbogen,³¹ for the CHAMPION-AF Investigators*

CONCLUSIONS

Among patients with atrial fibrillation who were candidates for anticoagulation, device-based left atrial appendage closure was noninferior to NOAC therapy with respect to a composite of death from cardiovascular causes, stroke, or systemic embolism and was superior to NOAC therapy for non-procedure-related bleeding at 3 years. (Funded by Boston Scientific; CHAMPION-AF ClinicalTrials.gov number, NCT04394546.)

A Death from Cardiovascular Cause, Stroke, or Systemic Embolism (primary efficacy end point)



Weekly Journal Scan: Is left atrial appendage closure really non-inferior to anticoagulation in atrial fibrillation?

Giovanna Liuzzo ^{1,2,*} and Carlo Patrono ^{2,3}

In conclusion, CHAMPION-AF does not settle the debate, it re-frames it. Left atrial appendage closure is no longer confined to patients without alternatives, but it cannot yet be considered a universal substitute for anticoagulation. Rather, it emerges as a credible option within a patient-centred, individualized decision-making framework. The future of AF management lies not in replacing anticoagulation, but in integrating LAAC selectively, identifying the patients in whom the balance between thromboembolic protection and bleeding risk most clearly favours an interventional approach.

Chiusura percutanea dell'auricola sinistra: una lettura critica dei trial CLOSURE-AF e CHAMPION-AF tra entusiasmi e cautele

Giancarlo Trimarchi^{1,2}, Sergio Berti^{1,2}

¹Fondazione CNR Toscana "G. Monasterio", Ospedale del Cuore "G. Pasquinucci", Massa

²Interdisciplinary Center for Health Sciences, Scuola Superiore Sant'Anna, Pisa

G Ital Cardiol 2026;27

Confronto Trial CHAMPION-AF vs CLOSURE-AF

CHAMPION-AF



Età media: 71.7 anni



CHA₂DS₂-VASc: 3.5 (rischio moderato)



HAS-BLED: 1.3 (basso rischio emorragico)



Precedente ictus: ~7,8% precedente ictus/TIA



N=3000 pazienti



CLOSURE-AF



Età media: 79.0 anni



CHA₂DS₂-VASc: 5.2 (alto rischio)



HAS-BLED: 3.0 (alto rischio emorragico)



Precedente ictus: ~35% precedente ictus/TIA



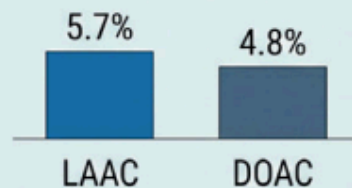
N=912 pazienti



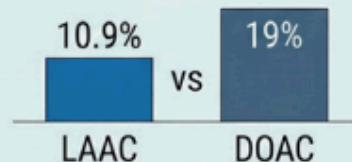
RISULTATI ENDPOINT PRINCIPALI

Endpoint primario: Non-inferiorità raggiunta ✓

LAAC vs DOAC

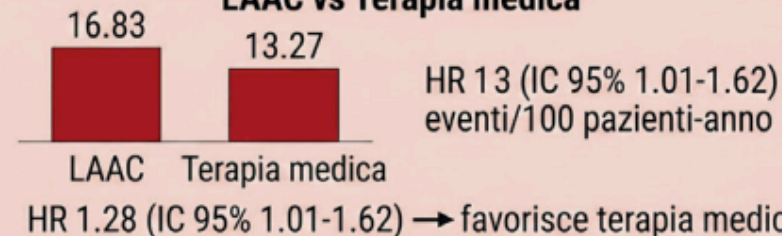


Sanguinamento maggiore (Safety): LAAC Superiore



Endpoint primario: Non-inferiorità NON raggiunta ✗

LAAC vs Terapia medica



EDITORIALE

Chiusura percutanea dell'auricola sinistra: una lettura critica dei trial CLOSURE-AF e CHAMPION-AF tra entusiasmi e cautele

Giancarlo Trimarchi^{1,2}, Sergio Berti^{1,2}

¹Fondazione CNR Toscana "G. Monasterio", Ospedale del Cuore "G. Pasquinucci", Massa

²Interdisciplinary Center for Health Sciences, Scuola Superiore Sant'Anna, Pisa

G Ital Cardiol 2026;27

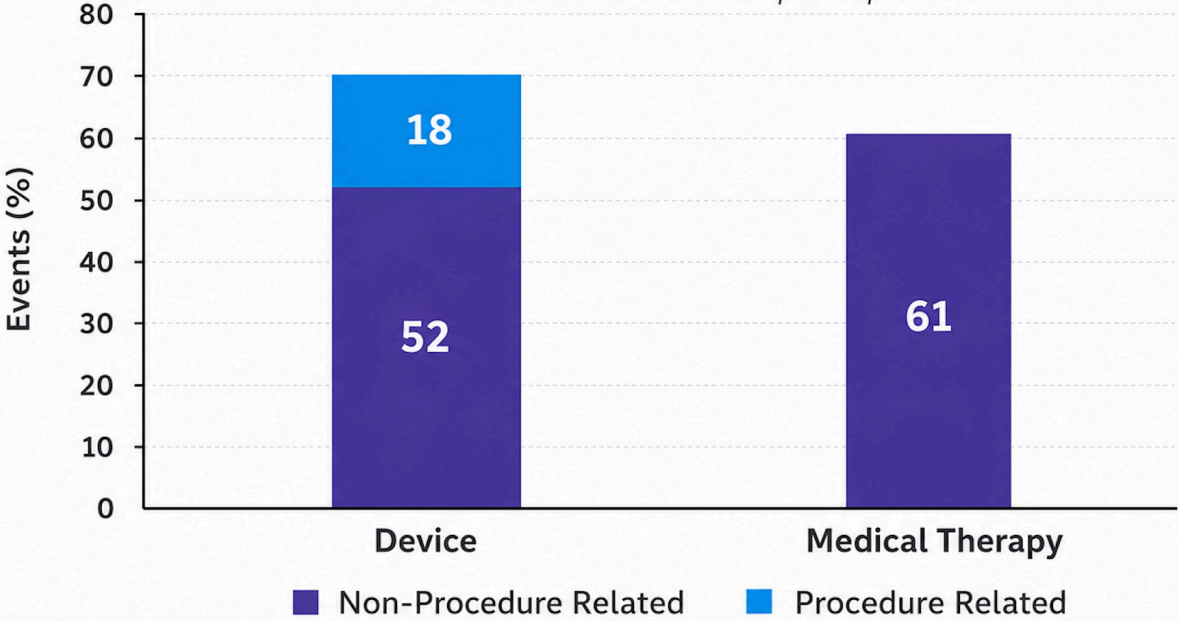
Il fallimento del trial è stato interamente guidato dai sanguinamenti maggiori (7.4 vs 6.2 per 100 pazienti-anno) e dalle morti cardiovascolari/inspiegate (9.5 vs 7.7 per 100 pazienti-anno). Un dato particolarmente allarmante emerso dall'analisi è l'eccesso numerico di morti cardiovascolari nel gruppo dispositivo (6.22 vs 4.88 per 100 pazienti-anno), che potrebbe essere un segnale di allarme o un effetto del caso, ma che merita attenzione. L'uso della DAPT post-impianto in questa popolazione fragile ha causato un picco di emorragie nei primi 6 mesi.

In conclusione, i trial CHAMPION-AF e CLOSURE-AF ci insegnano che la LAAC è una tecnologia efficace per prevenire l'ictus, ma il successo clinico netto dipende intimamente dal substrato biologico su cui viene applicata. Se nel paziente a basso-medio rischio la LAAC rappresenta un valido investimento a lungo termine, nel paziente geriatrico iper-complesso e ad alto rischio emorragico, lo stress rappresentato dalla terapia post-impianto rischia di superare i benefici¹¹. La cardiologia moderna deve quindi allontanarsi dall'approccio "one-size-fits-all" e abbracciare un processo decisionale condiviso e altamente personalizzato, in cui l'età, le comorbidità, il rischio emorragico ed ischemico e l'aspettativa di vita indirizzino la scelta più appropriata tra l'approccio transcatetere e la terapia farmacologica sistemica.

