Jak na pacienta s fibrilací síní a srdečním selháním

Lucie Šedivá

Cardiovascular morbidity and mortality associated with atrial fibrillation

Event	Association with AF
Death	Increased mortality, especially cardiovascular mortality due to sudden death, heart failure or stroke.
Stroke	20–30% of all strokes are due to AF. A growing number of patients with stroke are diagnosed with 'silent', paroxysmal AF.
Hospitalizations	10–40% of AF patients are hospitalized every year.
Quality of life	Quality of life is impaired in AF patients independent of other cardiovascular conditions.
Left ventricular dysfunction and heart failure	Left ventricular dysfunction is found in 20–30% of all AF patients. AF causes or aggravates LV dysfunction in many AF patients, while others have completely preserved LV function despite long-standing AF.
Cognitive decline and vascular dementia	Cognitive decline and vascular dementia can develop even in anticoagulated AF patients. Brain white matter lesions are more common in AF patients than in patients without AF.

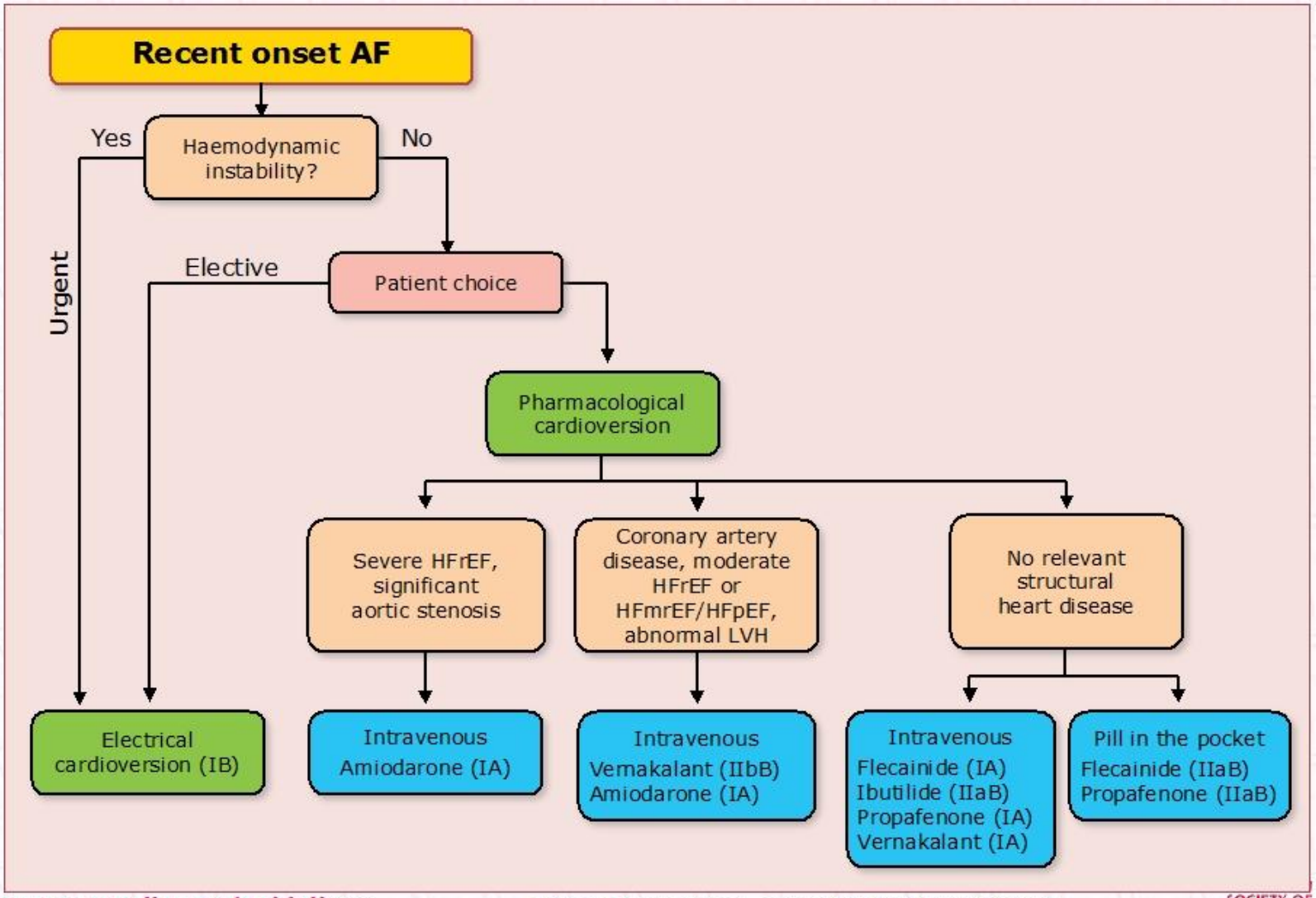
European Heart Journal - doi:10.1093/eurheartj/ehw210

Rhythm control therapy (1) – Cardioversion of AF

Recommendations	Class	Level
General recommendations		
Rhythm control therapy is indicated for symptom improvement in patients with AF.	I	B
Management of cardiovascular risk factors and avoidance of AF triggers should be pursued in patients on rhythm control therapy to facilitate maintenance of sinus rhythm.	IIa	B
With the exception of AF associated with haemodynamic instability, the choice between electrical and pharmacological cardioversion should be guided by patient and physician preferences.	IIa	C
Cardioversion of AF		
Electrical cardioversion of AF is recommended in patients with acute haemodynamic instability to restore cardiac output.	I	B
Cardioversion of AF (either electrical or pharmacological) is recommended in symptomatic patients with persistent or long-standing persistent AF as part of rhythm control therapy.	I	B
Pre-treatment with amiodarone, flecainide, ibutilide, or propafenone should be considered to enhance success of electrical cardioversion and prevent recurrent AF.	IIa	B

European Heart Journal - doi:10.1093/eurheartj/ehw210

Cardioversion of recent onset of atrial fibrillation



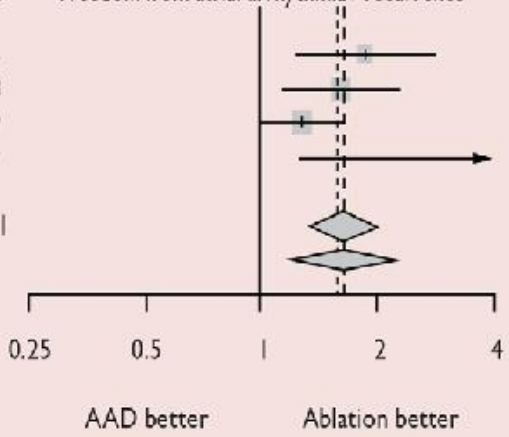
European Heart Journal - doi:10.1093/eurheartj/ehw210

