



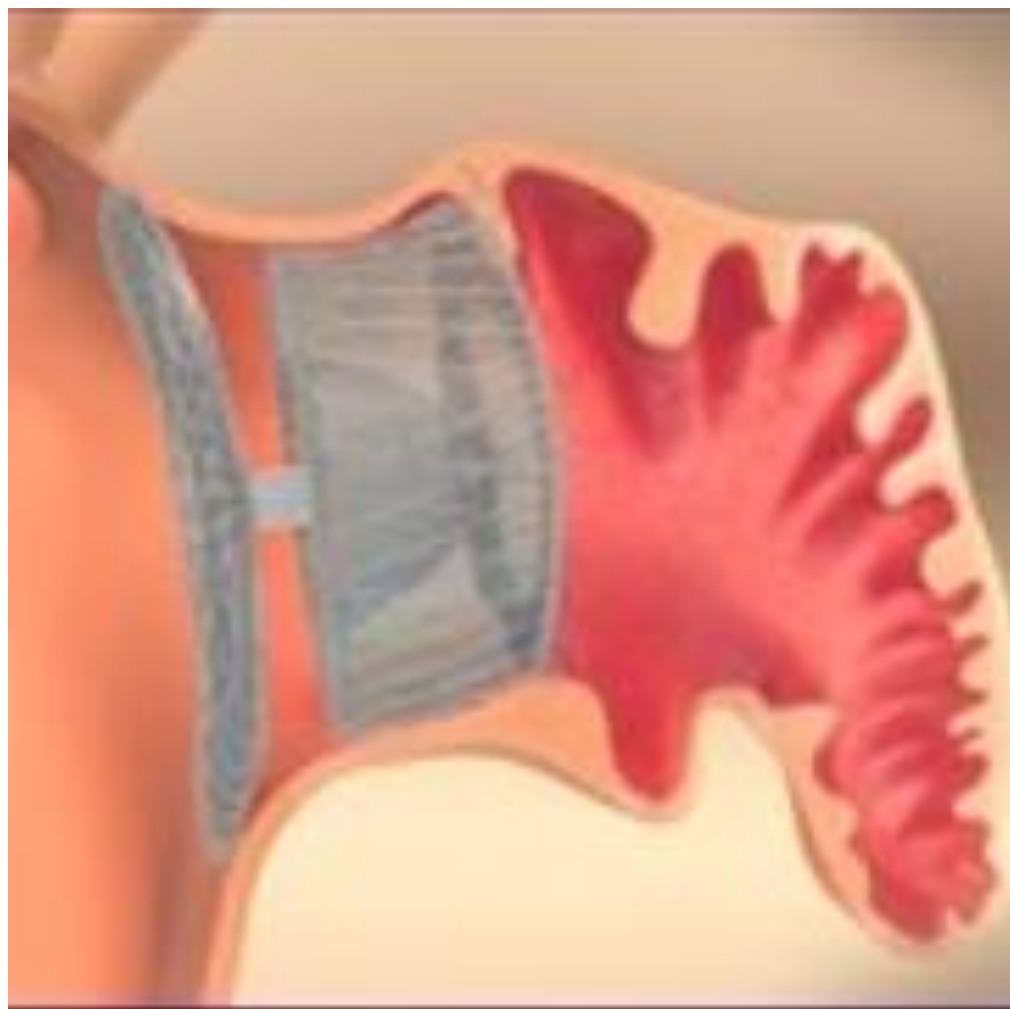
Uzávěr ouška LS – současná evidence a studie Prague 17

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Kardiocentrum Nemocnice Podlesí Třinec

Uzávěr ouška levé síně

Amplatzer Amulet okluder

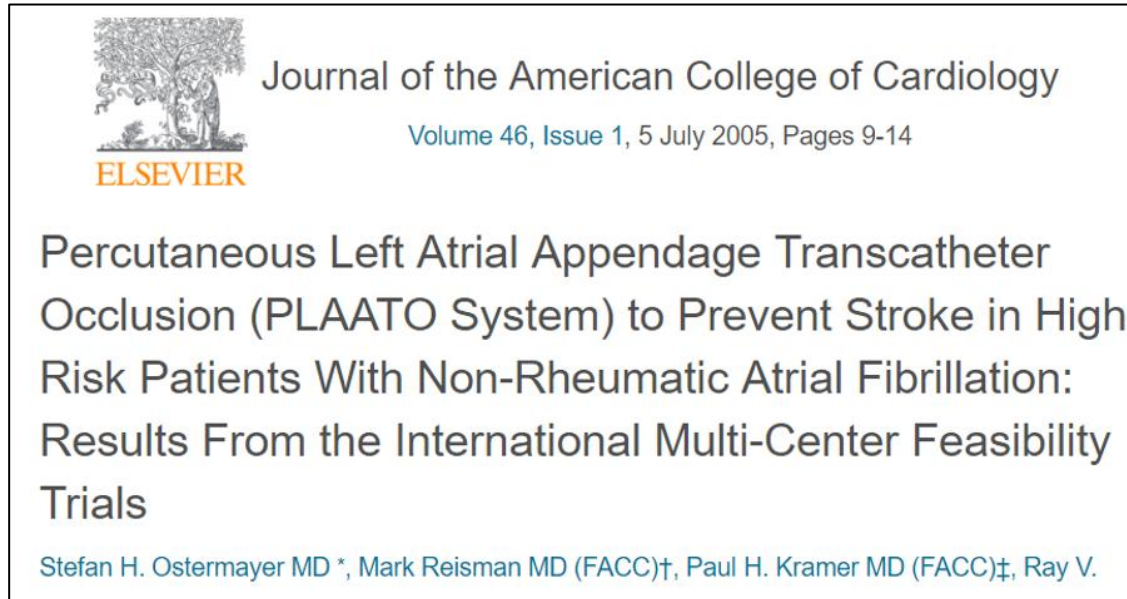


Watchman okluder



PLAATO Study

Prospektivní multicentrický registr – studie proveditelnosti, n=111 (KI OAT)



- Procedurální úspěch 97,3% (počet procedur 113)
- 30-D FU: 1 KV úmrtí, 3 tamponáda (perikardiocentéza)
- 9M FU: 2 CMP
- žádný trombus na okluderu
- Závěr: uzavěr ouška je proveditelný s přijatelným rizikem u nemocných FS a kontraindikací k OAT

PROTECT AF

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**

Summary

Background In patients with non-valvular atrial fibrillation, embolic stroke is thought to be associated with left atrial appendage (LAA) thrombi. We assessed the efficacy and safety of percutaneous closure of the LAA for prevention of stroke compared with warfarin treatment in patients with atrial fibrillation.