CLOSURE AF: Procedural Safety is Critical

Major Bleeding Events

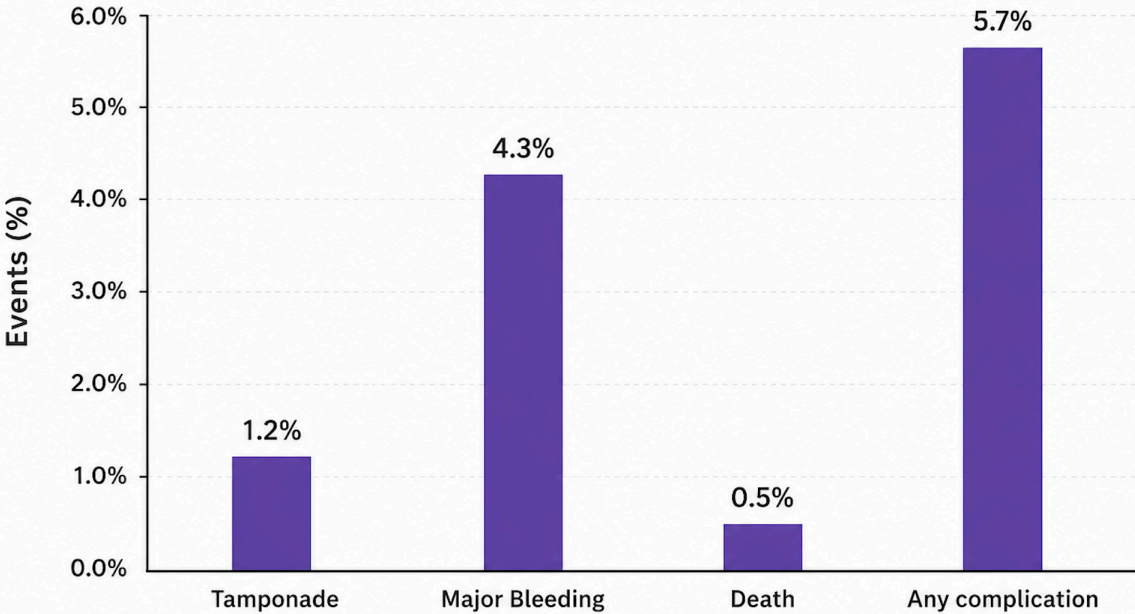
50% of device arm on DAPT post implant



Landmesser U et al. N Engl J Med. 2024 March.

CLOSURE AF: Procedural Safety is Critical

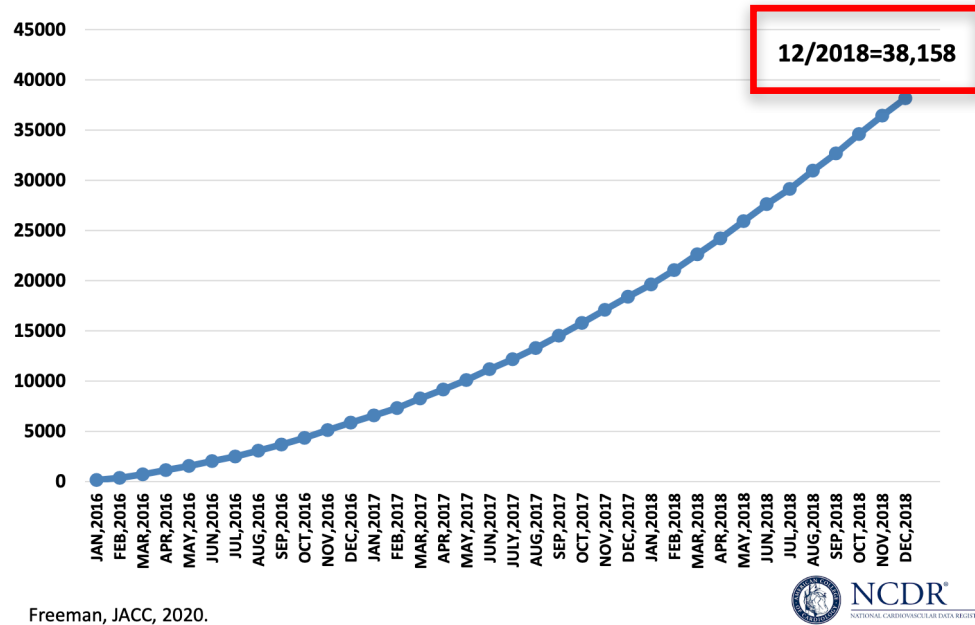
Procedural Complications



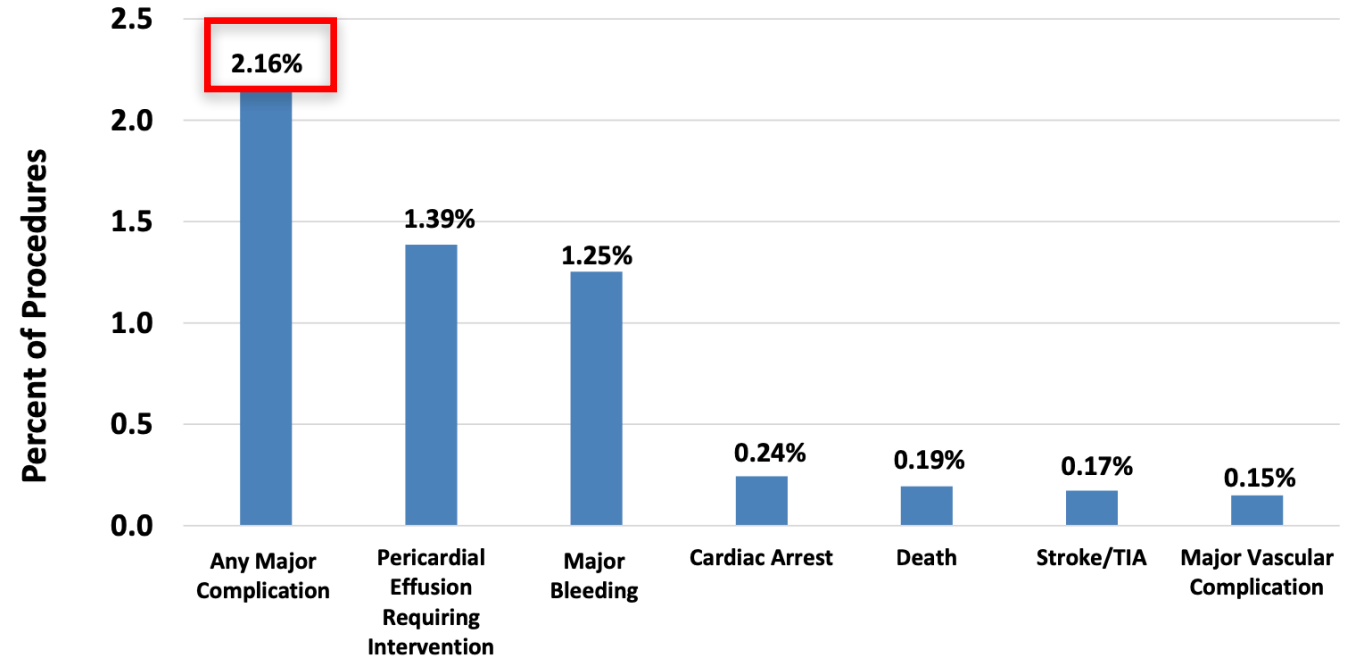
Landmesser U et al. N Engl J Med. 2024 March.

NCDR Left Atrial Appendage Occlusion (LAAO) Registry: Review Of The First 3 Years

Cumulative Procedures



Major In-hospital AEs



Periprocedural Outcomes Associated With Use of a Left Atrial Appendage Occlusion Device in China

RESULTS Among 3096 enrolled participants, 1782 participants (57.6%) were men, and the mean (SD) age was 69 (9) years. Participants had a high risk of stroke (mean [SD] cardiovascular risk score, 4.0 [1.8]) and a moderate-to-high risk of bleeding (mean [SD] bleeding risk score, 2.4 [1.2]). A total

Table 4. Comparison With Previous Studies (continued)

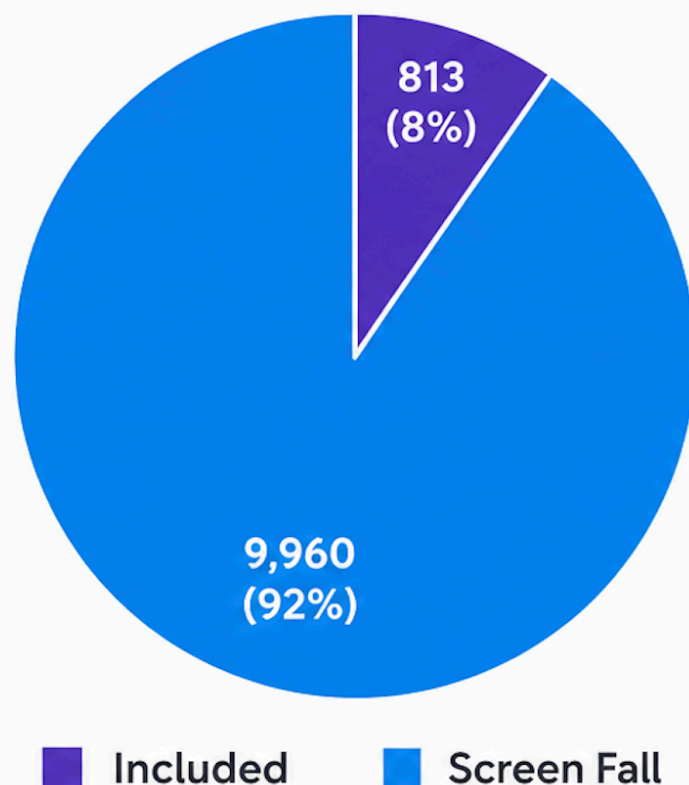
Characteristic	No. (%)									
	Amplatzer		WATCHMAN							
	ACP (cardiac plug) ¹¹	Amulet ⁸	PROTECT-AF ²	PREVAIL ⁴	CAP ^{5,22}	CAP2 ⁵	EWOLUTION ¹²	Postapproval registry ¹⁰	NCDR ⁹	RECORD
Pericardial tamponade	13 (1.2)	10 (0.9)	20 (4.3)	5 (1.9)	8 (1.4)	11 (1.9)	3 (0.3)	39 (1.0)	528 (1.4)	11 (0.3)
Treated with pericardiocentesis	NA	NA	13 (2.8)	4 (1.5)	7 (1.2)	NA	2 (0.2)	24 (0.6)	437 (1.2)	10 (0.4)
Treated surgically	NA	NA	7 (1.5)	1 (0.4)	1 (0.2)	NA	1 (0.1)	12 (0.3)	91 (0.3)	1 (<0.1)
Resulted in death	2 (0.2)	NA	0	0	0	0	0	3 (0.1)	0	0
Pericardial effusion, no intervention	NA	8 (0.7)	4 (0.9)	0	5 (0.9)	3 (0.5)	4 (0.4)	11 (0.3)	93 (0.3)	20 (0.6)
Device embolization	8 (0.8)	2 (0.2)	3 (0.6)	2 (0.7)	1 (0.2)	0	2 (0.2)	9 (0.2)	30 (0.1)	0