Rhythm outcome after catheter ablation compared to cardioversion and AAD in patients with persistent or long-standing persistent atrial fibrillation

Freedom from recurrence of atrial fibrillation or atrial arrhythmias, comparing catheter ablation with antiarrhythmic drug therapy in patients with persistent or long-standing persistent atrial fibrillation

Study	Ablation Events	Ablation N	AAD Events	AAD N	RR	95% CI	W(fixed)	W(random)
Forleo	28	35	15	35	1.87	[1.23; 2.83]	17.5%	27.7%
Mont 2009	69	98	21	48	1.61	[1.14; 2.27]	32.8%	32.0%
Oral 2006	57	77	40	69	1.28	[1.00; 1.62]	49.1%	38.9%
Stabile 2006	13	26	0	19	20.00	[1.26; 319.89]	0.7%	1.4%
Fixed effects model		236		171	1.61	[1.34; 1.94]	100%	-
Random effects model					1.59	[1.14; 2.22]	-	100%

Heterogeneity: I-squared = 58,9%, p= 0.063



AAD = antiarrhythmic drug therapy; CI = confidence interval; N = number of patients; RR = risk ratio; W = study weighting.

European Heart Journal - doi:10.1093/eurheartj/ehw210

Complications related to catheter ablation of atrial fibrillation

Complication severity	Complication type	Rate
Life-threatening complications	Periprocedural death	<0.2%
	Oesophageal injury (perforation/fistula)	<0.5%
	Periprocedural stroke (including TIA/air embolism)	<1%
	Cardiac tamponade	1–2%
Severe complications	Pulmonary vein stenosis	<1%
	Persistent phrenic nerve palsy	1–2%
	Vascular complications	2–4%
	Other severe complications	≈1%
Other moderate or minor complications		1–2%
Unknown significance	Asymptomatic cerebral embolism (silent stroke)	5–20%
	Radiation exposure	

European Heart Journal - doi:10.1093/eurheartj/ehw210

Heart rate control in atrial fibrillation

Recommendations	Class	Level
Beta-blockers, digoxin, diltiazem, or verapamil are recommended to control heart rate in AF patients with LVEF ≥40%.	I	B
Beta-blockers and/or digoxin are recommended to control heart rate in AF patients with LVEF <40%.	I	B
Combination therapy comprising different rate controlling agents should be considered if a single agent does not achieve the necessary heart rate target.	IIa	C
In patients with haemodynamic instability or severely depressed LVEF, amiodarone may be considered for acute control of heart rate.	IIb	B
In patients with permanent AF (i.e. where no attempt to restore sinus rhythm is planned), antiarrhythmic drugs should not routinely be used for rate control.	III (harm)	A
A resting heart rate of <110 bpm (i.e. lenient rate control) should be considered as the initial heart rate target for rate control therapy.	IIa	B
Rhythm rather than rate control strategies should be considered as the preferred management in pre-excited AF and AF during pregnancy.	IIa	C
Atrioventricular node ablation should be considered to control heart rate in patients unresponsive or intolerant to intensive rate and rhythm control therapy, accepting that these patients will become pacemaker dependent.	IIa	B

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ESTABLISHED IN 1812 DECEMBER 2, 2004 VOL. 351 NO. 23

Catheter Ablation for Atrial Fibrillation in Congestive Heart Failure

Li-Fern Hsu, M.B., B.S., Pierre Jaïs, M.D., Prashanthan Sanders, M.B., B.S., Ph.D., Stéphane Garrigue, M.D., Ph.D., Mélèze Hocini, M.D., Fréderic Sacher, M.D., Yoshihide Takahashi, M.D., Martin Rotter, M.D., Jean-Luc Pasquié, M.D., Ph.D., Christophe Scavée, M.D., Pierre Bordachar, M.D., Jacques Clémenty, M.D., and Michel Haïssaguerre, M.D.

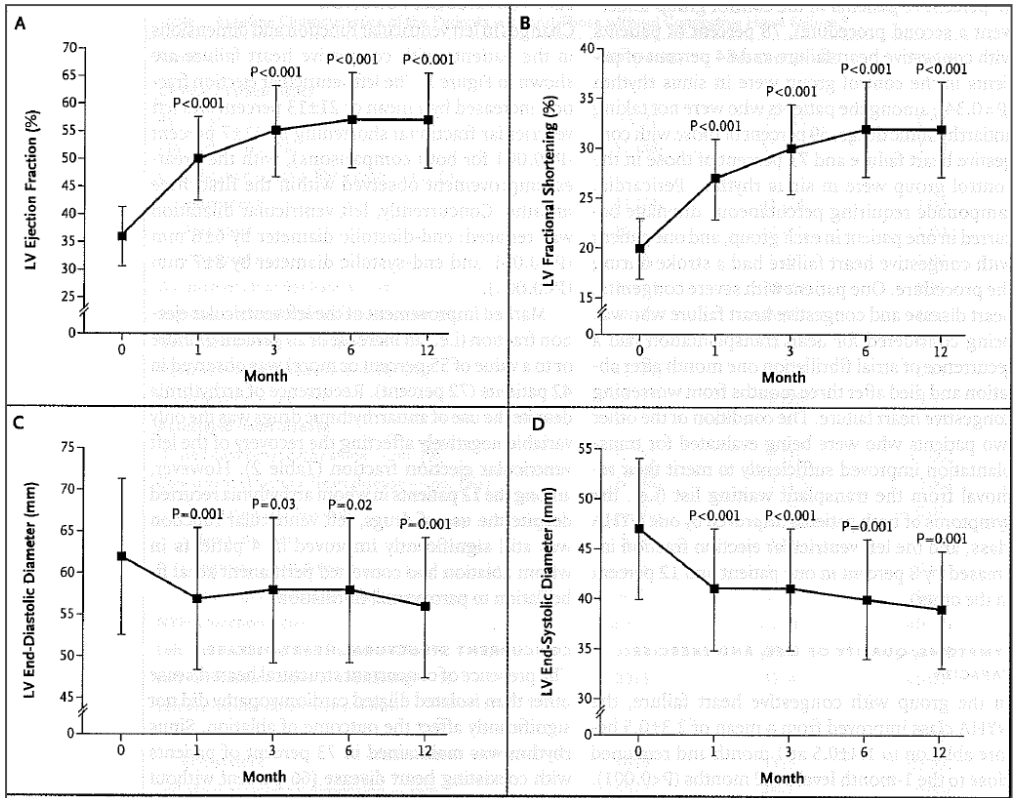


Figure 1. Improvement in Left Ventricular (LV) Function and Dimensions after Ablation in Patients with Congestive Heart Failure.

Plotted values are means ±SD. P values, which are for the comparison with baseline data, were determined with the use of Fisher's least-significant-difference test. The numbers of patients included at each time point were as follows: 0 month, 58; 1 month, 55; 3 months, 48; 6 months, 40; and 12 months, 34.

