Uzávěr ouška LS – současná evidence

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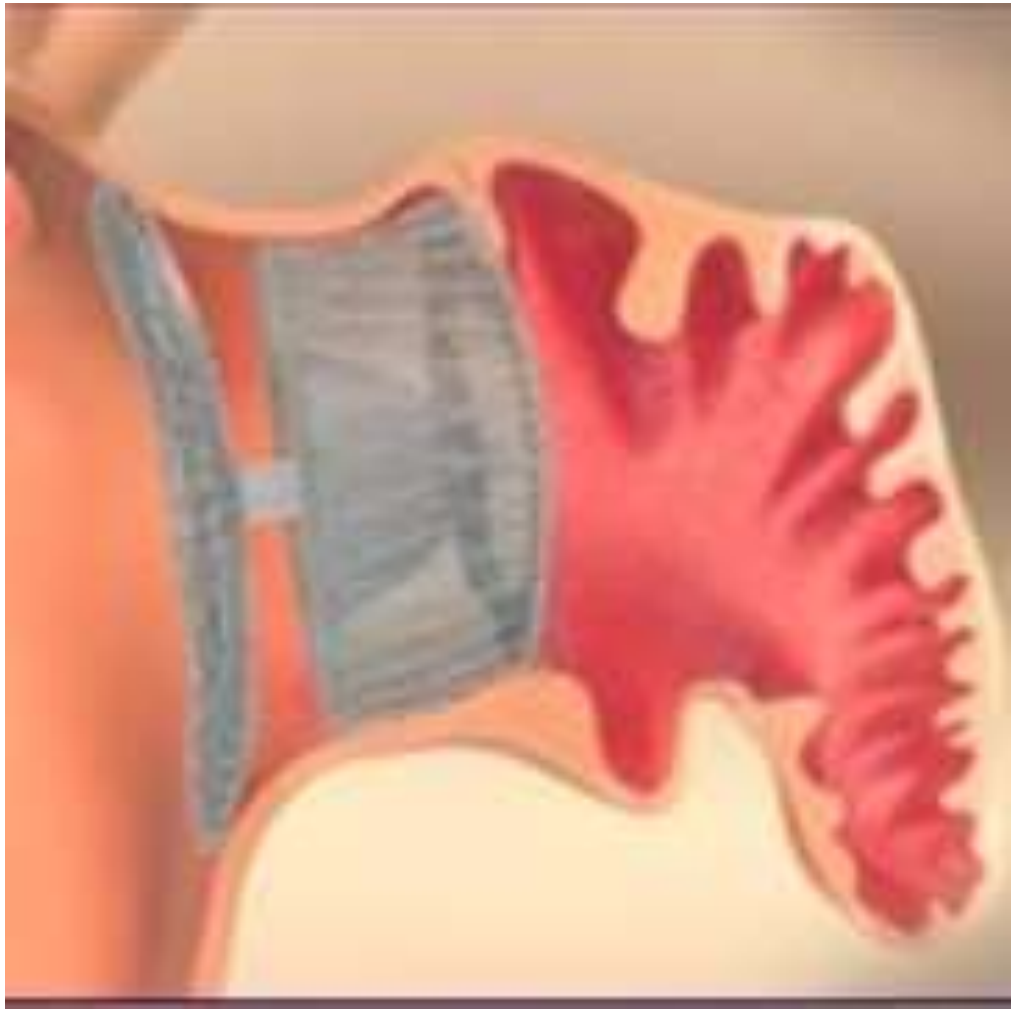
Kardiocentrum FN Ostrava