CLOSURE AF vs. CLOSURE AF

Closer Look at Method

CLOSURE AF

8% of Screened Population Included in 6 Years

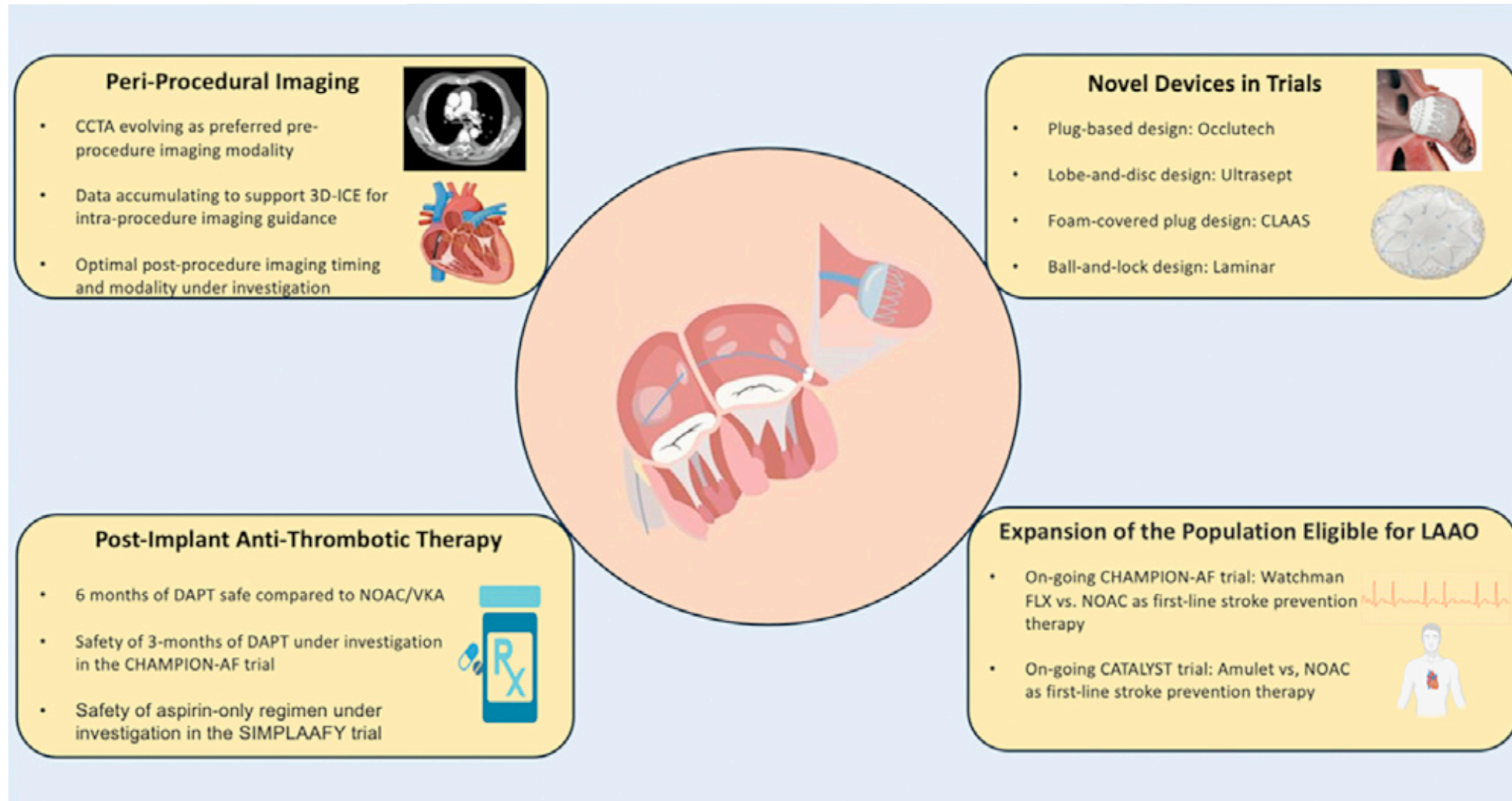


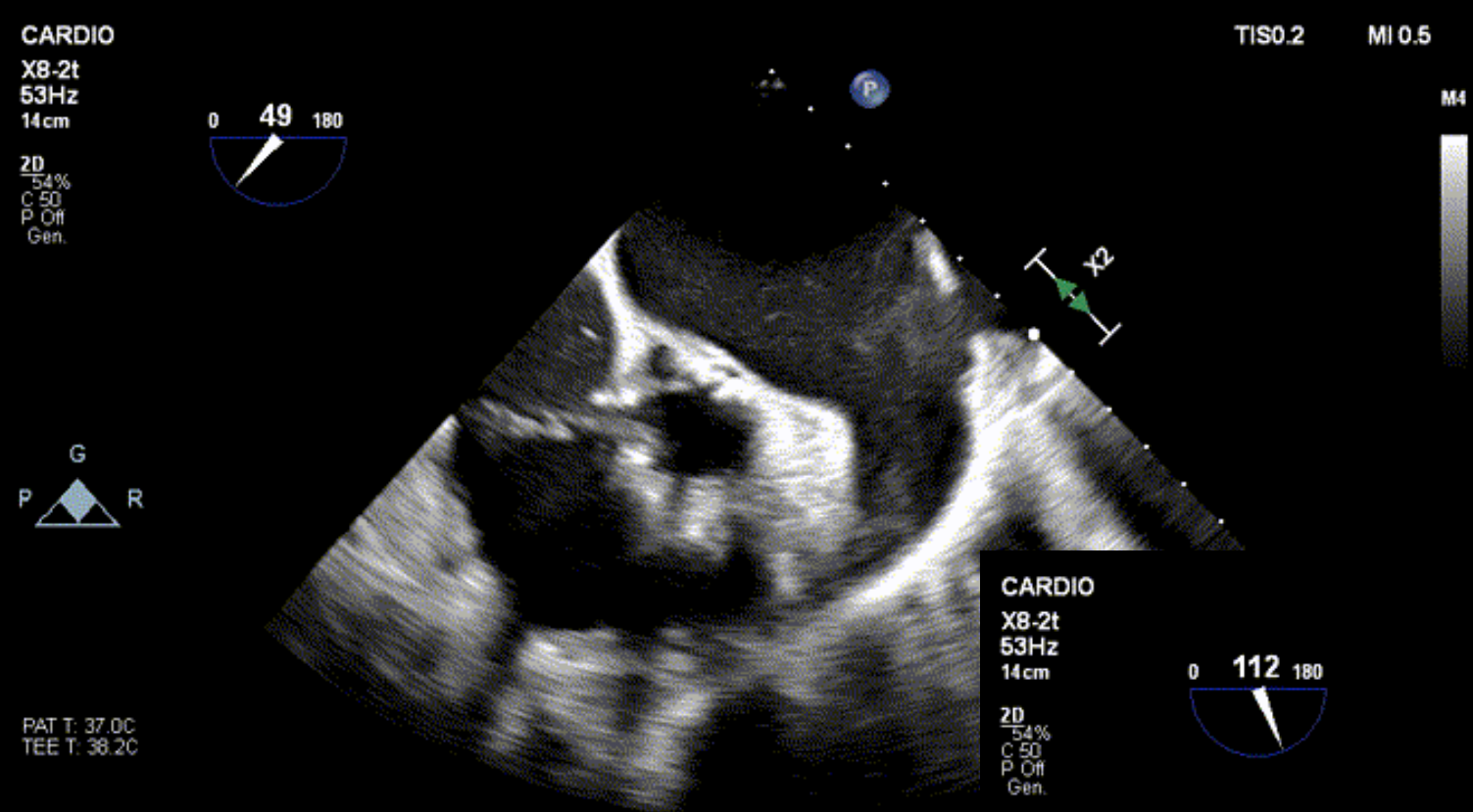
Landmesser U et al. *N Engl J Med*. 2024 March.