58 nem.,srd. selh.,
kontroly (58) nem. bez srd. selh.
Obě slupiny ablace
NYHA ≥ II
EF LK ≤ 45%
FU 12± 7m
Ve 12m 78% mělo SR z pac .se srdečním selháním, 84 % z kontrol
Zlepšení echokardiografických parametrů, kvality života, funkční kapacity
Změna nastala po 1m, víceméně se nezměnila až do 12m

Ablation Versus Amiodarone for Treatment of Persistent Atrial Fibrillation in Patients With Congestive Heart Failure and an Implanted Device

Results From the AATAC Multicenter Randomized Trial

Luigi Di Biase, MD, PhD; Prasant Mohanty, MBBS, MPH; Sanghamitra Mohanty, MD; Pasquale Santangeli, MD; Chintan Trivedi, MD, MPH; Dhanunjaya Lakkireddy, MD; Madhu Reddy, MD; Pierre Jais, MD; Sakis Themistoclakis, MD; Antonio Dello Russo, MD; Michela Casella, MD; Gemma Pelargonio, MD; Maria Lucia Narducci, MD; Robert Schweikert, MD; Petr Neuzil, MD; Javier Sanchez, MD; Rodney Horton, MD; Salwa Beheiry, RN; Richard Hongo, MD; Steven Hao, MD; Antonio Rossillo, MD; Giovanni Forleo, MD; Claudio Tondo, MD; J. David Burkhardt, MD; Michel Haissaguerre, MD; Andrea Natale, MD

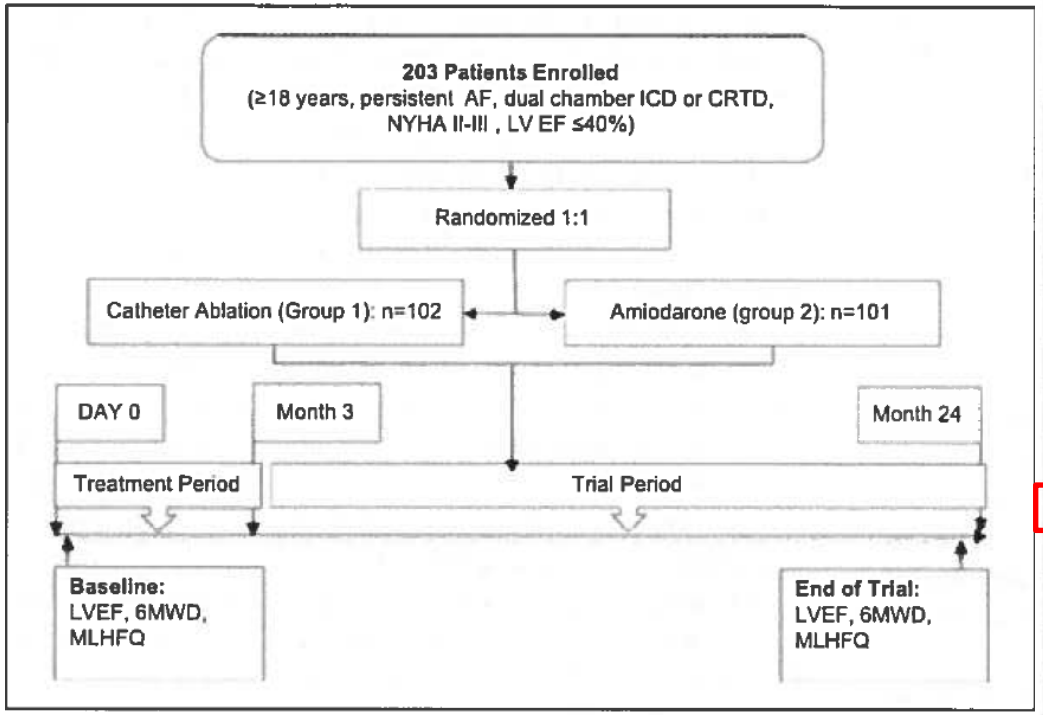


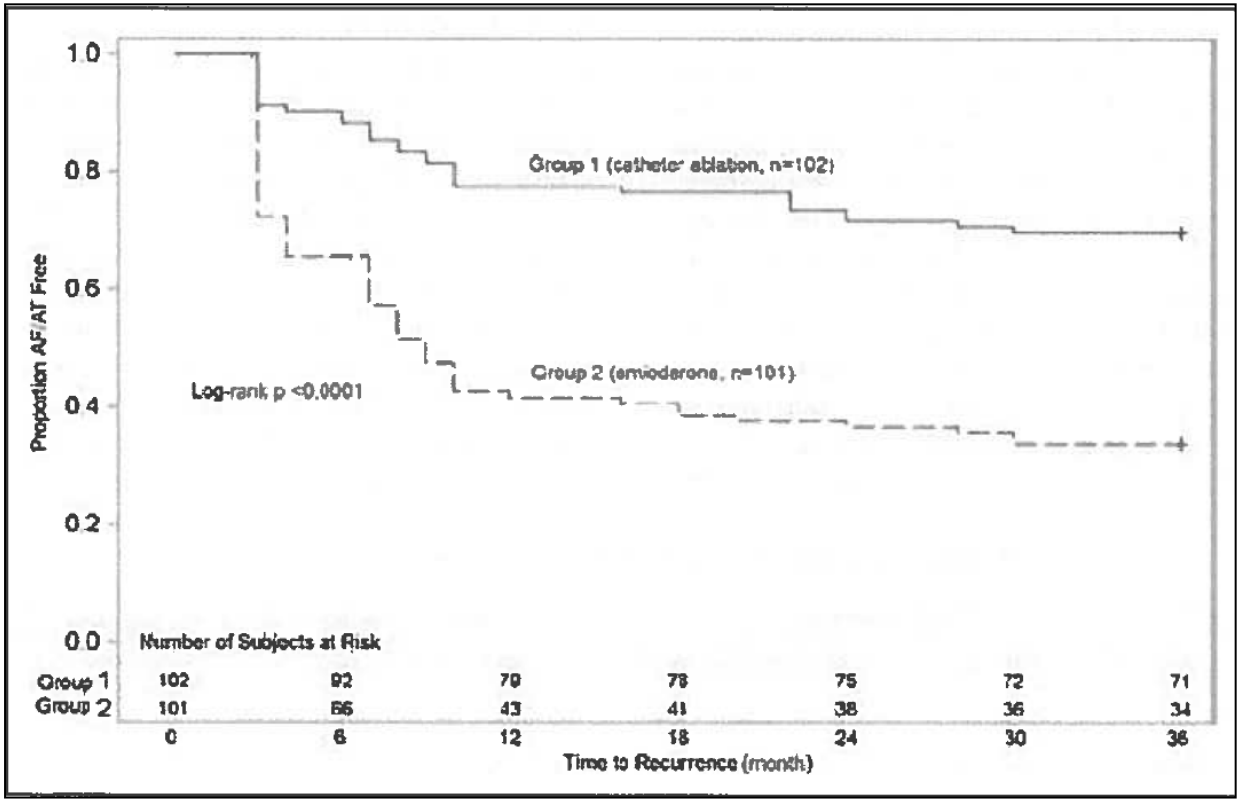
Table 1. Baseline Characteristics of Study Population