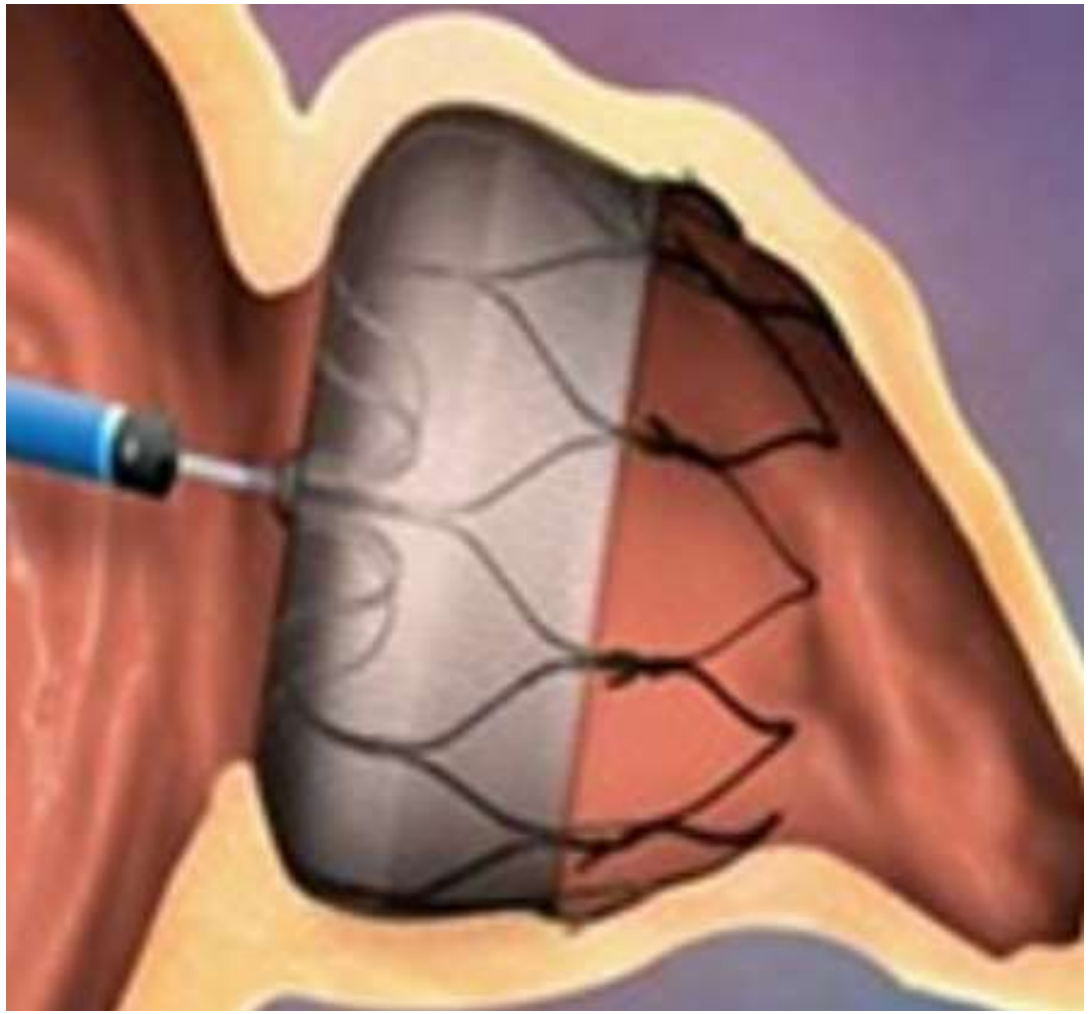
Workshop ČAIK, Plzeň, 10.4.2019

Uzávěr ouška levé síně

Amplatzer Amulet okluder

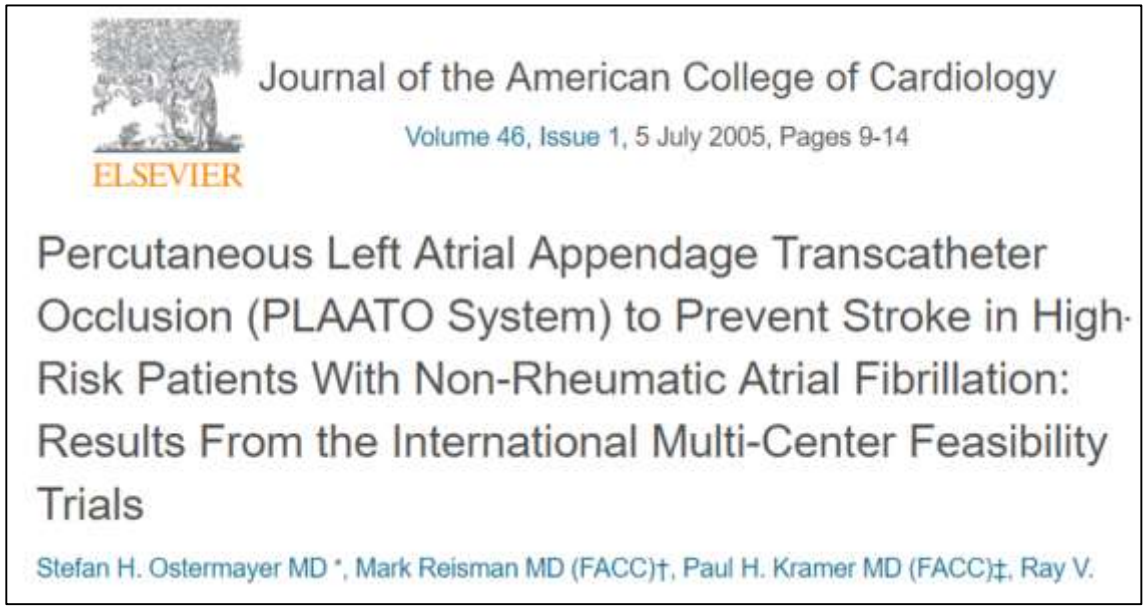


Watchman okluder



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
- žáden trombus na okluderu
- Závěr: uzávěr 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*

Lancet 2009; 374: 534–42

See Editorial page 501

See Comment page 504

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.