Doshi et al. *N Engl J Med*. 2024 March.

Expert review

Filling the Void: The Past, Present, and Future of Left Atrial Appendage Occlusion





CARDIO
X8-2t
53Hz
14cm

2D
54%
C 50
P Off
Gen.

0 112 180

G
P R

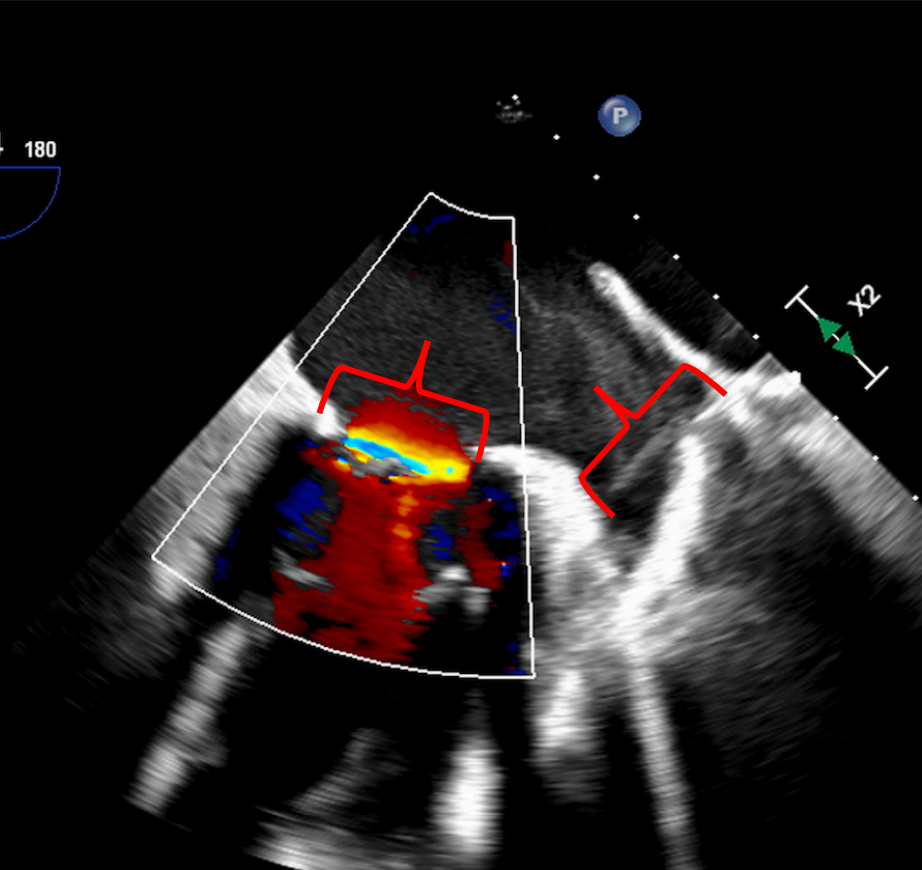
PAT T: 37.0C
TEE T: 38.7C

TIS0.2 MI 0.5

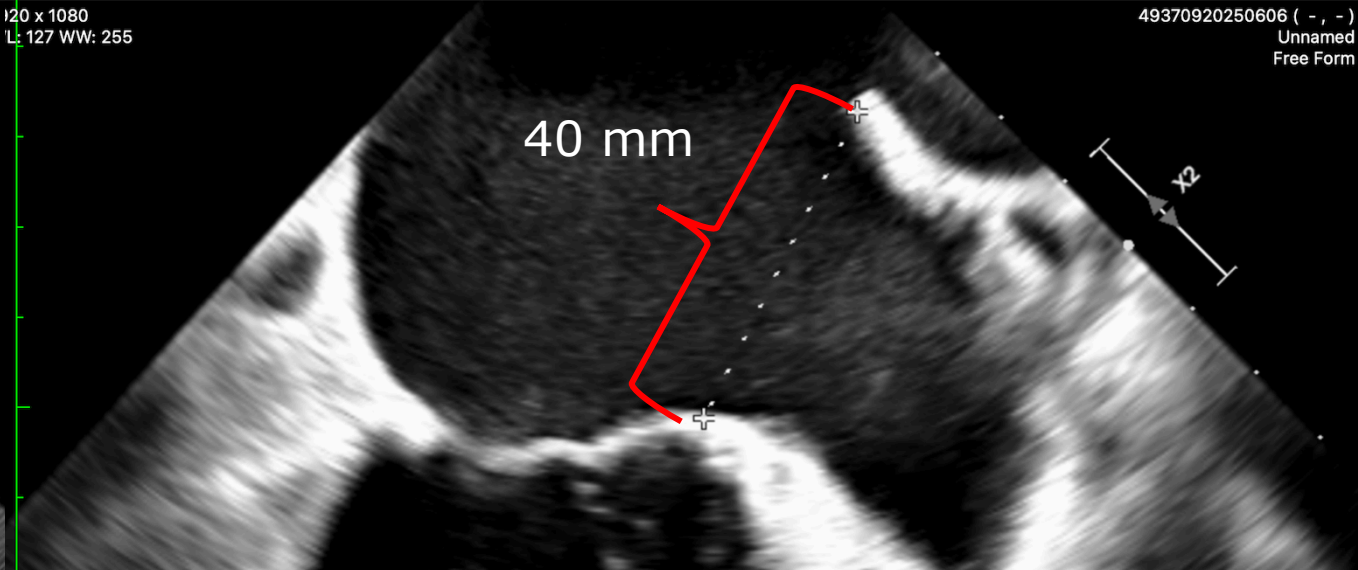
M4

*** bpm

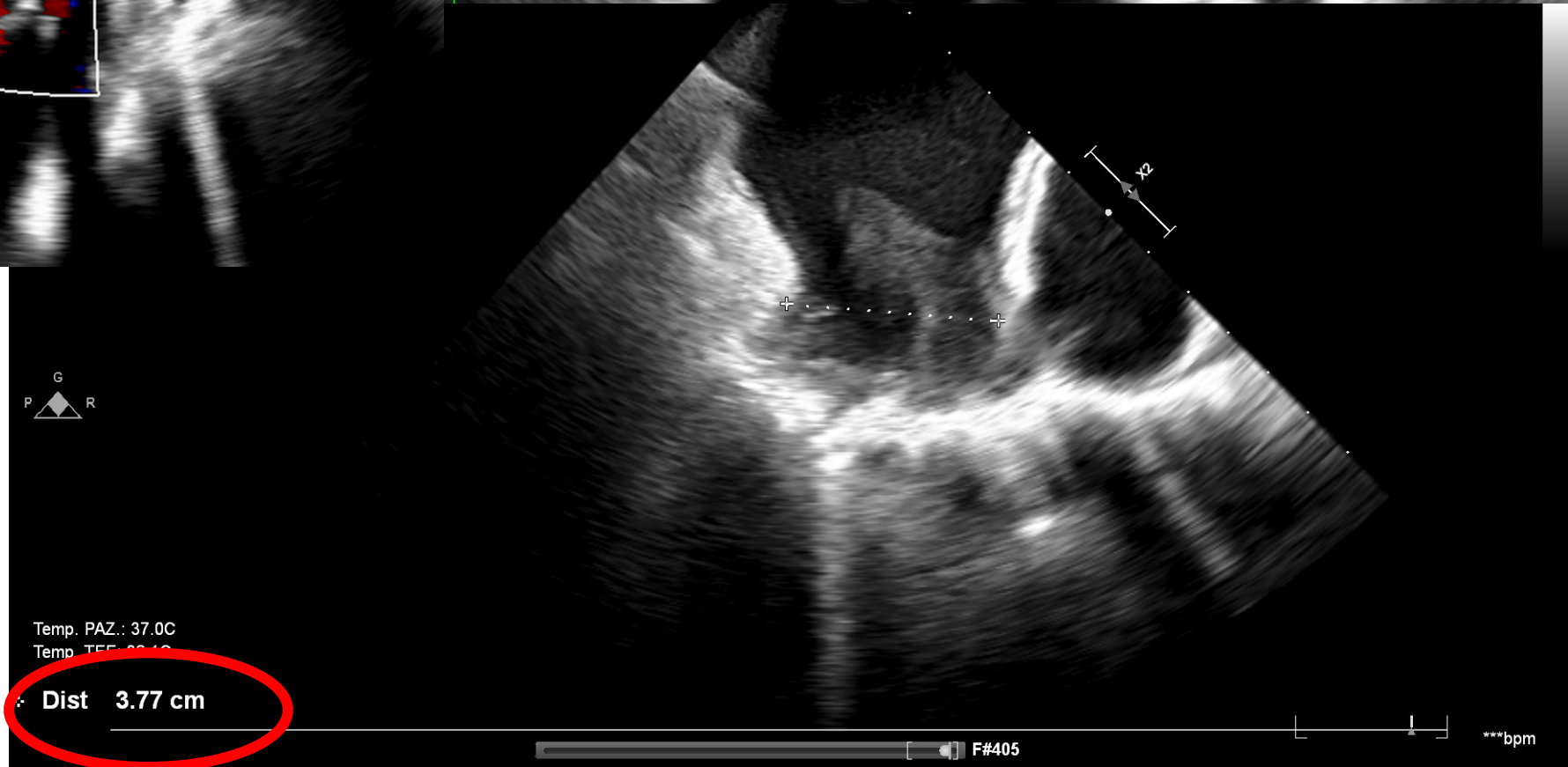
024 x 576
VL: 127 WW: 255
CARDIO
K8-2t
20Hz
14cm
0 64 180
2D
56%
50
5 Off
Gen.
CF
48%
6434Hz
WF 578Hz
4.4MHz
G
P R
PAT T: 37.0C
TEE T: 38.6C