Lancet 2009; 374: 534–42

See Editorial page 501

See Comment page 504

PROTECT AF

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

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Summary

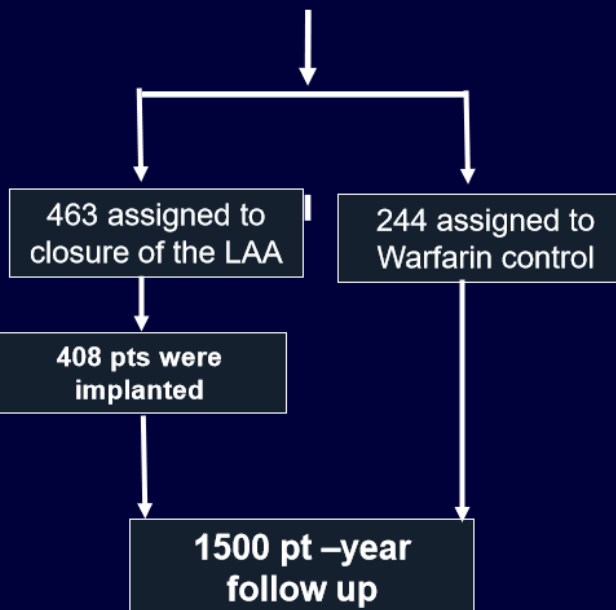
Lancet 2009; 374: 534-42 **Background** In patients with non-valvular atrial fibrillation, embolic stroke is thought to be associated with left atrial

PROTECT AF Trial

Design

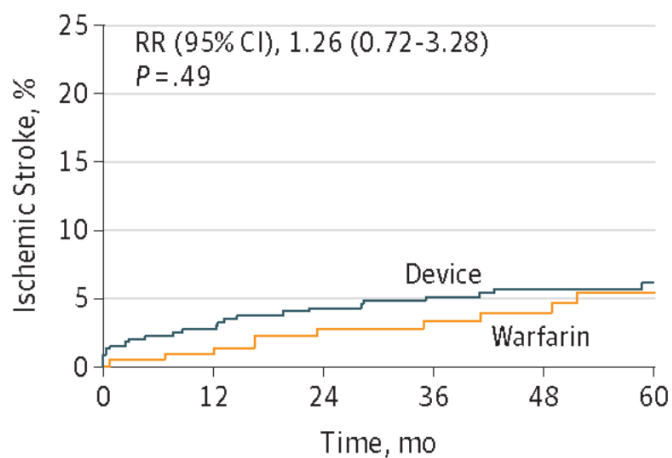
- **DESIGN** Prospective randomized, non-inferiority trial of LAA closure versus coumadin in Afib pts for prevention of stroke
- **OBJECTIVE** Effectiveness and Safety of LAA closure for prevention stroke in comparison to coumadin for afib pts
- **PRIMARY END POINT** Composite end point of stroke, cardiovascular death or system embolisation

707 Afib pts with CHADS₂ Score ≥ 1 were randomized in 2:1 fashion



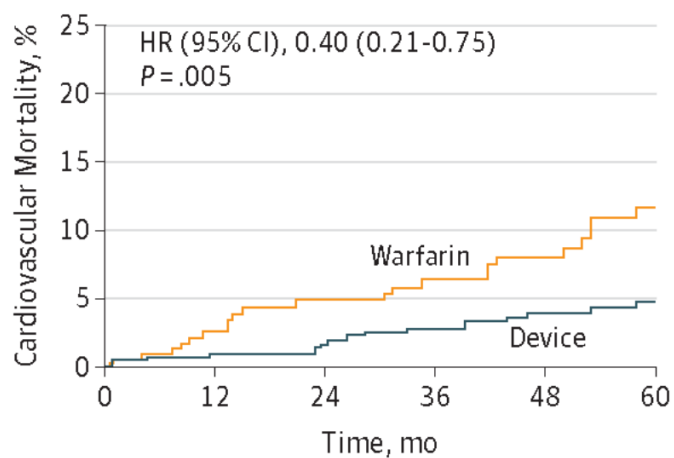
PROTECT AF – 4 leté sledování

A Ischemic stroke



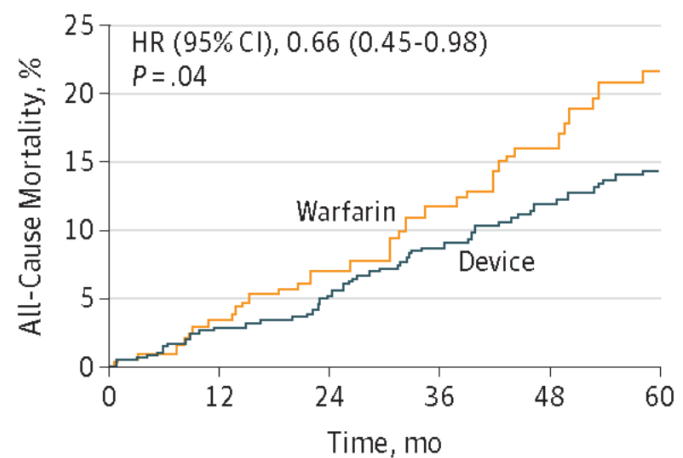
No. of patients		0	12	24	36	48	60
Device	463	382	360	336	314	156	
Warfarin	244	220	200	172	144	64	