	Group 1 (Catheter Ablation, n=102)	Group 2 (Amiodarone, n=101)
Age, y	62±10	60±11
Male, n (%)	77 (75)	74 (73)
AF duration, mo	8.6±3.2	8.4±4.1
BMI, kg/m²	30±8	29±4
Hypertension, n (%)	46 (45)	48 (48)
Diabetes mellitus, n (%)	22 (22)	24 (24)
Coronary artery disease, n (%)	63 (62)	66 (65)
LA diameter, mm	47±4.2	48±4.9
LVEF, %	29±5	30±8
6MWD, meters	348±111	350±130
MLHFQ Score	52±24	50±27
OSA, n (%)	46 (45)	48 (48)
ACEI or ARB, n (%)	94 (92)	89 (88)
Aldosterone antagonists, n (%)	46 (45)	51 (50)
β-Blockers, n (%)	78 (76)	81 (80)

Circulation , 2016, 133:1737-1844

AATAC výsledky

	No Recurrence (n=91)		Recurrence (n=86)		*P* (Comparing Change Between Groups)
	Baseline	Change (Median)	Baseline	Change (Median)	
LVEF, %	28.8±10	9.6±7.4 (9.4)	30.2±9	4.2±6.2 (4.0)	<0.001
6MWD, meters	347±113	27±38 (24)	352±128	8±42 (2)	<0.001
MLHFQ	53±24	−14±18 (−12)	49±26	−2.9±15 (−2.2)	<0.001

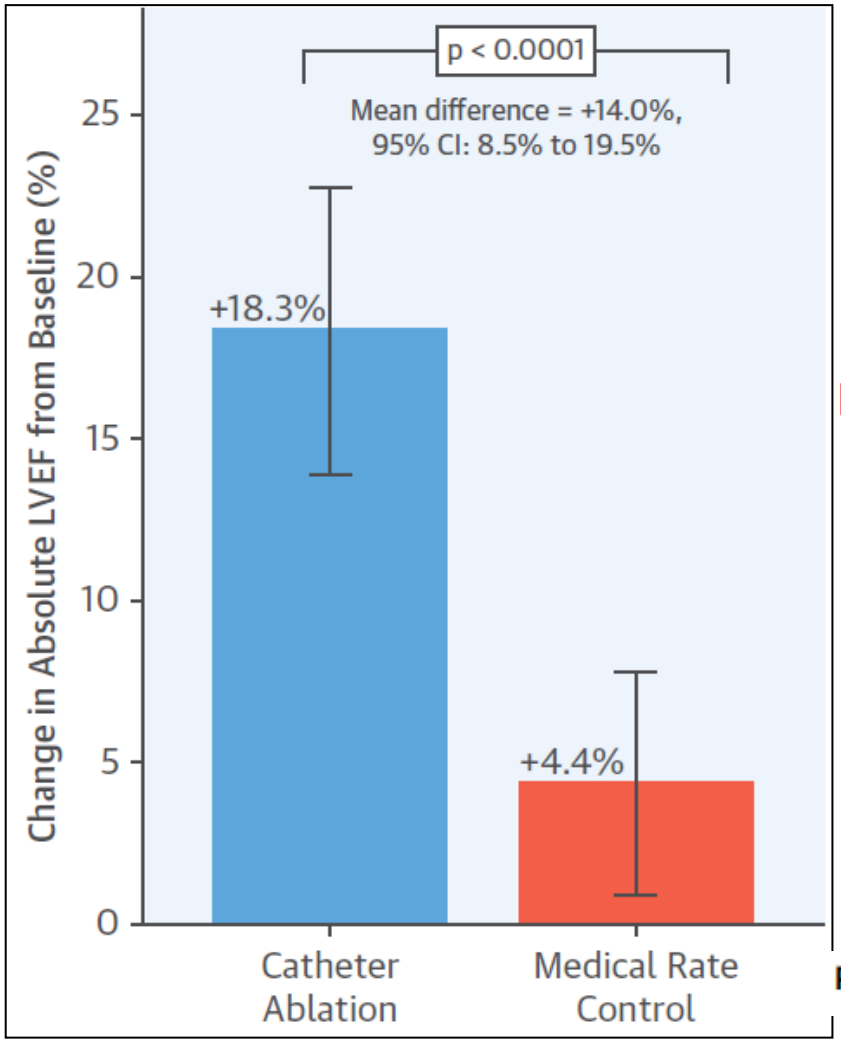


První multicentrická randomizovaná studie, testující superioritu ablace FS u nemocných se srd. selháním

Randomizovaná studie, 1:1
EF LK ≤ 40 %, NYHA II-III
FU 24 m: dotazník QOL, echo , 6MWD
Primární cíl: AF/AT free
Sekudnární cíl: celková mortalita, hospitalizace pro srdeční selhání, komplikace, kvalita života, funkční kapacita

Catheter Ablation Versus Medical Rate Control in Atrial Fibrillation and Systolic Dysfunction

The CAMERA-MRI Study



68 nemocných, 1:1 randomizace,

Chybění MR nálezu late enhancement na počátku (známka počínající fibrozy LK) : zlepšení EF LK v 6m FU (73% vs. 29%; p = 0.0093).