120 x 1080
L: 127 WW: 255



49370920250606 (-, -)
Unnamed
Free Form



Temp. PAZ.: 37.0C
Temp. TEE: 38.6C

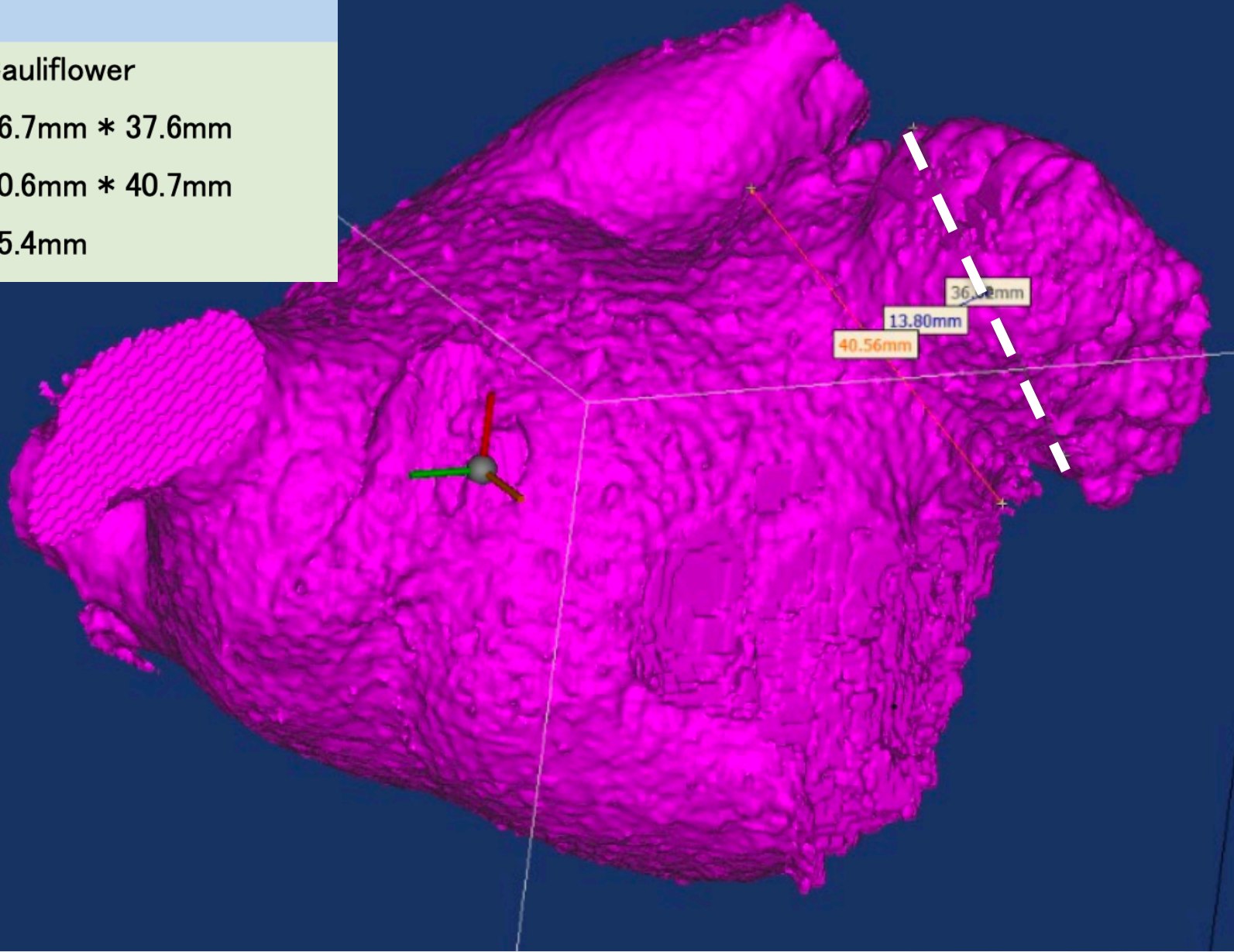
Dist 3.77 cm

F#405

***bpm

Measurement details

LAA type	Cauliflower
Landing zone	36.7mm * 37.6mm
Ostium	40.6mm * 40.7mm
LAA depth	25.4mm

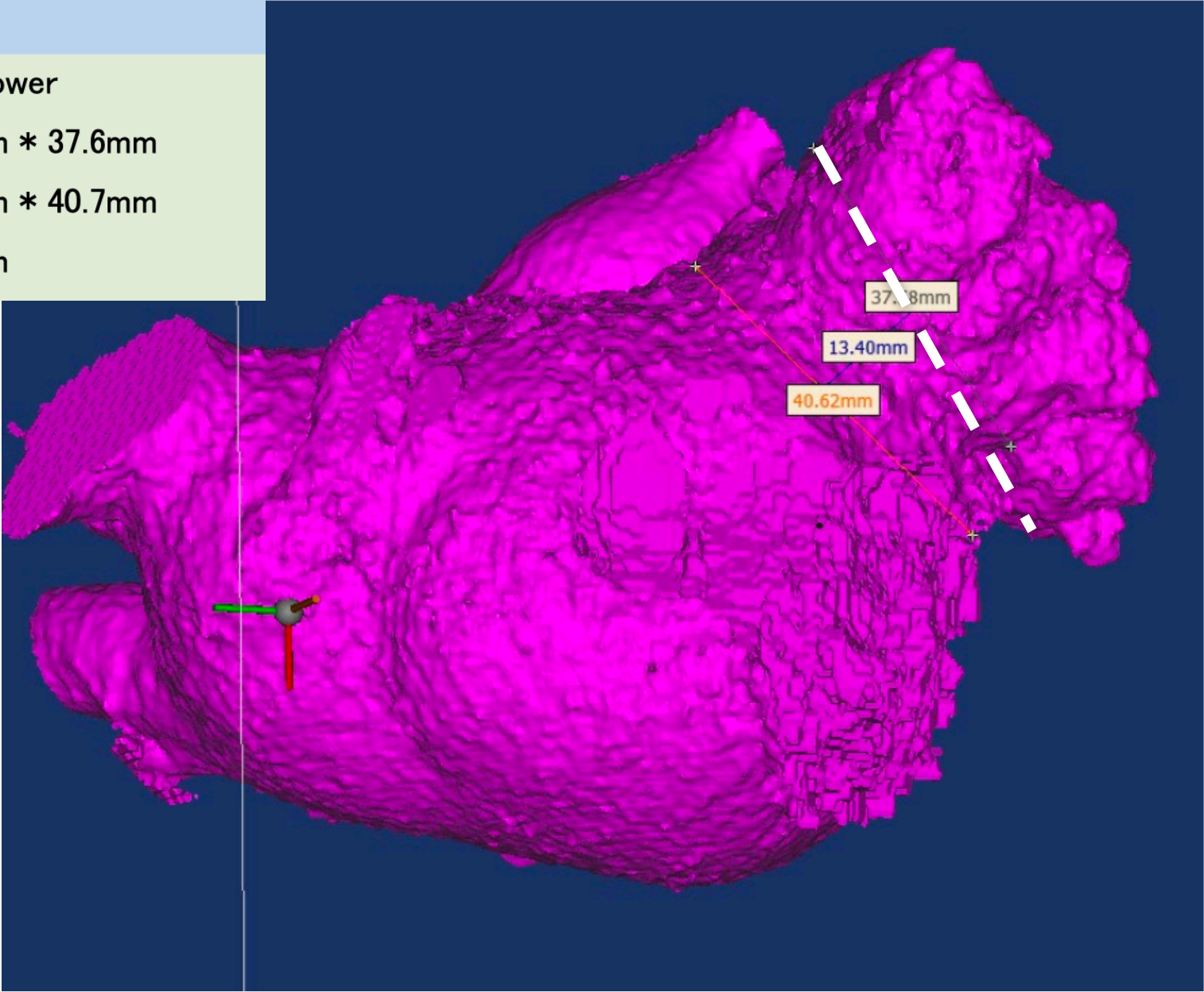


Measurement under RAO30° CRA20°

	Landing zone	Ostium
Maximum diameter	36.7mm	40.6mm

Measurement details

LAA type	Cauliflower
Landing zone	36.7mm * 37.6mm
Ostium	40.6mm * 40.7mm
LAA depth	25.4mm