B Cardiovascular mortality



463	389	372	351	328	165
244	222	204	176	147	69

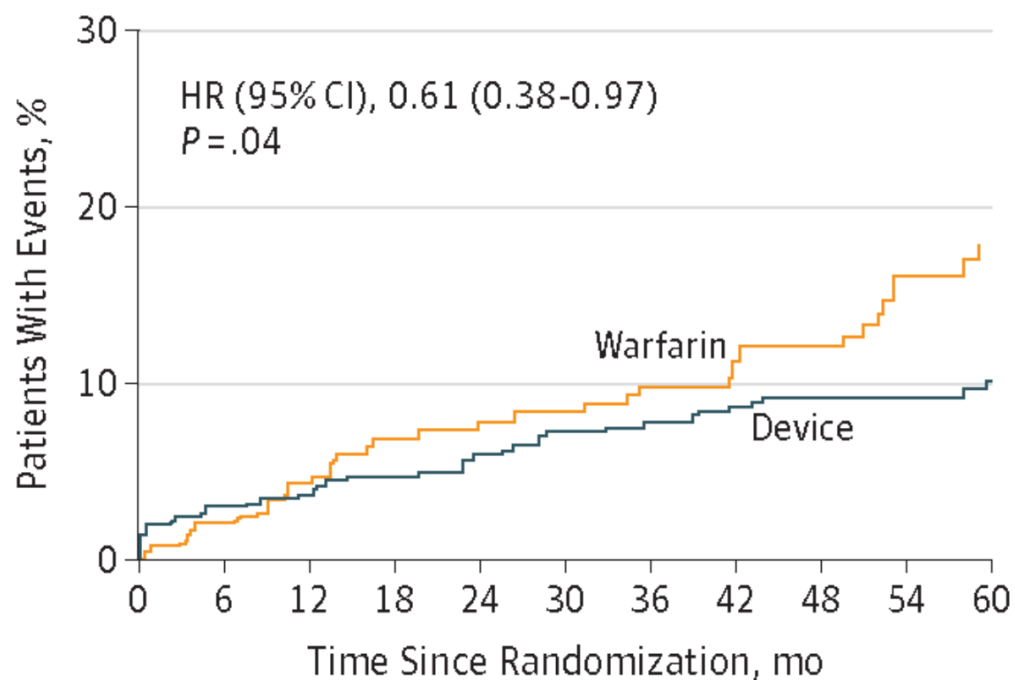
C All-cause mortality



463	389	373	352	330	202
244	222	204	177	150	92

PROTECT AF – 4 leté sledování

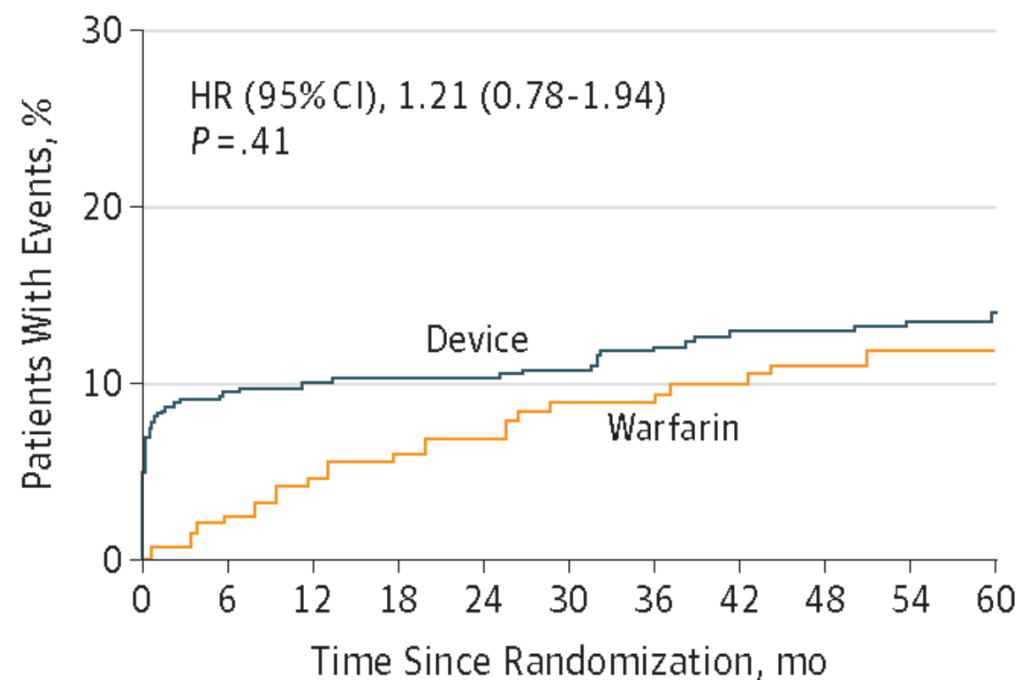
A Primary efficacy end point



No. of patients

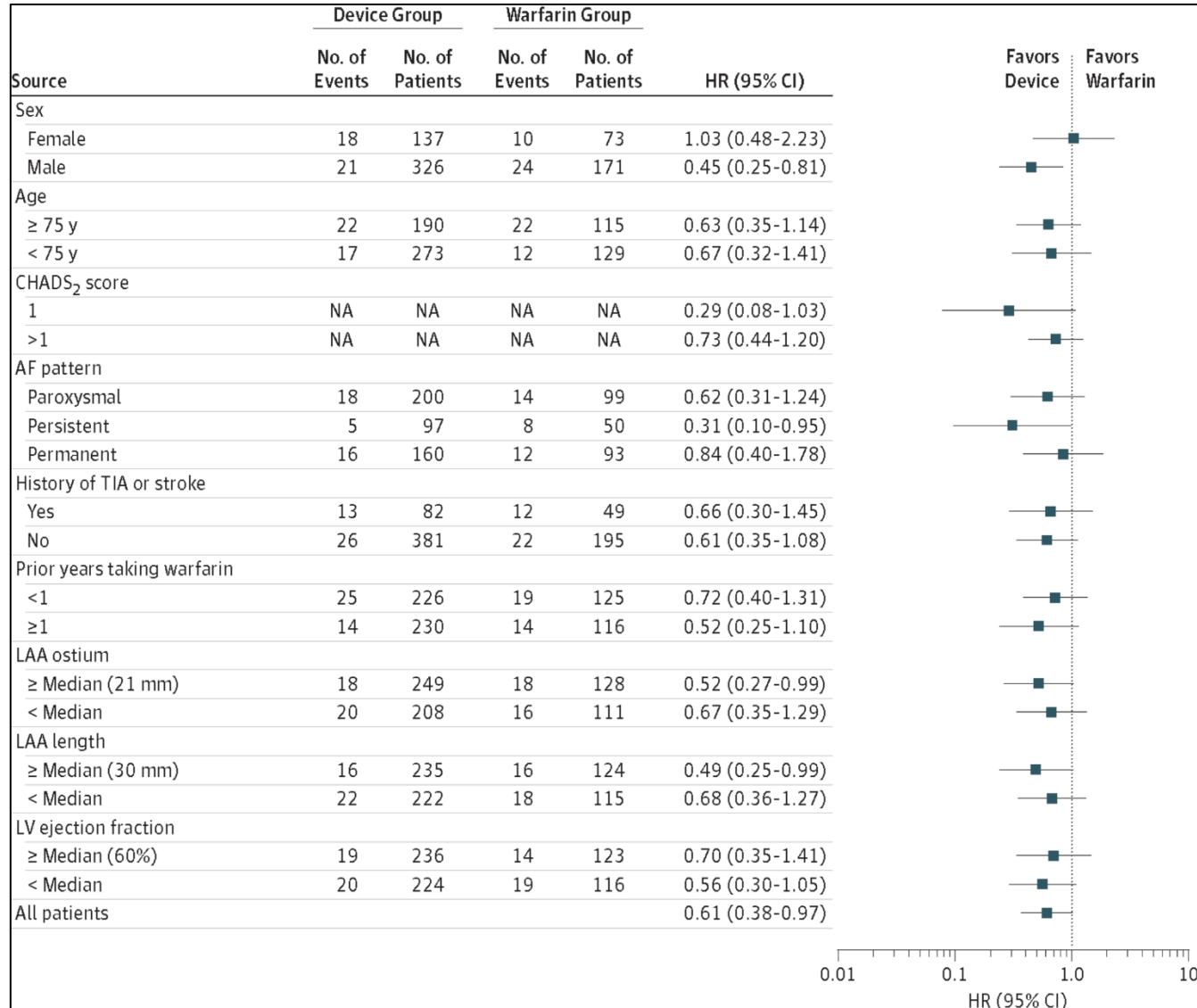
Device	463	398	382	370	360	345	337	327	317	285	196
Warfarin	244	230	218	210	200	188	173	159	147	121	87