TABLE 2 Primary and Secondary Endpoints

	Catheter Ablation (n = 33)		Medical Rate Control (n = 33)		Comparison Between Treatment Arms	
	Baseline	6 Months	Baseline	6 Months	Mean Difference	p Value*
Primary endpoint						
LVEF (MRI), %	31.8 ± 9.4	50.1 ± 11†	34.1 ± 7.8	38.5 ± 8.7‡	14.0 (8.5 to 19.5)	<0.0001
Secondary endpoints						
LVEF (echocardiography), %	35.0 ± 9.8	52.7 ± 11.9†	34.8 ± 43.7	43.7 ± 12.7‡	7.5 (1.6 to 13.5)	0.0137
LV end-systolic volume, ml/m^2	79.5 ± 33.3	55.3 ± 30.5†	76.3 ± 27.2	68.2 ± 26.3§	−16.1 (−27.7 to −4.5)	0.0075
LV end-diastolic volume, ml/m^2	114 ± 40	106 ± 33§	113 ± 32	109 ± 39	−2.1 (−14.5 to 10.4)	0.74
LA volume, ml/m^2	54.4 ± 16.1	43.4 ± 13.3†	53.9 ± 18.9	55.6 ± 14.6	−13.4 (−20.4 to −6.5)	0.0003
LV stroke volume, ml/m^2	34.9 ± 12.7	50.5 ± 10.1†	38.6 ± 12.5	40.5 ± 14.8	−16.1 (−27.7 to −4.45)	<0.0001
Average NYHA functional class	2.55 ± 0.62	1.33 ± 0.48†	2.45 ± 0.56	2.06 ± 0.50‡	−0.82 (−1.13 to −0.51)	<0.0001
BNP, log[ng/l]	2.34 ± 0.38	1.84 ± 0.37†	2.27 ± 0.43	2.14 ± 0.56	−0.38 (−0.65 to −0.11)	0.0063
BNP, ng/l‖	266 ± 210	98 ± 77	256 ± 208	247 ± 197	-	0.0131
6MWT distance, m	491 ± 147	546 ± 82§	489 ± 132	518 ± 119†	27 (−28 to 79)	0.34
SF-36 physical component scores	41.6 ± 11.6	48.5 ± 8.2†	38.8 ± 10.4	44.6 ± 11.2‡	1.3 (−3.9 to 6.5)	0.62
SF-36 mental component scores	49.1 ± 10.6	53.3 ± 7.7‡	50.3 ± 11.2	52.9 ± 8.9	1.6 (−3.1 to 6.3)	0.49

Values are mean ± SD and 95% CI. *p value for comparison of mean difference from baseline to 6 months between the catheter ablation and medical rate control treatment arms. †p < 0.0001 for comparison between baseline and 6 months. ‡p < 0.01 for comparison between baseline and 6 months. §p < 0.05 for comparison between baseline and 6 months. ‖Non-normally distributed; therefore, confidence intervals are not displayed. The p value determined by using the Mann-Whitney *U* test.

BNP = brain natriuretic peptide; NYHA = New York Heart Association; SF-36 = 36-item Short-Form Health Survey; other abbreviations as in Table 1.

Prabhu, S. et al. J Am Coll Cardiol. 2017;70(16):1949-61

Catheter Ablation for Atrial Fibrillation in Patients With Left Ventricular Systolic Dysfunction. A Systematic Review and Meta-Analysis

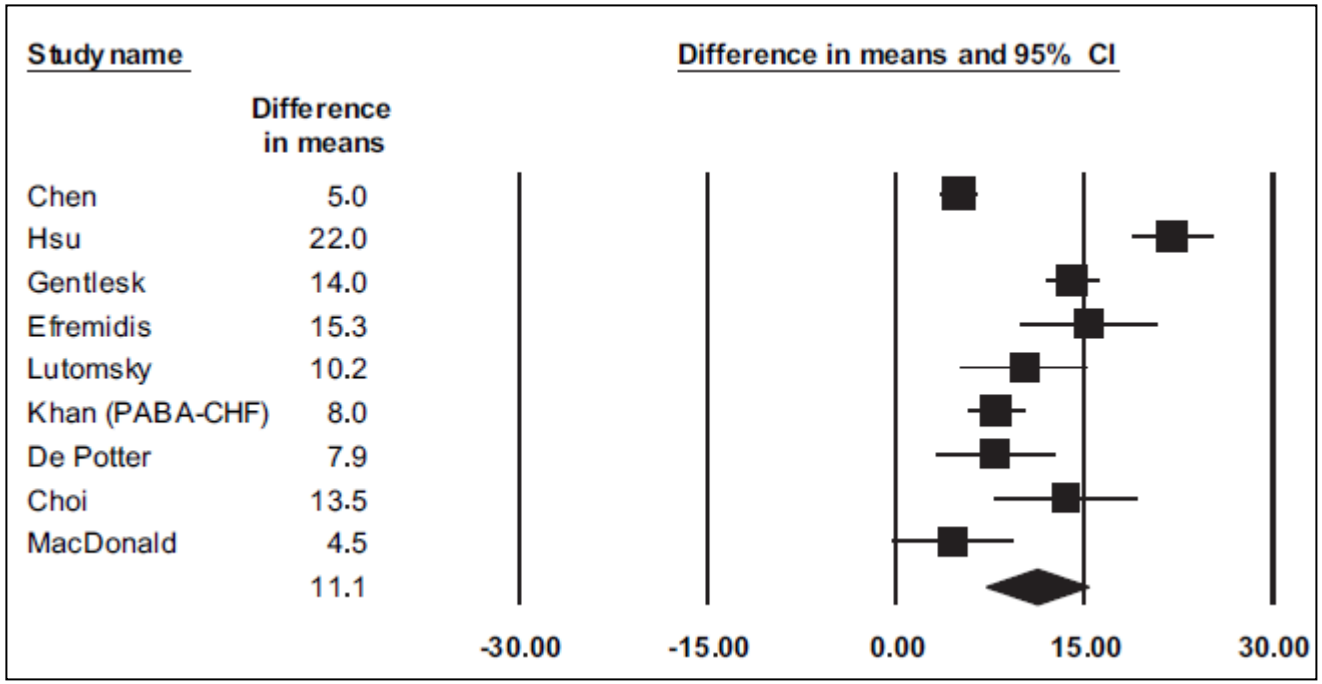
NIKOLAOS DAGRES, MD,[1] CHRISTOS VAROUNIS, MD,[1] THOMAS GASPAR, MD,[2] CHRISTOPHER PIORKOWSKI, MD,[2] CHARLOTTE EITEL, MD,[2] EFSTATHIOS K. ILIODROMITIS, MD,[1] JOHN P. LEKAKIS, MD,[1] PANAYOTA FLEVARI, MD,[1] EFTIHIA SIMEONIDOU, MD,[1] LOUKIANOS S. RALLIDIS, MD,[1] ELIAS TSOUGOS, MD,[1] GERHARD HINDRICKS, MD, PhD,[2] PHILIPP SOMMER, MD,[2] AND MARIA ANASTASIOU-NANA, MD[1]

Athens, Greece; and Leipzig, Germany

Author/ study	Publication year	Study type	Patient number	Age (y)	Cutoff (or highest) LVEF (%)	Mean LVEF (%)	Patients with CAD (%)	Type of AF	Follow-up (months)
Chen[2]	2004	Cohort study	94	57 ± 8	40	36 ± 8	78	All types of AF	6
Hsu[3]	2004	Case-control study	58	56 ± 10	45	35 ± 7	21	All types of AF	12 ± 7
Gentlesk[4]	2007	Cohort study	67	54 ± 9	50	42 ± 9	18	Paroxysmal and persistent	3–6
Efremidis[5]	2007	Cohort study	13	54 ± 12	40	36.2 ± 4.6	23	Paroxysmal and persistent	9 ± 4
Lutomsky[6]	2008	Cohort study	18	56 ± 11	50	41.3 ± 6.5	17	Only paroxysmal	6
Khan (PABA-CHF)[7]	2008	Randomized trial	41	60 ± 8	40	27 ± 8	73	All types of AF	6
De Potter[8]	2010	Case-control study	26*	49 ± 10	50	43.2 ± 7.6	19	All types of AF	6
Choi[9]	2010	Case-control study	15	56 ± 11	45	37.1 ± 6.1	33	Paroxysmal and persistent	16 ± 13
MacDonald[10]	2010	Randomized trial	22†	62 ± 7	35‡	36.1 ± 11.9#	50	Persistent AF	10 ± 3