Measurement under RAO 30° CAU20°

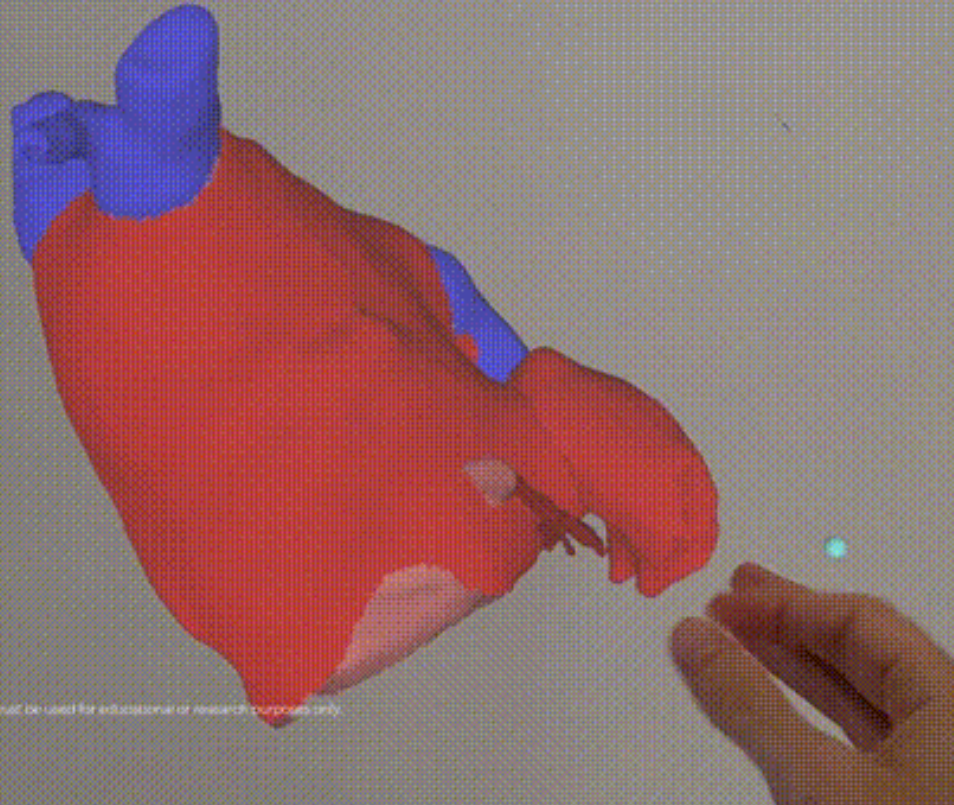
Maximum diameter

Landing zone

37.6mm

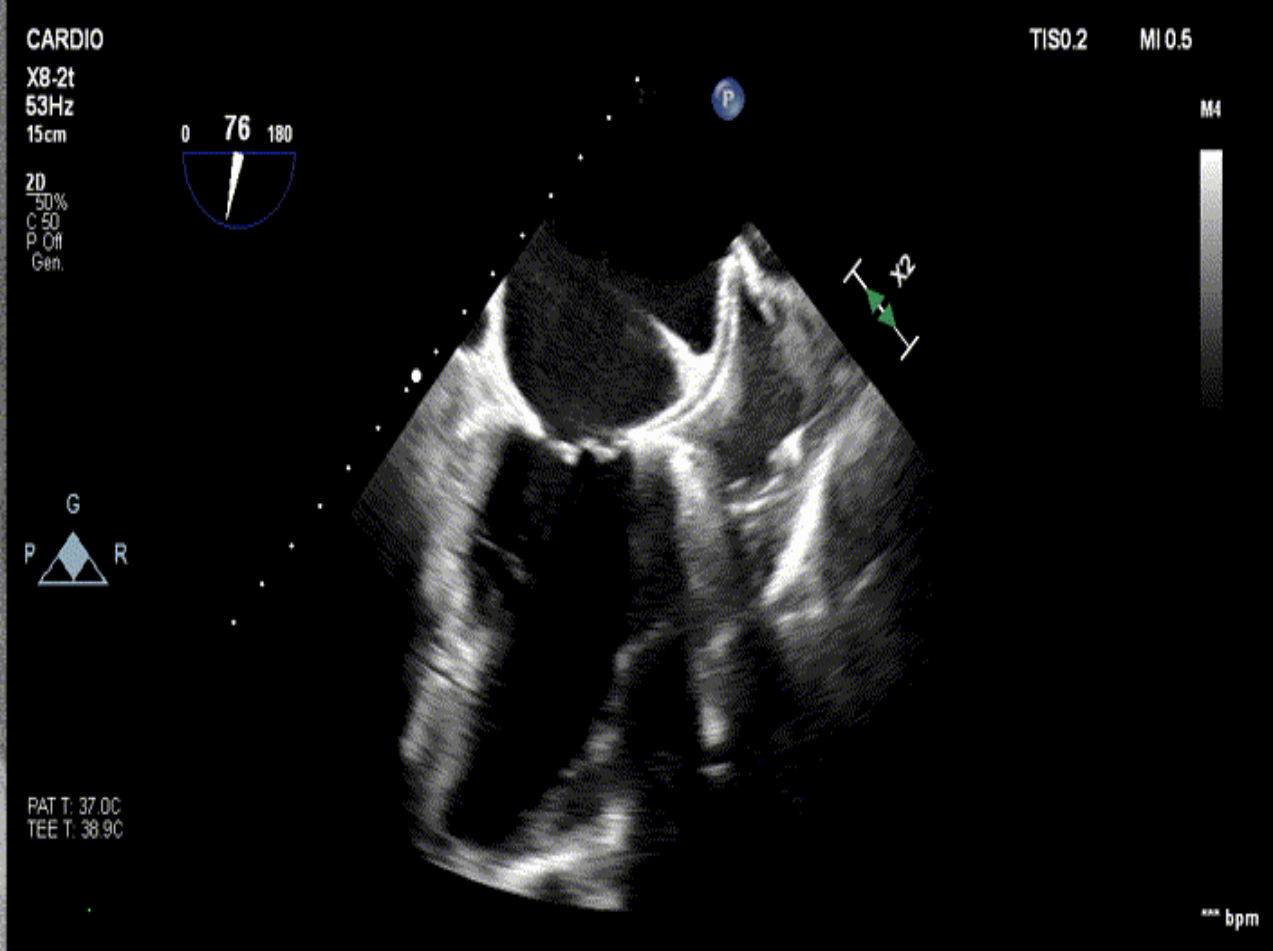
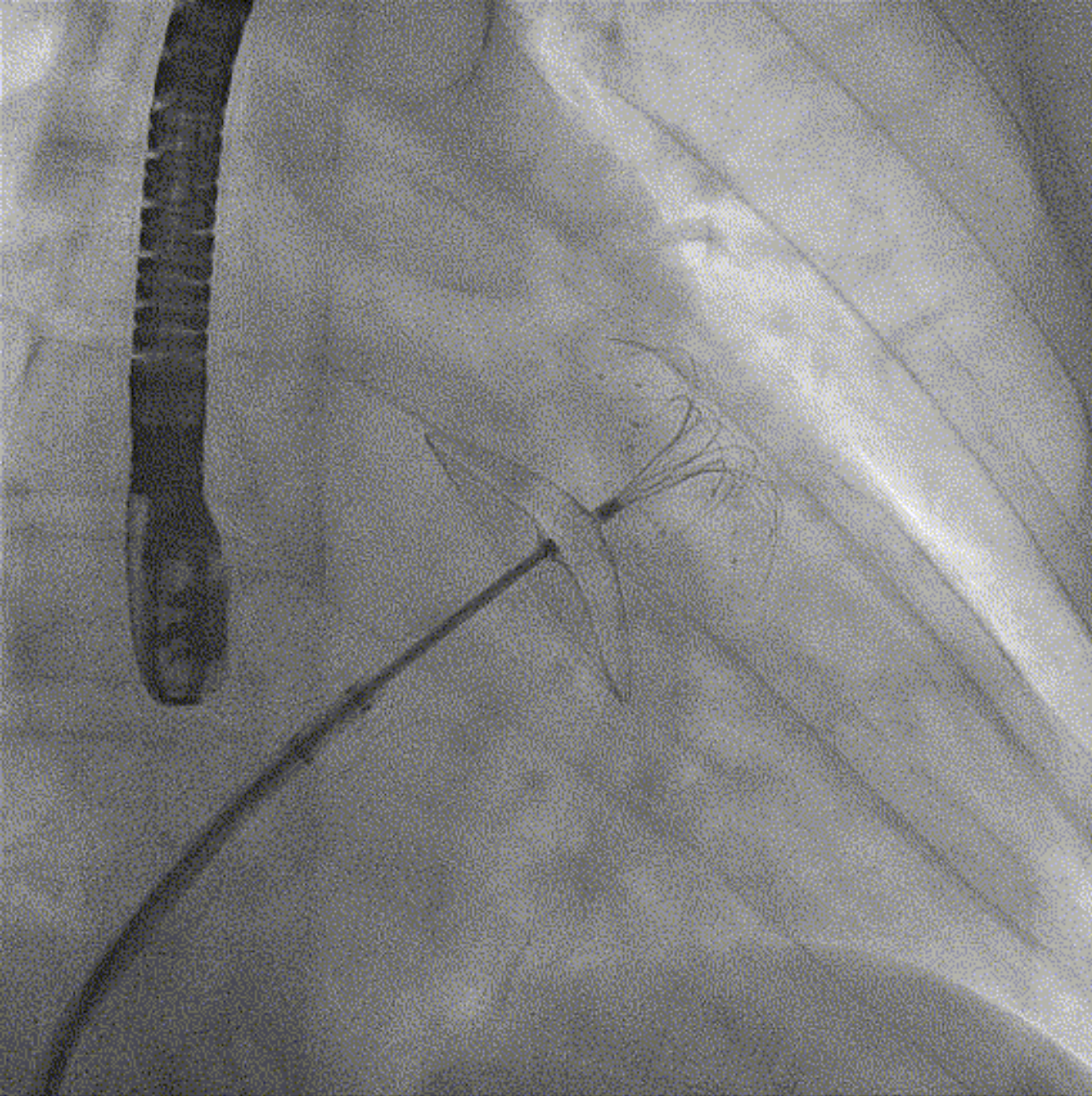
Ostium