B Primary safety end point



463	376	364	357	353	341	332	320	310	277	190
244	228	214	207	195	183	169	153	139	117	86

PROTECT AF – 4 leté sledování



PROTECT AF – 4 leté sledování

Table 4. Individual Components of the Primary Safety End Point by Treatment Group

	Device Group, No. (%) (n = 463)			Warfarin Group, No. (%) (n = 244)
	Total Events	Early Events ^a	Late Events	Events
Serious pericardial effusion	22 (4.8)	22 (4.8)	0	
Major bleeding	22 (4.8)	3 (0.6)	19 (4.1)	18 (7.4)
Procedure-related ischemic stroke	6 (1.3)	5 (1.1)	1 (0.2)	
Device embolization	3 (0.6)	3 (0.6)	0	
Hemorrhagic stroke	3 (0.6)	0	3 (0.6)	9 (3.7)
Other	4 (0.9)	4 (0.9)	0	

Závěr (5-leté sledování): u nemocných s FS a zvýšeným rizikem mozkové ischemie, uzávěr ouška prokázal oproti Warfarinu

- non-inferioritu - snížení rizika CMP, systémové embolizace a KV úmrtí
- Superioritu – snížení rizika celkové úmrtnosti

CAP Registry

(Continued Access Protocol, n= 1005)

PROTECT AF vs CAP

	PROTECT AF	PROTECT AF		CAP	p-value*	p-value±
		Early	Late			
Procedure Time (Mean ± SD)	62 ± 34	67 ± 36	58 ± 33	50 ± 21	<0.001	<0.001
Implant Success	485/542 (89.5%)	239/271 (88.2%)	246/271 (90.8%)	437/460 (95.0%)	0.001	0.001
45-day Warfarin Discontinuation Among Implanted	414/478 (86.6%)	194/235 (82.6%)	220/243 (90.5%)	352/371 (94.9%)	<0.001	<0.001

*From tests comparing the PROTECT AF cohort with CAP. ±From tests for differences across three groups: early PROTECT AF, late PROTECT AF, and CAP.

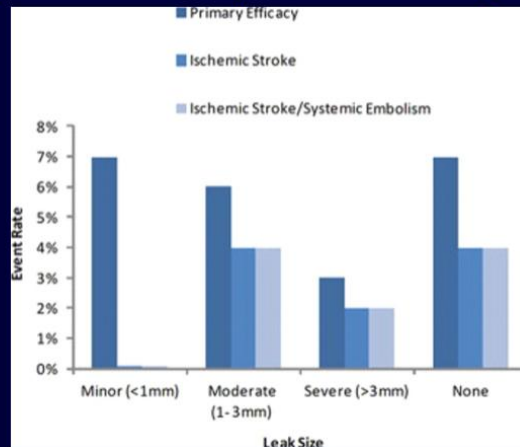
PROTECT AF vs CAP

	PROTECT AF	PROTECT AF		CAP	p-value*	p-value±
		Early	Late			
Procedure/Device Related Safety Adverse Events within 7 Days	42/542 (7.7%)	27/271 (10.0%)	15/271 (5.5%)	17/460 (3.7%)	0.007	0.006
Serious Pericardial Effusions within 7 Days	27/542 (5.0%)	17/271 (6.3%)	10/271 (3.7%)	10/460 (2.2%)	0.019	0.018
Procedure Related Stroke	5/542 (0.9%)	3/271 (1.1%)	2/271 (0.7%)	0/460 (0.0%)	0.039	0.039

*From tests comparing the PROTECT AF cohort with CAP. ±From tests for differences across three groups: early PROTECT AF, late PROTECT AF, and CAP.

Primary Efficacy Endpoint Rates by Leak Severity

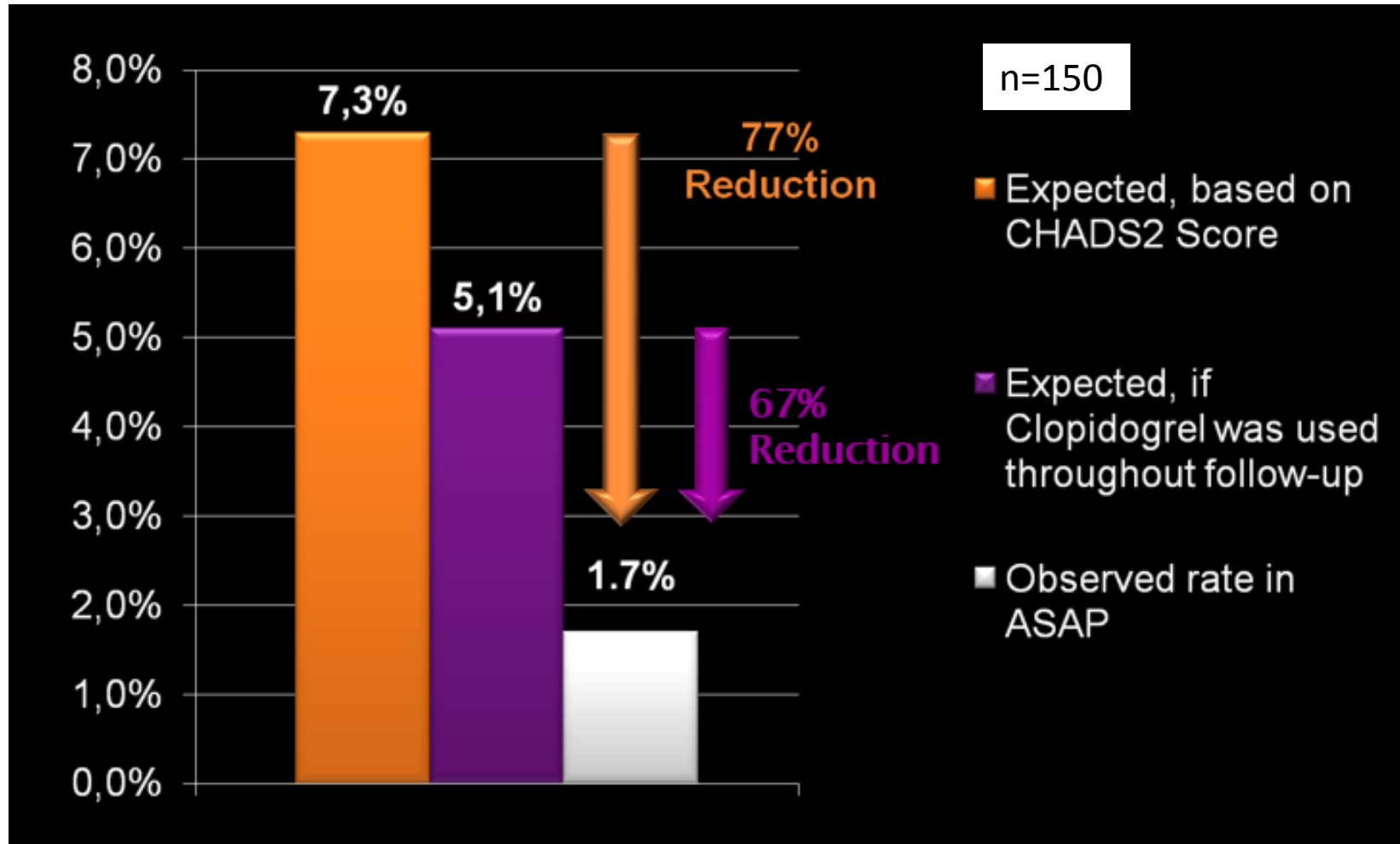
Peri-device flow around the Watchman Device is common and does lead to increase in stroke or thromboembolism