Journal of Cardiac Failure Vol. 17 No. 11 2011

Funkce LK (EF LK) před a po katetrizační ablaci pro FS u nemocných se sníženou EFLK



Celkem hodnoceno asi 2000 studií
K porovnání vybráno 9 studií

Journal of Cardiac Failure Vol. 17 No. 11 2011

Type of Atrial Fibrillation and Outcomes in Patients With Heart Failure and Reduced Ejection Fraction

Ulrik M. Mogensen, MD, PhD,[a,b] Pardeep S. Jhund, MBChB, PhD,[a] William T. Abraham, MD,[c] Akshay S. Desai, MD, MPH,[d] Kenneth Dickstein, MD, PhD,[e] Milton Packer, MD,[f] Jean L. Rouleau, MD,[g] Scott D. Solomon, MD,[d] Karl Swedberg, MD, PhD,[h,i] Michael R. Zile, MD,[j] Lars Køber, MD, DMSc,[b] John J.V. McMurray, MD,[a] on behalf of the PARADIGM-HF and ATMOSPHERE Investigators and Committees

Analýza studií Paradigm –HF (ACEI vs ARNI) a Atmosphere (Aliskiren)
Kompozitní primární cíl: CV smrt a hospitalizace pro srdeční selhání
15 415 nemocných randomizovaných do obou studií, 5 481 (35.6%) mělo FS:
3 770 (68.8%) persist nebo perm. FS
1,645 (30.0%) parox FS (66 nemocných -neurčená FS).

J Am Coll Cardiol 2017;70:2490–500

Type of Atrial Fibrillation and Outcomes in Patients With Heart Failure and Reduced Ejection Fraction

TABLE 1 Baseline Characteristics by AF Type

	AF Type at Randomization				
	No AF (n = 9,828)	Paroxysmal (I) (n = 1,645)	Persistent/Permanent (II) (n = 3,770)	p Value (I vs. II)	New Onset AF (n = 369)
Age at screening, yrs	61.6 ± 11.8	66.9 ± 10.1*	67.2 ± 10.3*	0.292	64.3 ± 11.6*
Female	2,245 (22.8)	329 (20.0)†	755 (20.0)†	0.982	56 (15.2)†
Region				<0.001	
North America	478 (4.9)	178 (10.8)*	116 (3.1)*		29 (7.9)*
Latin America	1,910 (19.4)	143 (8.7)*	468 (12.4)*		47 (12.7)*
Western Europe	2,267 (23.1)	533 (32.4)*	1,055 (28.0)*		114 (30.9)*
Central Europe	2,357 (24.0)	581 (35.3)*	1,774 (47.1)*		112 (30.4)*
Asia/Pacific and other	2,816 (28.7)	210 (12.8)*	357 (9.5)*		67 (18.2)*
Race				<0.001	
White	5,580 (56.8)	1,307 (79.5)*	3,133 (83.1)*		269 (72.9)*
Black	419 (4.3)	52 (3.2)*	59 (1.6)*		10 (2.7)*
Asian	2,726 (27.7)	194 (11.8)*	327 (8.7)*		61 (16.5)*
Other	1,103 (11.2)	92 (5.6)*	251 (6.7)*		29 (7.9)*
Systolic blood pressure, mm Hg	121.9 ± 16.8	123.0 ± 17.4†	123.5 ± 16.3*	0.307	124.0 ± 17.7†
Heart rate, beats/min	71.1 ± 11.3	69.8 ± 12.5*	75.4 ± 13.6*	<0.001	69.5 ± 12.0†
eGFR, ml/min/1.73 m^2	72.7 ± 22.1	64.2 ± 18.5*	67.7 ± 23.0*	<0.001	70.5 ± 23.1†
Ischemic HF etiology	5,915 (60.2)	1,046 (63.6)†	1,907 (50.6)*	<0.001	225 (61.0)
Ejection fraction, %	28.5 ± 6.0	29.1 ± 6.1*	30.3 ± 5.6*	<0.001	29.2 ± 6.1†
BMI, kg/m^2	27.2 ± 5.4	28.4 ± 5.3*	29.1 ± 5.4*	<0.001	28.5 ± 5.2*
BMI category				<0.001	
<18.5 kg/m^2	266 (2.7)	15 (0.9)*	23 (0.6)*		4 (1.1)*
18.5–24.9 kg/m^2	3,293 (33.6)	435 (26.5)*	802 (21.3)*		79 (21.4)*
25–29.9 kg/m^2	3,688 (37.6)	644 (39.2)*	1,460 (38.8)*		167 (45.3)*
≥30 kg/m^2	2,565 (26.1)	549 (33.4)*	1,475 (39.2)*		119 (32.2)*
NYHA functional class				<0.001	
I	446 (4.5)	42 (2.6)*	72 (1.9)*		14 (3.8)
II	7,207 (73.4)	1,133 (69.0)*	2,298 (61.0)*		260 (70.5)
III	2,108 (21.5)	455 (27.7)*	1,352 (35.9)*		91 (24.7)
IV	61 (0.6)	12 (0.7)*	44 (1.2)*		4 (1.1)
Duration of HF				0.861	
≤1 yr	3,517 (35.8)	399 (24.3)	925 (24.5)*		80 (21.7)*
1–5 yrs	3,675 (37.4)	624 (37.9)*	1,449 (38.4)*		144 (39.1)*
>5 yrs	2,632 (26.8)	622 (37.8)*	1,396 (37.0)*		144 (39.1)*
Current smoking	1,516 (15.4)	195 (11.9)†	377 (10.0)*	0.041	46 (12.5)