PROTECT AF

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Summary

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 $CHADS_2$ Score ≥ 1 were randomized in 2:1 fashion

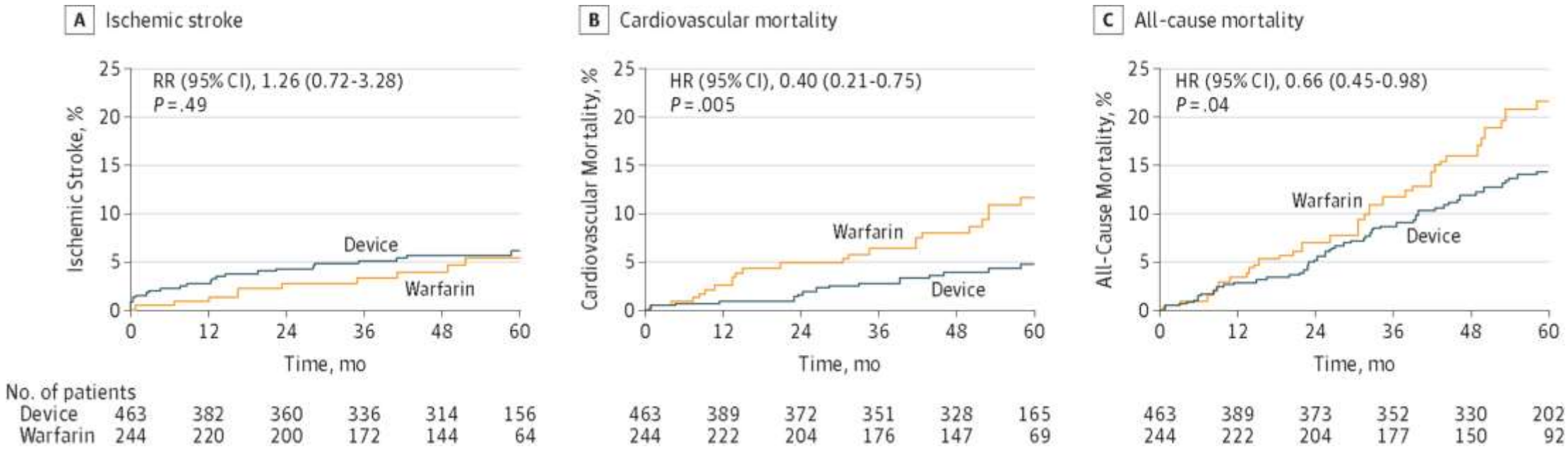
463 assigned to closure of the LAA

244 assigned to Warfarin control

408 pts were implanted

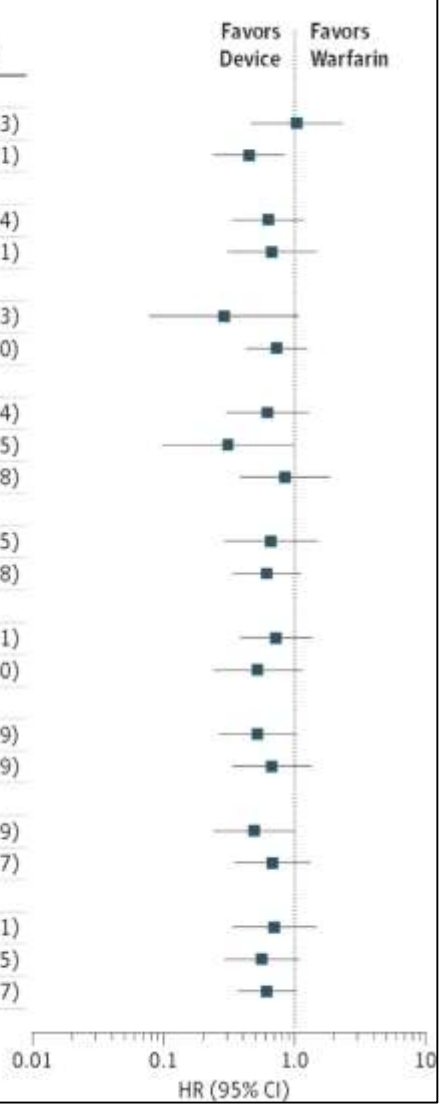
1500 pt –year follow up

PROTECT AF – 4 leté sledování



PROTECT AF – 4 leté sledování

Source	Device Group No. of Events	Device Group No. of Patients	Warfarin Group No. of Events	Warfarin Group No. of Patients	HR (95% CI)
Sex					
Female	18	137	10	73	1.03 (0.48-2.23)
Male	21	326	24	171	0.45 (0.25-0.81)
Age					
≥ 75 y	22	190	22	115	0.63 (0.35-1.14)
< 75 y	17	273	12	129	0.67 (0.32-1.41)
$CHADS_2$ score					
1	NA	NA	NA	NA	0.29 (0.08-1.03)
>1	NA	NA	NA	NA	0.73 (0.44-1.20)
AF pattern					
Paroxysmal	18	200	14	99	0.62 (0.31-1.24)
Persistent	5	97	8	50	0.31 (0.10-0.95)
Permanent	16	160	12	93	0.84 (0.40-1.78)
History of TIA or stroke					
Yes	13	82	12	49	0.66 (0.30-1.45)
No	26	381	22	195	0.61 (0.35-1.08)
Prior years taking warfarin					
<1	25	226	19	125	0.72 (0.40-1.31)
≥1	14	230	14	116	0.52 (0.25-1.10)
LAA ostium					
≥ Median (21 mm)	18	249	18	128	0.52 (0.27-0.99)
< Median	20	208	16	111	0.67 (0.35-1.29)
LAA length					
≥ Median (30 mm)	16	235	16	124	0.49 (0.25-0.99)
< Median	22	222	18	115	0.68 (0.36-1.27)
LV ejection fraction					
≥ Median (60%)	19	236	14	123	0.70 (0.35-1.41)
< Median	20	224	19	116	0.56 (0.30-1.05)
All patients					0.61 (0.38-0.97)