Závěr: stejně jako u všech intervenčních procedur signifikantní zlepšení bezpečnosti uzávěru ouška levé síně bylo přímo úměrné rostoucí zkušeností implantujících lékařů

ASAP registry – efektivita a bezpečnost

n=150, FU 12M



ASAP registry – efektivita a bezpečnost

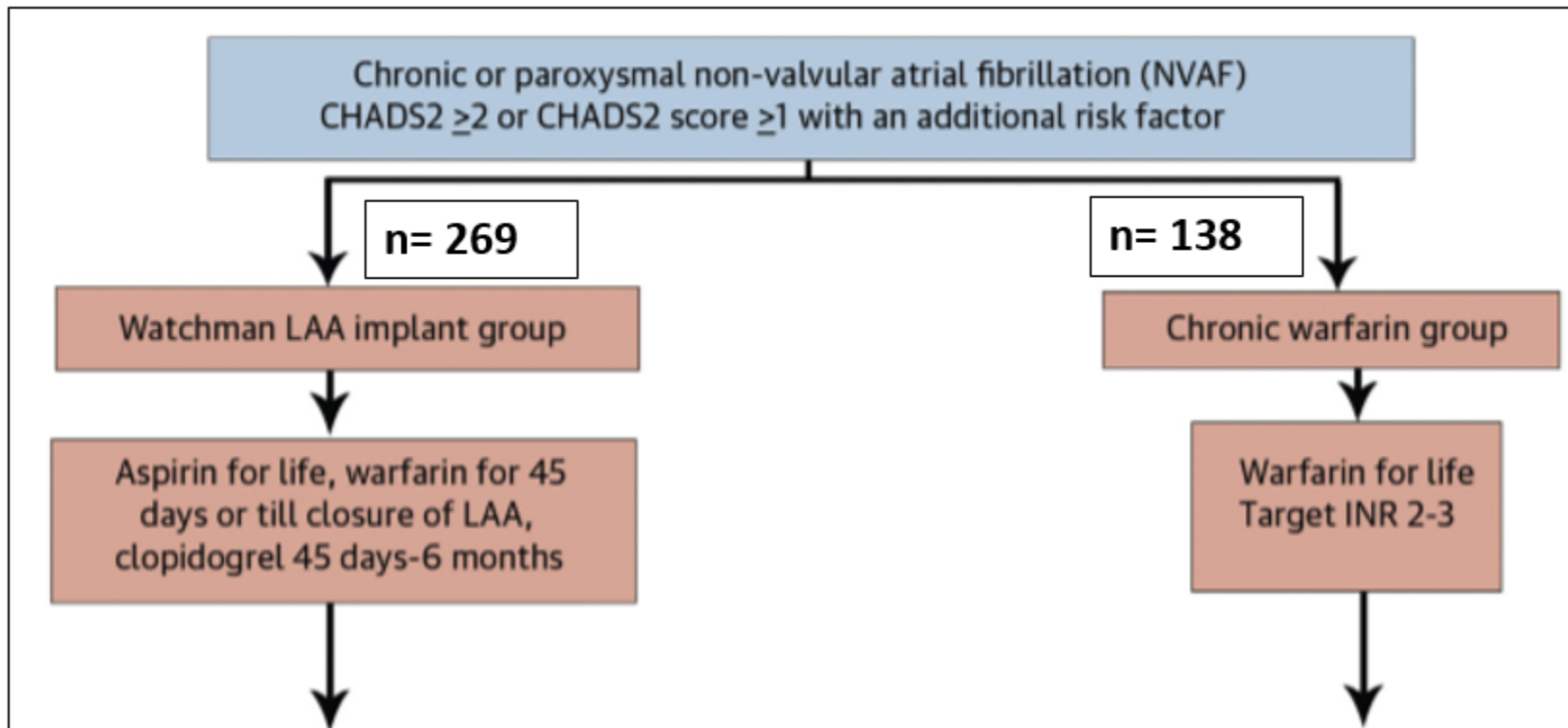
	Events / Pt -Yrs (Rate / 100 Pt-Yrs)
Death	9/180.0 (5.0)
All Stroke	4/176.0 (2.3)
Ischemic Stroke	3/176.9 (1.7)
Hemorrhagic Stroke	1/179.1 (0.6)

Adverse Events	All Patients (n=150)
Pericardial effusion with tamponade	3 (2.0%)
Device embolization	2 (1.3%)
Femoral pseudoaneurysm	1 (0.7%)
Device thrombus with stroke	1 (0.7%)
Device thrombus without sequela*	5 (3.3%)
Other†	4 (2.7%)
Major bleeding	4 (2.7%)
GI bleeding	3 (2.0%)

Závěr:

- Implantace Watchmanova okluderu je efektivní a bezpečná u nemocných FS, kteří mají KI k užívání Warfarinu
- výsledek studie ukazuje, že LAA může být léčebnou alternativou pro nemocné s FS s kontraindikací k Warfarinu a omezenými možnostmi prevence CMP