TABLE 1 Continued

	AF Type at Randomization				
	No AF (n = 9,828)	Paroxysmal (I) (n = 1,645)	Persistent/Permanent (II) (n = 3,770)	p Value (I vs. II)	New Onset AF (n = 369)
History of					
Hypertension	6,120 (62.3)	1,190 (72.3)*	2,848 (75.5)*	0.013	241 (65.3)
Diabetes	3,108 (31.6)	532 (32.3)	1,160 (30.8)	0.251	97 (26.3)†
Myocardial infarction	4,469 (45.5)	809 (49.2)†	1,130 (30.0)*	<0.001	184 (49.9)
Heart failure hospitalization	5,767 (58.7)	1,090 (66.3)*	2,480 (65.8)*	0.732	217 (58.8)
Stroke	635 (6.5)	180 (10.9)*	388 (10.3)*	0.473	20 (5.4)
COPD	1,050 (10.7)	265 (16.1)*	525 (13.9)*	0.036	43 (11.7)
Cancer	366 (3.7)	96 (5.8)*	190 (5.0)†	0.228	19 (5.1)
Renal disease	1,032 (10.5)	359 (21.8)*	651 (17.3)*	<0.001	49 (13.3)
Medications at baseline					
Beta-blocker	9,094 (92.5)	1,508 (91.7)	3,484 (92.4)	0.349	350 (94.9)
Aldosterone antagonist	4,597 (46.8)	768 (46.7)	1,825 (48.4)	0.244	159 (43.1)
Diuretic	7,642 (77.8)	1,319 (80.2)†	3,228 (85.6)*	<0.001	291 (78.9)
Digoxin	2,337 (23.8)	472 (28.7)*	1,916 (50.8)*	<0.001	88 (23.8)
Amiodarone	693 (7.1)	410 (24.9)*	328 (8.7)†	<0.001	19 (5.1)
Statins	5,623 (57.2)	997 (60.6)†	1,683 (44.6)*	<0.001	213 (57.7)
Anticoagulative therapy	1,172 (11.9)	874 (53.1)*	2,685 (71.2)*	<0.001	59 (16.0)†
Aspirin	6,032 (61.4)	769 (46.7)*	1,066 (28.3)*	<0.001	230 (62.3)
Other antiplatelet	1,689 (17.2)	192 (11.7)*	226 (6.0)*	<0.001	45 (12.2)†
Any antiplatelet	6,491 (66.0)	836 (50.8)*	1,185 (31.4)*	<0.001	250 (67.8)
ICD	1,132 (11.5)	324 (19.7)*	339 (9.0)*	<0.001	64 (17.3)†
CRT	546 (5.6)	200 (12.2)*	207 (5.5)	<0.001	26 (7.0)
NT-proBNP, pg/ml	1,244 (694-2,521)	1,474 (774-2,876)*	1,801 (1,096-3,200)*	<0.001	1,694 (819-3,154)*
KCCQ clinical summary score‡	82.3 (65.6-92.7)	77.1 (60.4-89.6)*	74.0 (56.3-87.5)*		79.2 (63.5-91.7)*
CHA_2DS_2-VASc	3.5 ± 1.7	4.1 ± 1.8*	3.9 ± 1.8*	0.005	3.6 ± 1.8
CHA_2DS_2-VASc score ≥2	8,816 (89.7)	1,561 (94.9)*	3,507 (93.0)*	0.01	331 (89.7)

J Am Coll Cardiol 2017;70:2490–500

KardioCentrum

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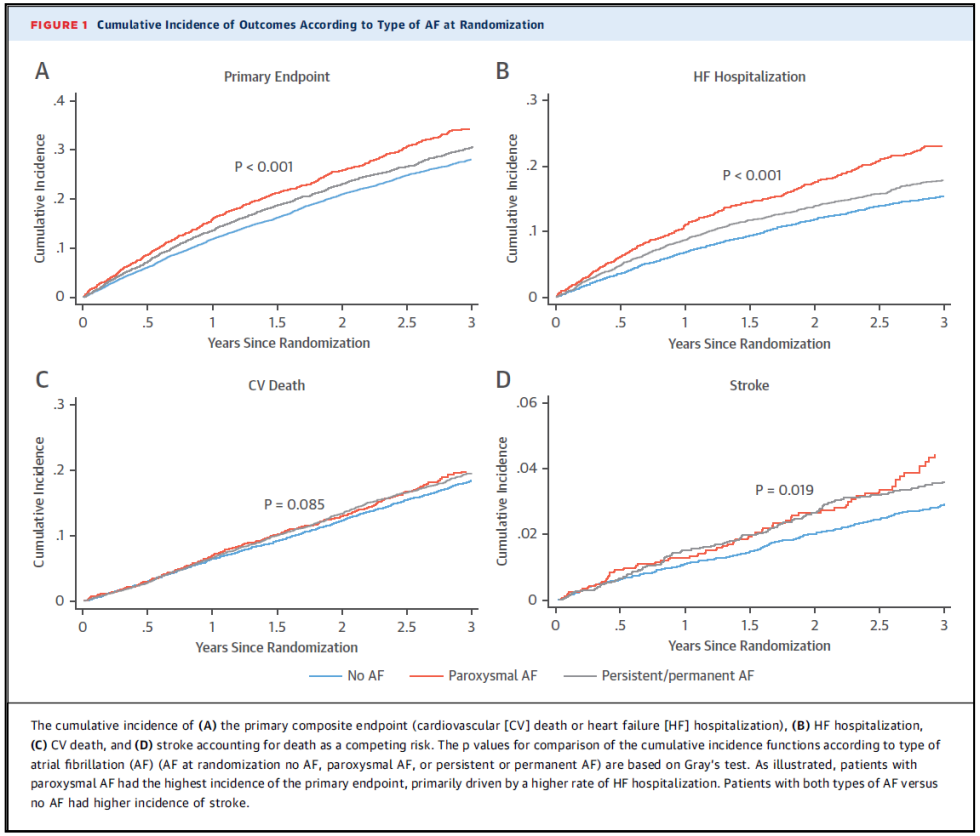
Type of Atrial Fibrillation and Outcomes in Patients With Heart Failure and Reduced Ejection Fraction