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

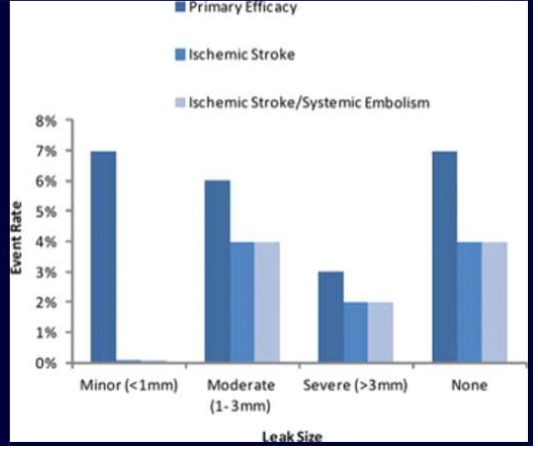
PROTECT AF vs CAP

	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

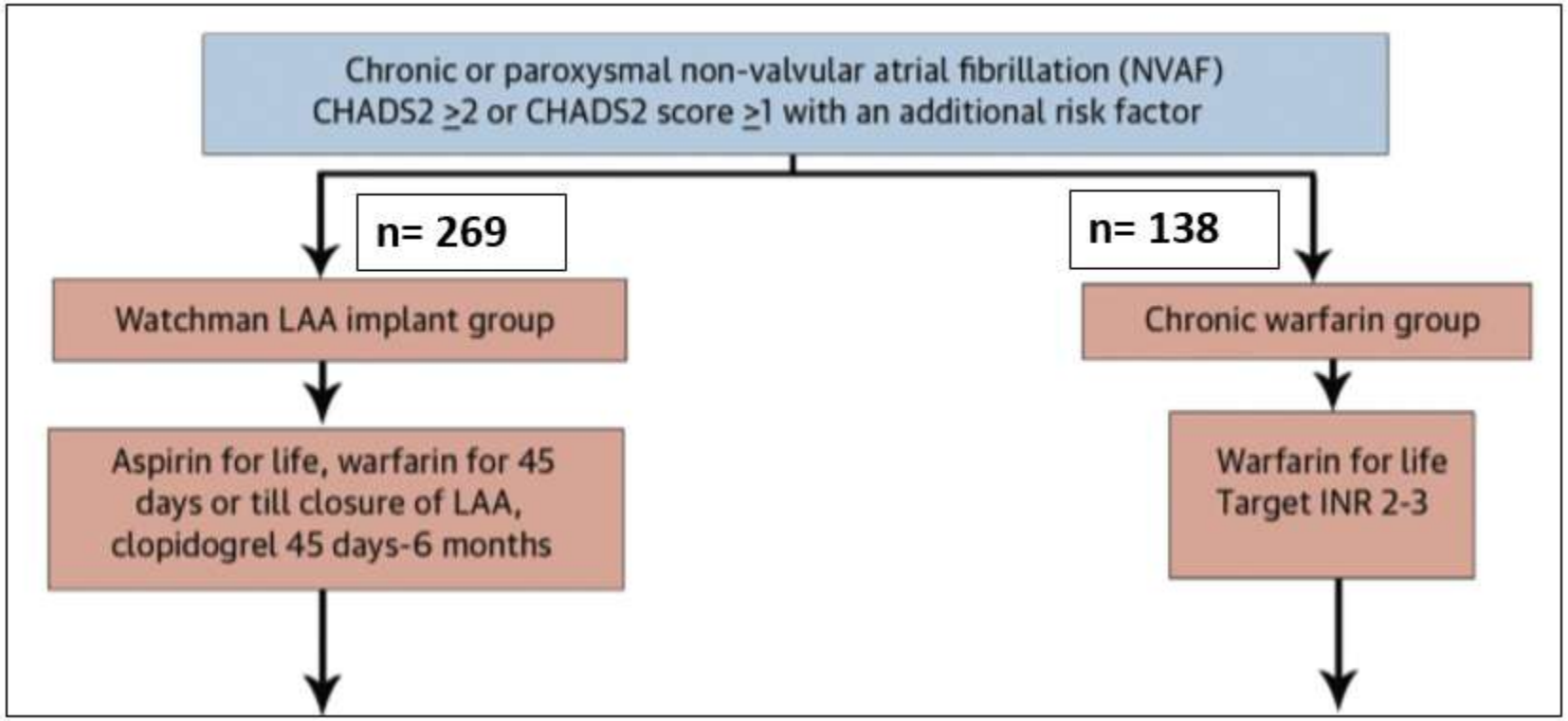
Primary Efficacy Endpoint Rates by Leak Severity

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

Prevail study



- **Primární cíl** : ischemická/ hemorhagická 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