Prevail study

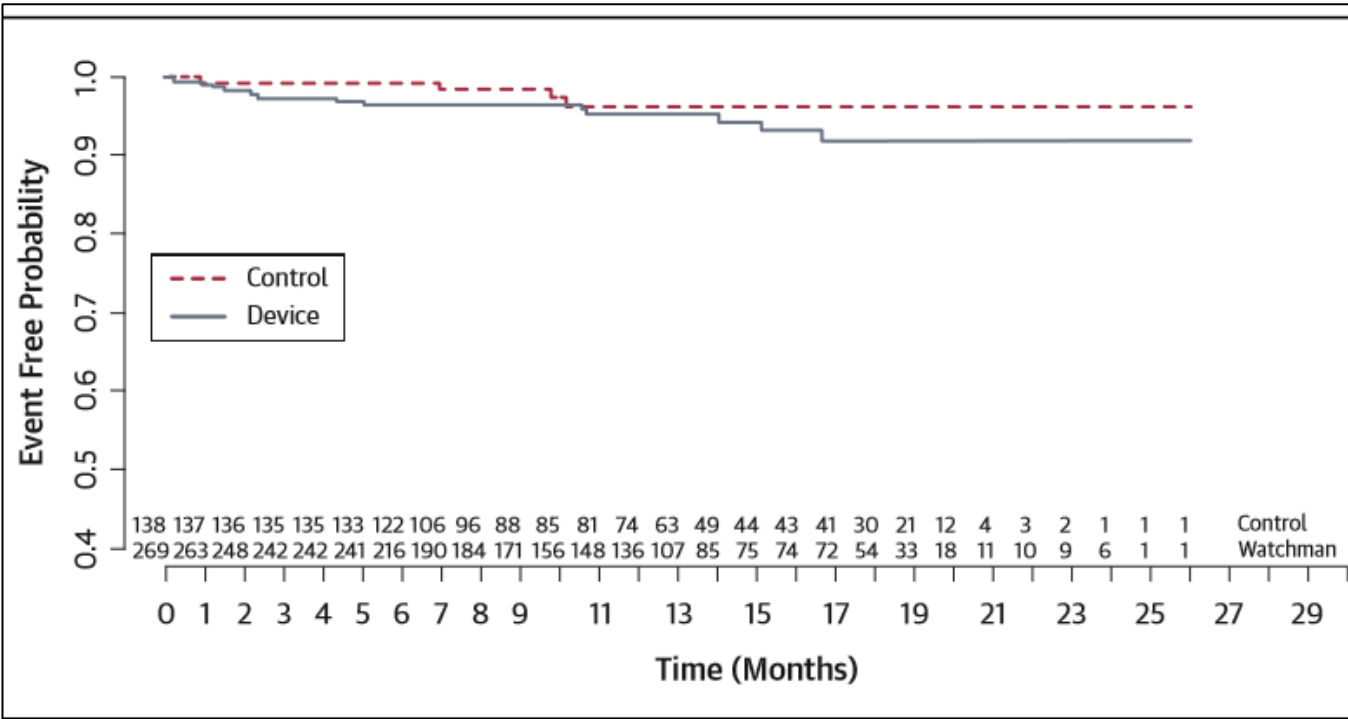


- **Primární cíl**: ischemická/ hemoragická CMP, systémová embolizace, úmrtí
- **Pozdní ischemický cíl**: ischemická CMP, systémová embolizace > 7dní až 18M
- **Časný bezpečnostní cíl**: CMP, syst. embolizace, úmrtí, komplikace spojené s procedurou

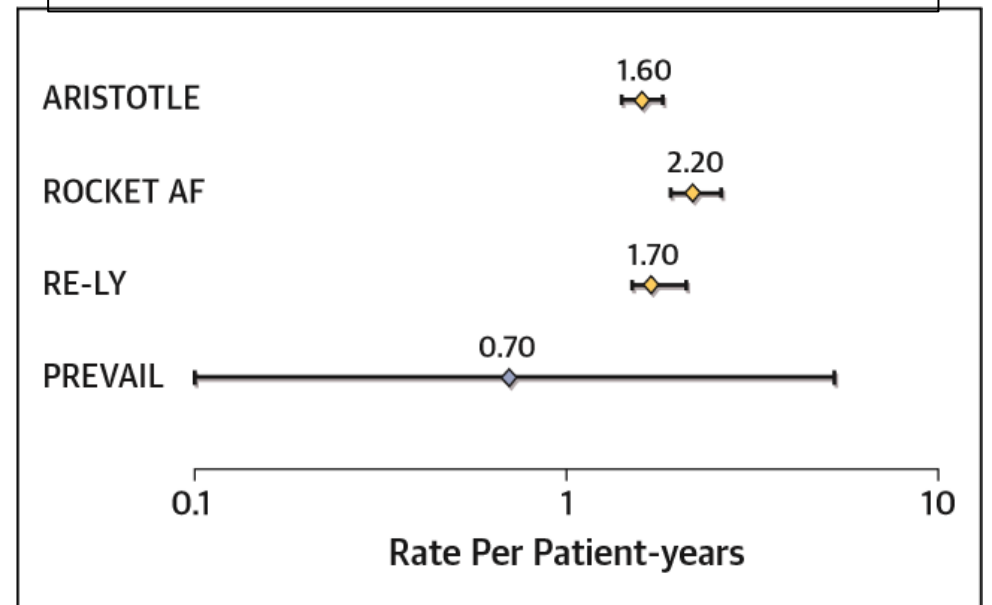
Prevail study

TABLE 3 Coprimary Efficacy Endpoint Observed Events by Type: PREVAIL Subjects Only (Intention-to-Treat)*

	Device Group			Control Group		
	No. of Events	% of Subjects	% of Endpoints	No. of Events	% of Subjects	% of Endpoints
Ischemic stroke	5	1.9	35.7	1	0.7	25.0
Hemorrhagic stroke	1	0.4	7.1	0	0.0	0.0
Death (cardiovascular/unexplained)	7	2.6	50.0	3	2.2	75.0
Systemic embolism	1	0.4	7.1	0	0.0	0.0



Výskyt ischemických CMP v kontrolních = „Warfarinových“ skupinách studií



Prevail study

TABLE 6 Demographic Characteristics of Patients Receiving the Watchman Device in PROTECT AF, CAP, and PREVAIL