40.7mm



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CARDIO

X8-2t
6Hz
11cm

Zoom 3D
20 / 30
% 56 / 45
C 50 / 34
Gen
XRes 1

CF
% 54 / 50
5912Hz
WF 472Hz
4.4MHz

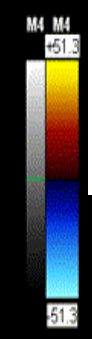
PAT T: 37.0C
TEE T: 39.2C

Battiti 3D 1



TIS0.5

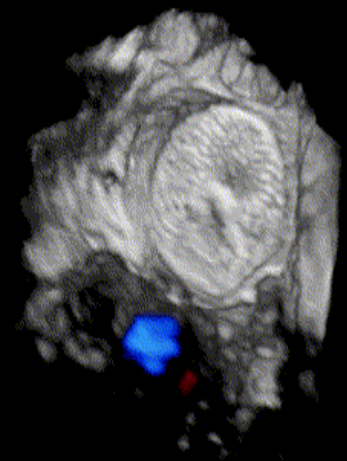
MI 0.3



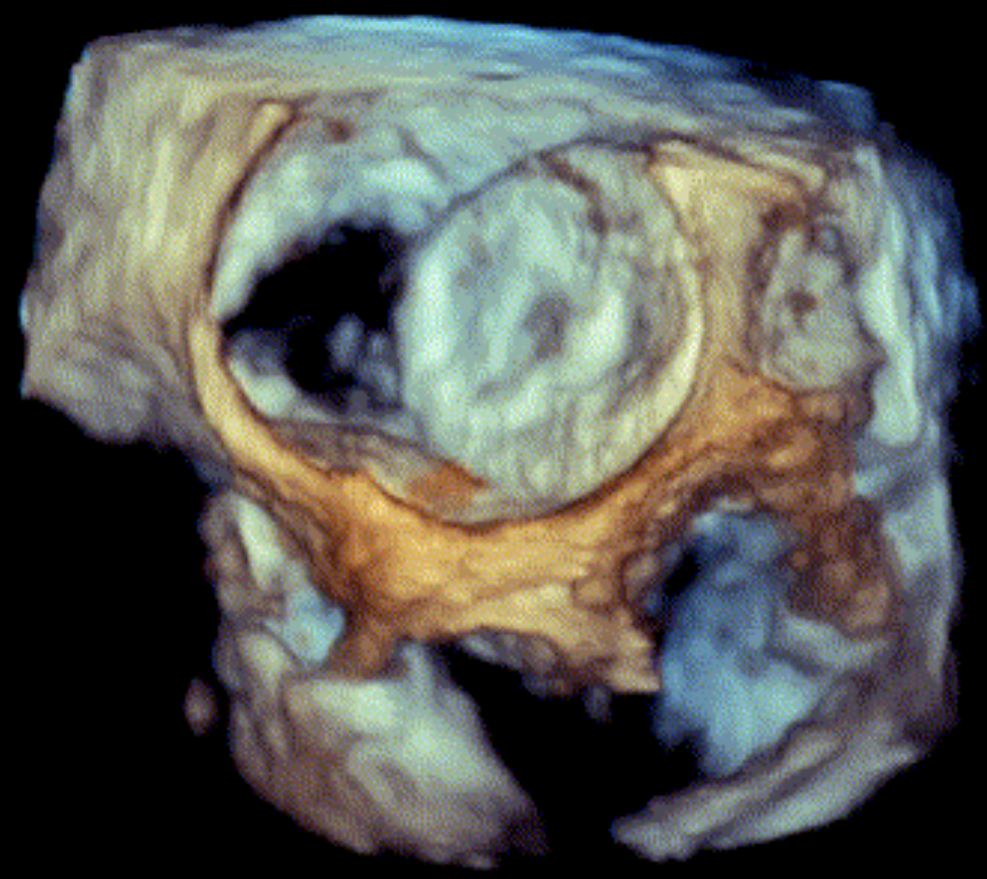
FINAL RESULT

TIS0.2

MI 0.2



*** bpm



PAT T: 37.0C
TEE T: 39.2C

*** bpm

800 x 600
WL: 127 WW: 255

Intervento CV

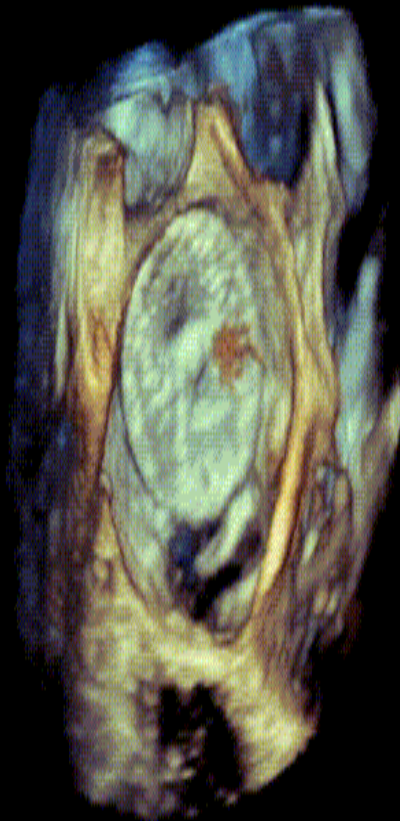
X8-2t
11Hz
9.5cm

Zoom 3D
2D/3D
% 56/44
C 46/30
Gen.
XRes ON

PAT T: 37.0C
Temp. TEE: 38.5C

245%
1:1 / 24
Non compressa

3 months FU



TISO.2 EMO.2
325256 (77 y , 76 y)
Ecocardiografia Transesofagea
Free Form

124 x 768
L: 127 WW: 255
R: 185 / 422 px Valore: R: 0.00 / 0.00
): 48.55 / 111.04 mm

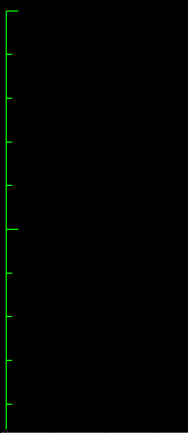
Intervento CV

X8-2t
14Hz
16cm

2D
61%
C 46
P Off
Gen.