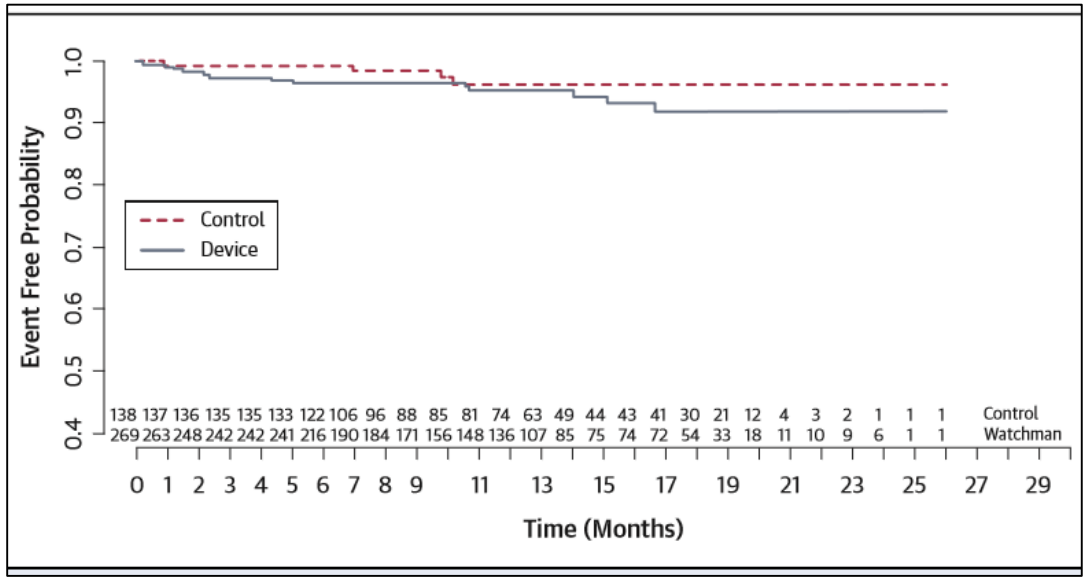
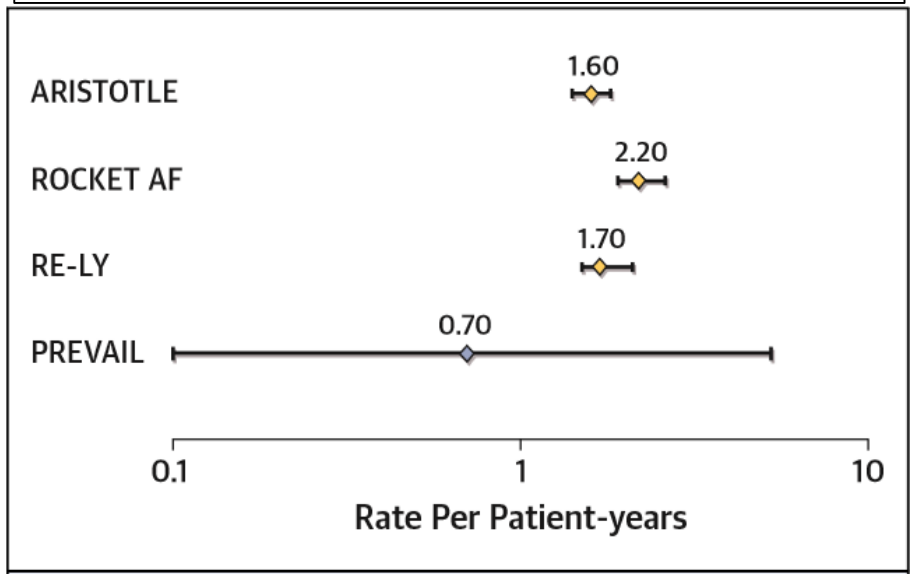


TABLE 7 Comparison of Outcomes in Device Patients in PROTECT AF, CAP, and PREVAIL

	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.