	PROTECT AF (n = 463)	CAP (n = 566)	PREVAIL (n = 269)	p Value
Age, yrs	71.7 ± 8.8 (46.0, 95.0)	74.0 ± 8.3 (44.0, 94.0)	74.0 ± 7.4 (50.0, 94.0)	<0.001
Male	326/463 (70.4%)	371/566 (65.5%)	182/269 (67.7%)	0.252
CHADS ₂ score (continuous)	2.2 ± 1.2 (1.0, 6.0)	2.5 ± 1.2 (1.0, 6.0)	2.6 ± 1.0 (1.0, 6.0)	<0.001
CHADS ₂ risk factors				
CHF	124/463 (26.8%)	100/566 (17.7%)	62/269 (23.0%)	
Hypertension	415/463 (89.6%)	488/566 (86.4%)	238/269 (88.5%)	
Age ≥75 yrs	190/463 (41.0%)	208/566 (36.7%)	103/269 (38.3%)	
Diabetes	113/463 (24.4%)	138/566 (24.4%)	68/269 (25.3%)	
Stroke/TIA	82/463 (17.7%)	100/566 (17.7%)	52/269 (19.3%)	

TABLE 7 Comparison of Outcomes in Device Patients in PROTECT AF, CAP, and PREVAIL

	PROTECT AF	PREVAIL	p Value
Implant success	90.9	95.1	0.04
All 7-day procedural complications	8.7	4.5	0.004
Pericardial effusion requiring surgery	1.6	0.4	0.03
Pericardial effusion with pericardiocentesis	2.4	1.5	0.318
Procedure-related strokes	1.1	0.7	0.02
Device embolization	0.4	0.7	0.368

Abbreviations as in [Tables 3](#) and [6](#).

- Závěr
 - LAA prokázal non-inferioritu k Warfarinu pro prevenci ischemických CMP a SE po 7 dnu
 - Ačkoliv nebylo dosaženo cíle v celkové efektivitě, výskyt příhod byl nízký a srovnatelný v obou větvích
 - LAA je rozumnou alternativou pro nemocné s FS, zvýšeným rizikem CMP a KI OAT

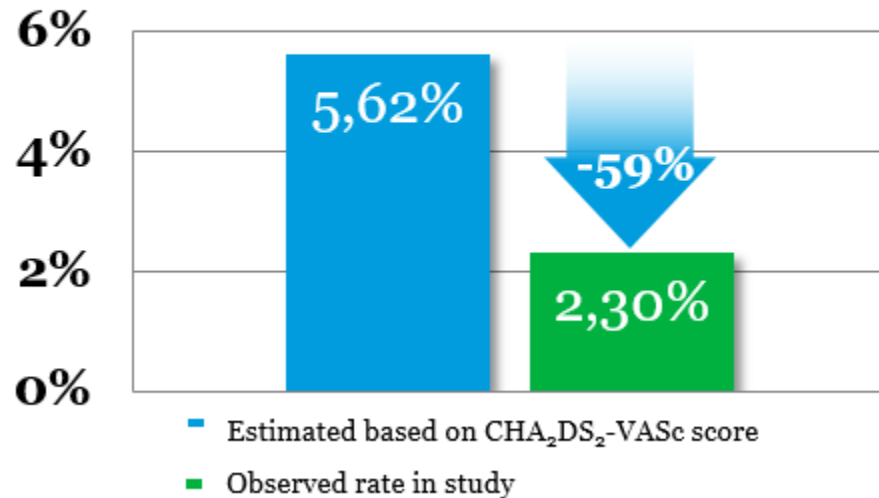
Multicenter Experience Amplatzer Cardiac Plug Registry

- Retrospective, single-arm multicenter clinical evaluation of the ACP for stroke prevention in atrial fibrillation patients (FU 13M)

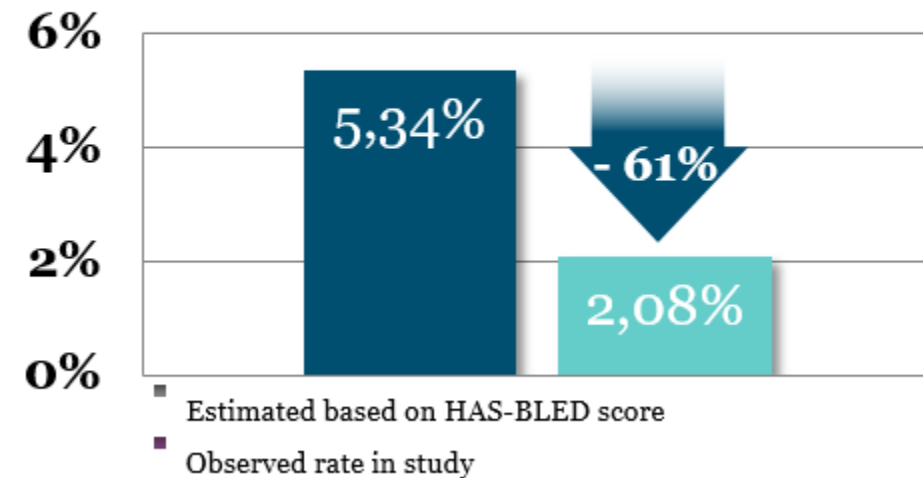
Total patients	1,047
Number of centers	22
Patient years follow-up	1,349
CHA ₂ DS ₂ -VASc (Mean)	4.5
HAS-BLED (Mean)	3.1
Age (Mean)	74.9
Prior stroke / TIA	37%
Previous major bleeding	47%
Taking OAC at time of implant	29.5%
Concomitant procedures to LAAO	20.6%