CF
48%
6875Hz
WF 618Hz
4.4MHz

G
P R



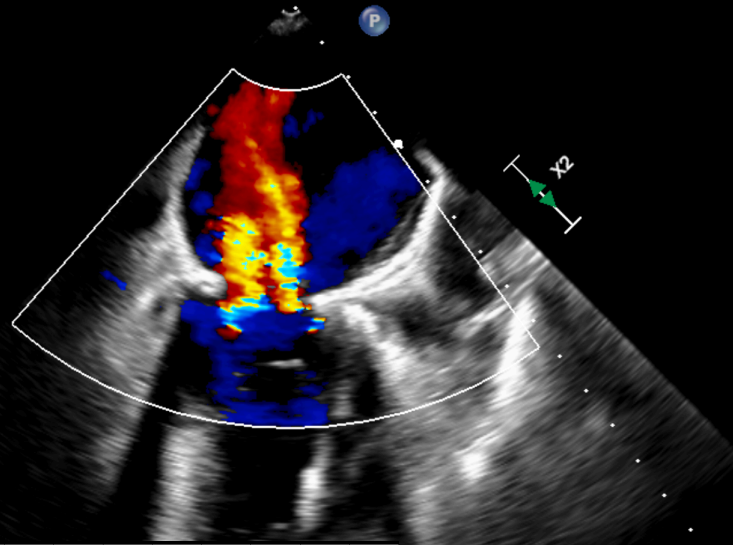
11/09/2025 15:49:54

11/09/2025 15:50:38

TISO.7 MI.0.3

325256 (77 y , 76 y)
Ecocardiografia Transesofagea
Free Form

M5 M4
+59.6
-59.6
cm/s



TISO.2 MI.0.3

325256 (77 y , 76 y)
Ecocardiografia Transesofagea
Free Form

M5



10

87 bpm

11/09/25, 16:16:06
27 sec
Made In OsiriX

93 bpm
11/09/25, 16:15:57
27 sec
Made In OsiriX

Temp. PAZ.: 37.0C
Temp. TEE: 38.3C
F# 31

249%
1:1 / 25
Non compressa

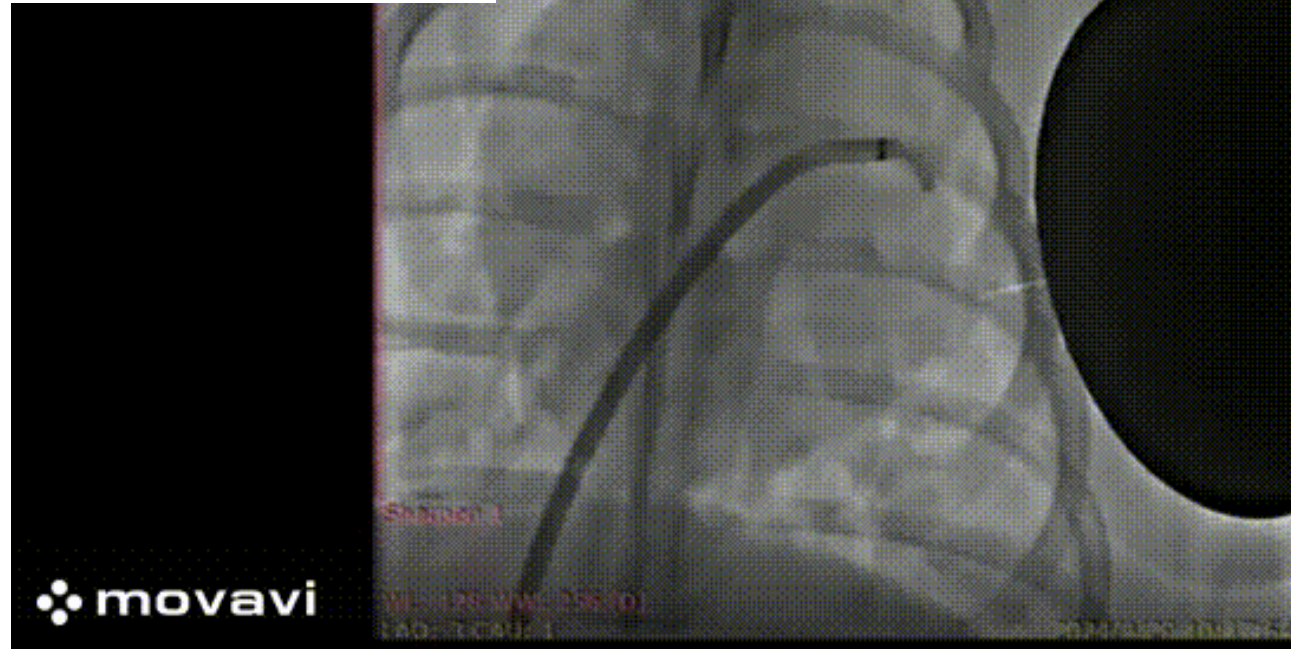


7

90 bpm
11/09/25, 16:15:52
27 sec
Made In OsiriX

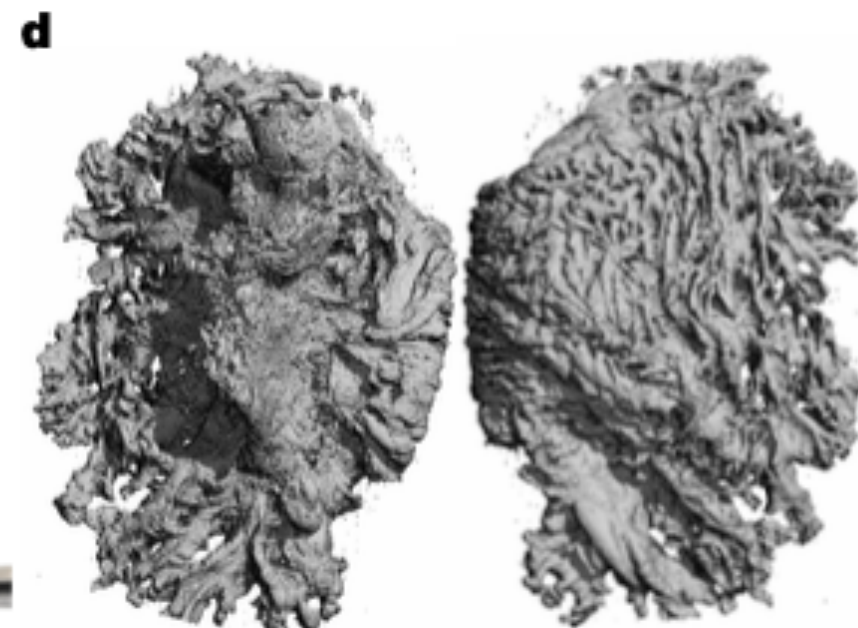
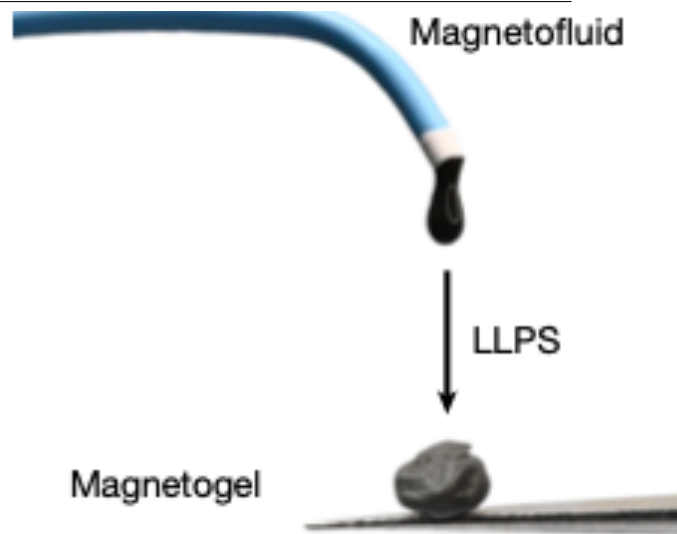
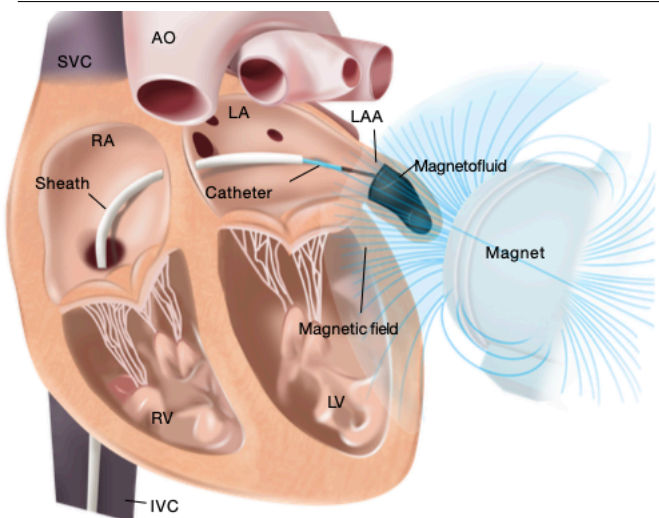
LAAC IN 20 YEARS !

Long-term thrombus-free left atrial appendage occlusion via magnetofluids



Peri-device leak and device-related thrombus¹ remain key challenges of current Left atrial appendage occlusion (LAAO) owing to the incompatibility between the solid occluder and the left atrial appendage (LAA). Here we propose a personalized and complete LAAO **using magnetofluids that is suitable for all types of LAAs. Magnetofluids can be injected into LAAs from cardiac catheters.** In the presence of a sufficient magnetic field, magnetofluids can resist high-speed blood flow. **Magnetofluids can precipitate into magnetogels in contact with water in the blood within only a few minutes.**

Injectable magnetofluid achieves complete, thrombus-free LAA occlusion in preclinical models



After reaching the LAA, the magnetofluid is injected from the catheter into the LAA while an external cylinder magnet held by a robotic arm is placed outside the body, facing towards the LAA to ensure sufficient magnetic force against the high-velocity blood flow conditions of the heart. After contact with water in the blood, the magnetofluid precipitates through liquid–liquid phase separation to form a gel. When precipitation into the magnetogel is complete (after 20 min in a minipig model), the catheter and magnetic field are removed, leaving a cast that conforms to the LAA morphology.



CONGRESSO

ROMA, 25 - 27 Giugno 2026