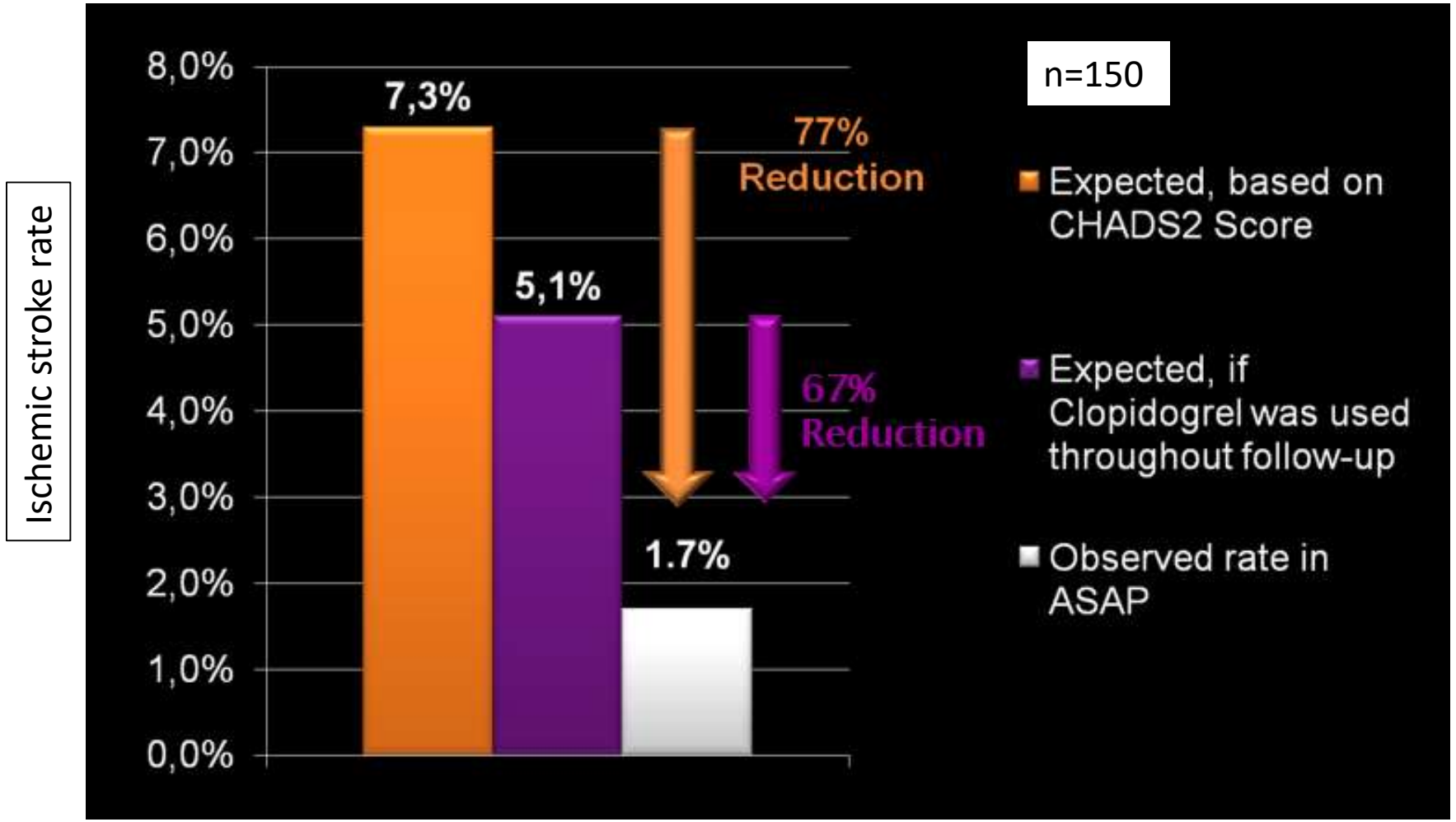
Výskyt ischemických CMP v kontrolních = „Warfarinových“ skupinách studií



- Závěr
  - LAA prokázal non-inferioritu k Warfarinu pro prevenci ischemických CMP a SE po 7 dnu
  - LAA je rozumnou alternativou pro nemocné s FS, zvýšeným rizikem CMP a KI OAT

ASAP registry – efektivita a bezpečnost

n=150, FU 12M



Reddy V.Heart Rhytm ,September 2012, Volume 9, Issue 9, Pages 1580–1581

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 pseudoanuerysm	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

Reddy V. Heart Rhytm,September 2012, Volume 9, Issue 9, Pages 1580–1581

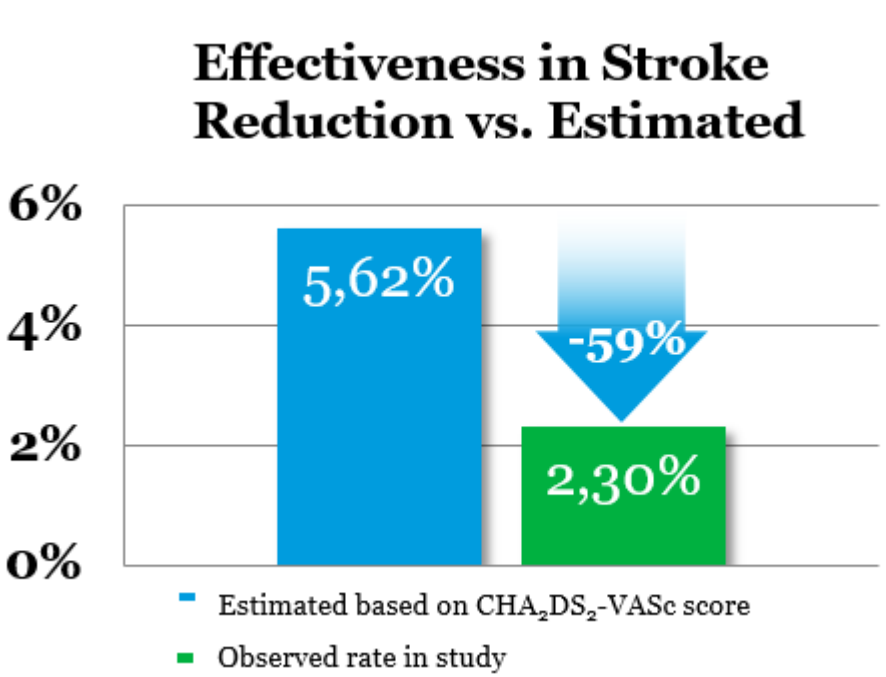
Multicenter Experience Amplatzer Cardiac Plug Registry