Multicenter Experience Amplatzer Cardiac Plug Registry

Effectiveness in Stroke Reduction vs. Estimated



Effectiveness in Bleeding Reduction vs. Estimated

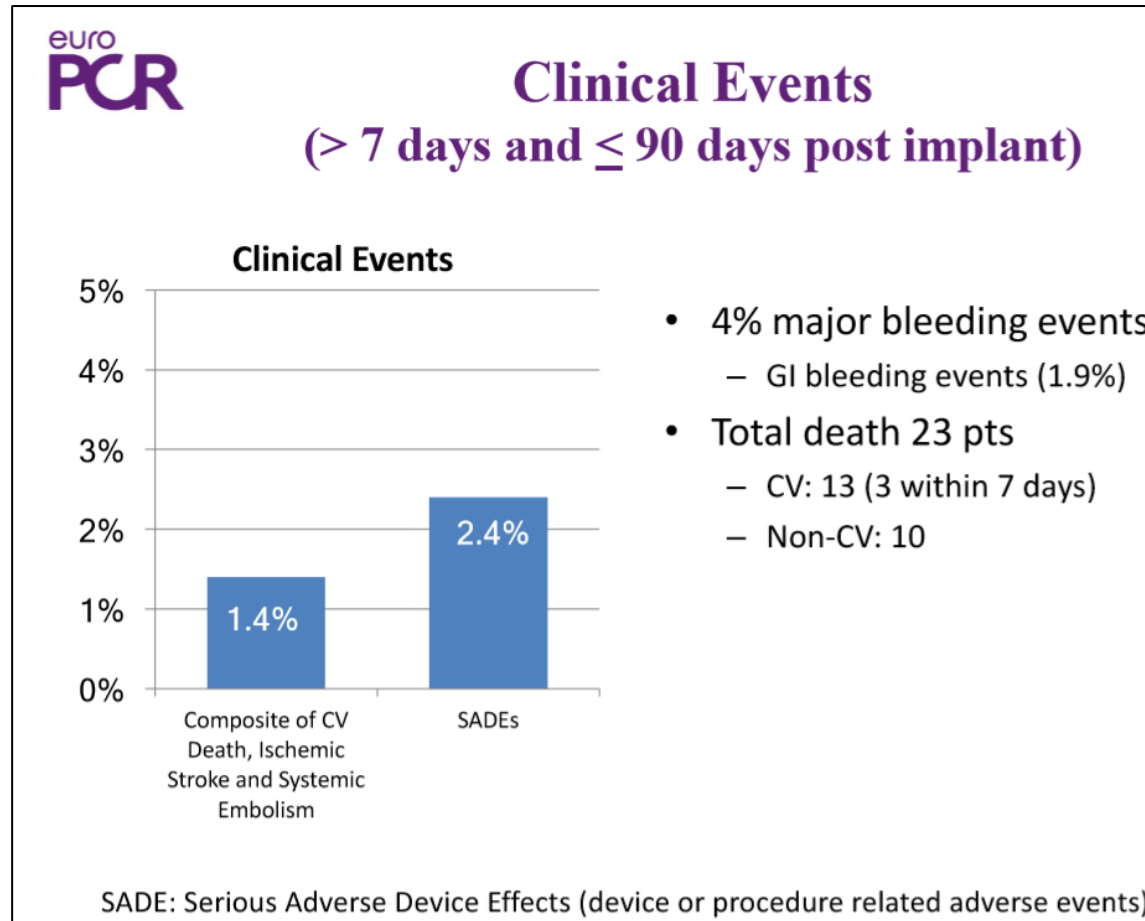


Multicenter Experience Amplatzer Cardiac Plug Registry

Attempted implantations	1047
Device implanted	1019 (97.3%)
Complications:	
▪ Death	8 (0.76%)
▪ Pericardial tamponade	13 (1.24%)
▪ Major bleeding	13 (1.24%)
▪ Stroke	9 (0.86%)
▪ Device embolization requiring surgery	1 (0.10%)
▪ Device embolization snared	7 (0.67%)
▪ Myocardial infarction	1 (0.10%)
▪ Total complications	52 (4.97%)
Closure rate at 7 months TEE	98.1% (620/632)

Amplatzer Amulet observational study

Prospektivní multicentrický registr, n= 1088, CoreLab, FU 3M



Amplatzer Amulet observational study

- Prospektivní multicentrický registr, n= 1088, CoreLab, FU 3M

euro
PCR

**Major Adverse Events –
During Procedure and Index Hospitalization (CEC Adjudicated)**

Major Adverse Events (MAEs)	Number of patients with event (%)
Death*	2 (0.2%)
Perforation	1 (0.1%)
Respiratory Arrest	1 (0.1%)
Major Bleeding	26 (2.4%)
Pericardial Effusion	13 (1.2%)
Requiring Pericardial Drain	10 (0.9%)
Requiring Surgery	3 (0.3%)
Other	13 (1.2%)
Major Vascular Complication	10 (0.9%)
Stroke	2 (0.2%)
Device embolization	1 (0.1%)
TOTAL	35 patients (41 events) - 3.2%

Amplatzer Amulet observational study

Medication Type	% of patients
No antithrombotic therapy	2.0%
Single APT	
Aspirin	16.0%
Clopidogrel or another antiplatelet	7.0%
DAPT	54.3%
OAC (alone or combined with APT)	18.9%

- U 10 nemocných (0,95%) – trombus na okluderu v intervalu 7 – 90 dnů po implantaci

PRAGUE = 17 Study



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[January 2017](#) Volume 183, Pages 108–114

[Next Article >](#)

Interventional left atrial appendage closure vs novel anticoagulation agents in patients with atrial fibrillation indicated for long-term anticoagulation (PRAGUE-17 study)

[Pavel Osmančík, MD, PhD](#)   , [Petr Tousek, MD, PhD](#), [Dalibor Herman, MD, PhD](#), [Petr Neuzil, MD, CSc](#), [Pavel Hala, MD](#), [Josef Stasek, MD, PhD](#), [Ludek Haman, MD, PhD](#), [Petr Kala, MD, PhD](#), [Martin Poloczek, MD](#), [Marian Branny, MD, PhD](#), [Jan Chovancik, MD](#), [Pavel Cervinka, MD, PhD](#), [Jiri Holy, MD](#), [Vlastimil Vancura, MD, PhD](#), [Richard Rokyta, MD, PhD](#), [Milos Taborsky, MD, CSc](#), [Tomas Kovarnik, MD, PhD](#), [David Zemanek, MD, PhD](#), [Petr Peichl, MD, PhD](#), [Sarka Haskova, Eng](#), [Jiri Jarkovsky, Eng](#), [Petr Widimsky, MD, DrSc](#) on behalf of the PRAGUE-17 Investigators

PRAGUE = 17 Study

- Prospektivní multicentrická randomizovaná studie porovnávající 2 léčebné strategie
- U nemocných s FS a středním/ vysokým rizikem mozkové ischemie anebo systémové embolie
- Zařazování nemocní
 - Prodělanou klinickou příhodou (závažné krvácení)
 - Nemocní s CHA₂ DS₂ VASc ≥ 3 a HAS-BLED ≥ 2
- Randomizace do skupin
 - Katetrizační uzávěr LAA
 - Perorální léčba NOAC
- Sledování: 24 měsíců
- Primární cíl: výskyt CMP, TIA, SE, klinicky významného krvácení, KV a celkové úmrtí, komplikace spojené s procedurou či okluderem
- PRAGUE 17 by měla ukázat, zda katetrizační uzávěr LAA je non-inferiorní k léčbě NOAC u nemocných s FS a středním či vysokým rizikem

Závěr

- Velká skupina fibrilujících nemocných se zvýšeným rizikem CMP nemůže anebo nechce užívat Warfarin
- Farmakologické alternativy nejsou optimální
- Uzávěr LAA u těchto nemocných je možný, efektivní a bezpečný
- Uzávěr LAA je léčebnou alternativou pro nemocné s FS a kontraindikaci k OAT, kteří mají omezené možnosti prevence CMP

Děkuji za pozornost



Děkuji za pozornost

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