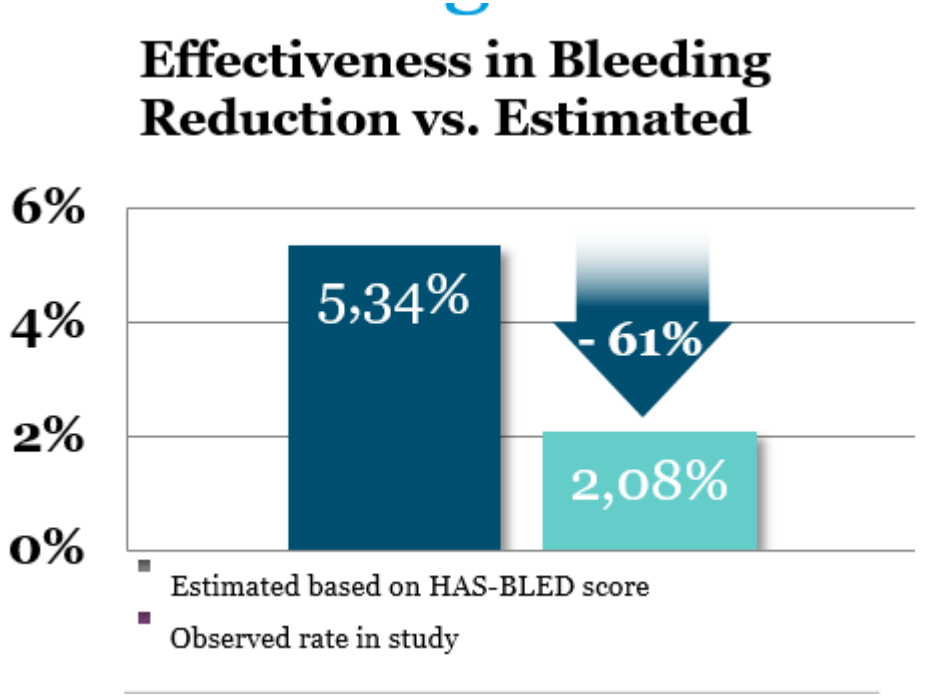
- Retrospective, single-arm multicenter clinical evaluation of the ACP for stroke prevention in atrial fibrillation patients (FU 13M)

Total patients	1,047
Number of centers	22
Patient years follow-up	1,349
CHA_2DS_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%

Tzikas, EuroIntervention. 2016 Feb 20;11(10):1170-9.

Multicenter Experience Amplatzer Cardiac Plug Registry



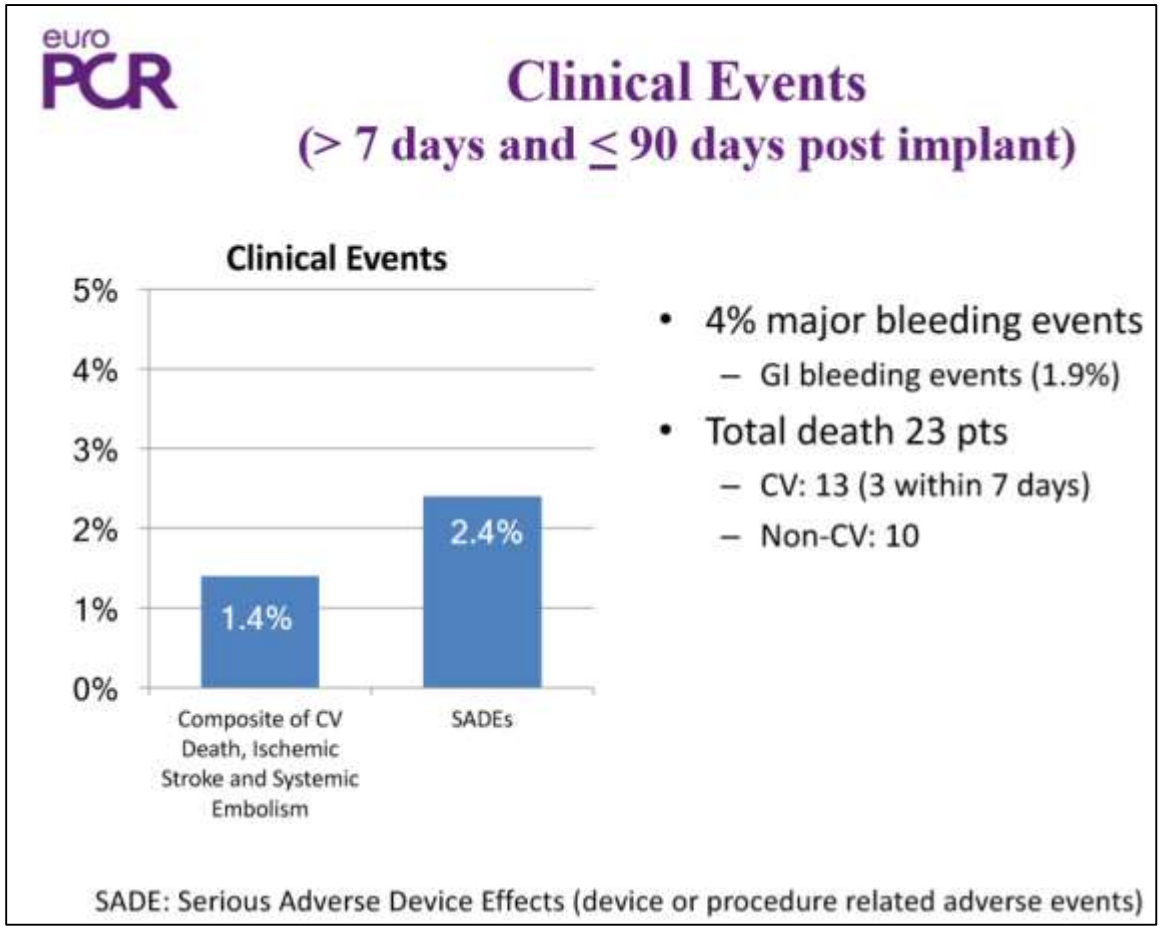


Multicenter Experience Amplatzer Cardiac Plug Registry

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



Landmesser, EuroPCR 2017, oral presentation

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

AHJ
American Heart Journal

< Previous Article | 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 Osmancik, 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 RCT porovnávající 2 léčebné strategie – NOAC a LAAC
- 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 NAOC 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 jedinou léčebnou alternativou pro nemocné s FS a kontraindikaci k OAT v prevenci CMP

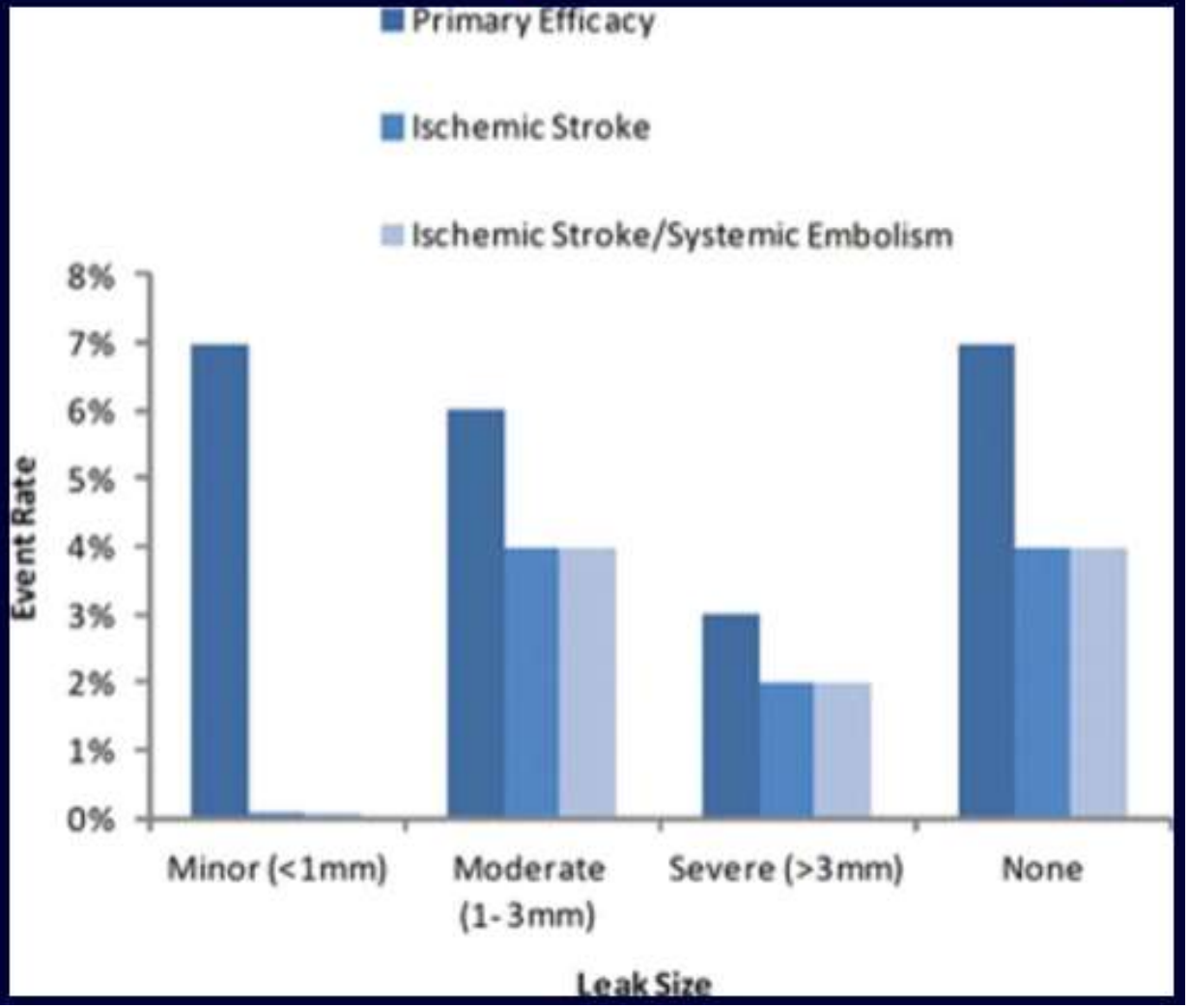
Děkuji za pozornost

Děkuji za pozornost

Děkuji za pozornost

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



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Device embolization	0.4	0.2	0.7	0.368

Abbreviations as in Tables 3 and 6.

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			
Hypertension	415/463 (89.6			
Age ≥75 yrs	190/463 (41.0			
Diabetes	113/463 (24.4			
Stroke/TIA	82/463 (17.7			

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PROTECT AF – 4 leté sledování