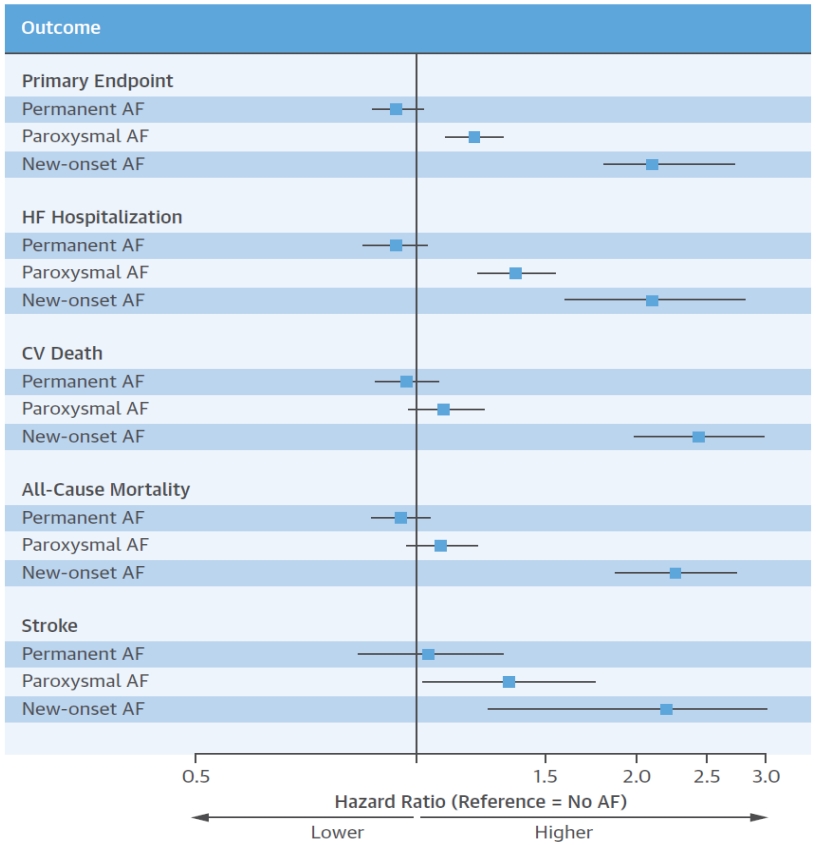


Limitace studie: retrospektivní analýza, přítomnost FS a její typ určen jen anamnesticky

J Am Coll Cardiol 2017;70:2490–500

Type of Atrial Fibrillation and Outcomes in Patients With Heart Failure and Reduced Ejection Fraction

CENTRAL ILLUSTRATION **Type of AF at Randomization Compared With Patients Without AF: HRs of Outcomes**



Mogensen, U.M. et al. J Am Coll Cardiol. 2017;70(20):2490-500.

Hazard ratios (HRs) of outcomes according to type of atrial fibrillation (AF) using no AF as reference. HRs with 95% confidence intervals were calculated using cause-specific Cox models, adjusted for age, sex, region, race, New York Heart Association functional class, ejection fraction, heart rate, systolic blood pressure, estimated glomerular filtration rate, diabetes, body mass index, time since HF diagnosis, history of HF hospitalization, history of myocardial infarction, history of stroke, log N-terminal pro-B-type natriuretic peptide, and randomized treatment (enalapril, sacubitril/valsartan, aliskiren, or combination). The p values are for difference between paroxysmal and persistent or permanent AF. CV = cardiovascular.

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 FEBRUARY 1, 2018 VOL. 378 NO. 5

Catheter Ablation for Atrial Fibrillation with Heart Failure

Nassir F. Marrouche, M.D., Johannes Brachmann, M.D., Dietrich Andresen, M.D., Jürgen Siebels, M.D., Lucas Boersma, M.D., Luc Jordaens, M.D., Béla Merkely, M.D., Evgeny Pokushalov, M.D., Prashanthan Sanders, M.D., Jochen Proff, B.S., Heribert Schunkert, M.D., Hildegard Christ, M.D., Jürgen Vogt, M.D., and Dietmar Bänsch, M.D., for the CASTLE-AF Investigators*

Catheter Ablation vs. Standard Conventional Treatment in Patients With LV Dysfunction and AF (CASTLE-AF)

Hodnoceno 3013 nemocných, 2615 vyřazeno, zařazeno celkem 398 nemocných
8 let, 33 center. 37,6 m± 20,4 m FU
Paroxysmální a persistující FS
Primární cíl studie: celková mortalita a hospitalizace pro zhoršení srdečního selhání
Vstupní kritéria: EF LK ≤ 35 % , ICD s vzdálenou monitorací (detekce FS)
V lékové skupině byli nemocní s kontrolou rytmu i kontrolou frekvence (předešlé studie neprokázaly rozdíl mezi těmito dvěma přístupy)

CASTLE AF studie

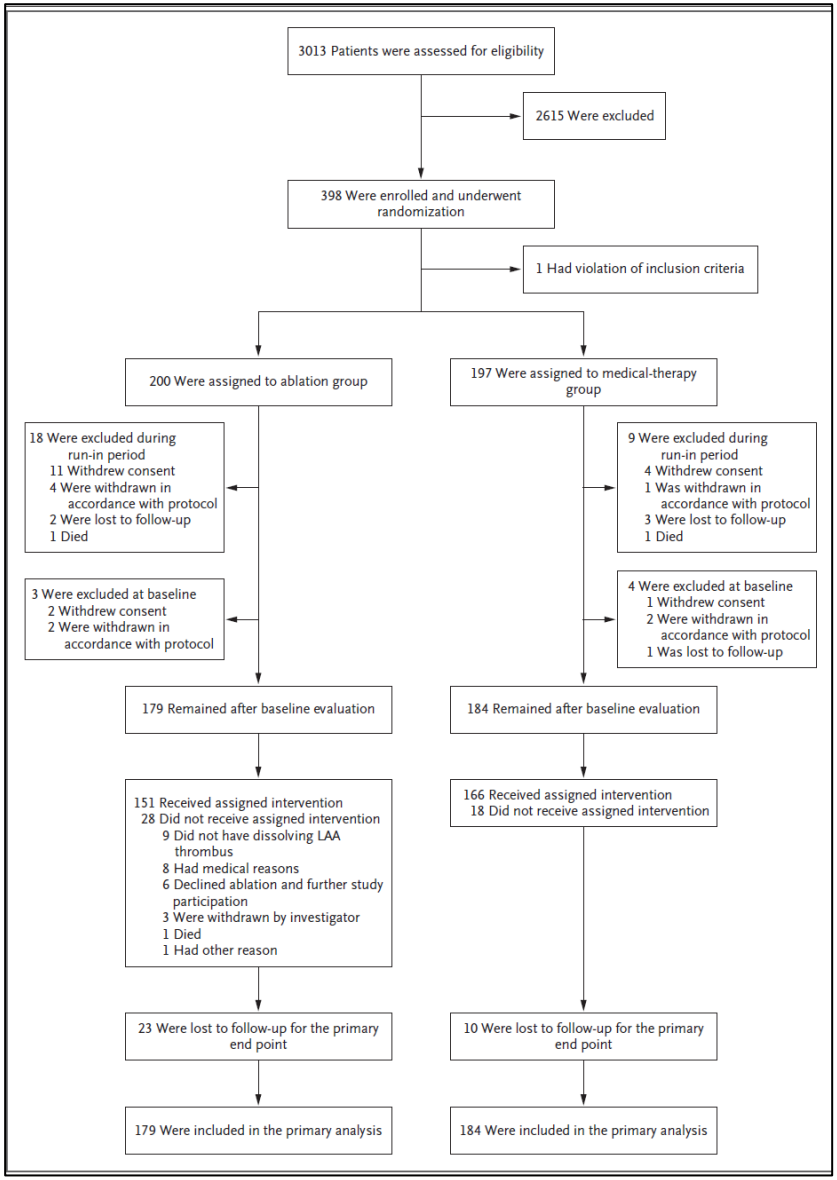
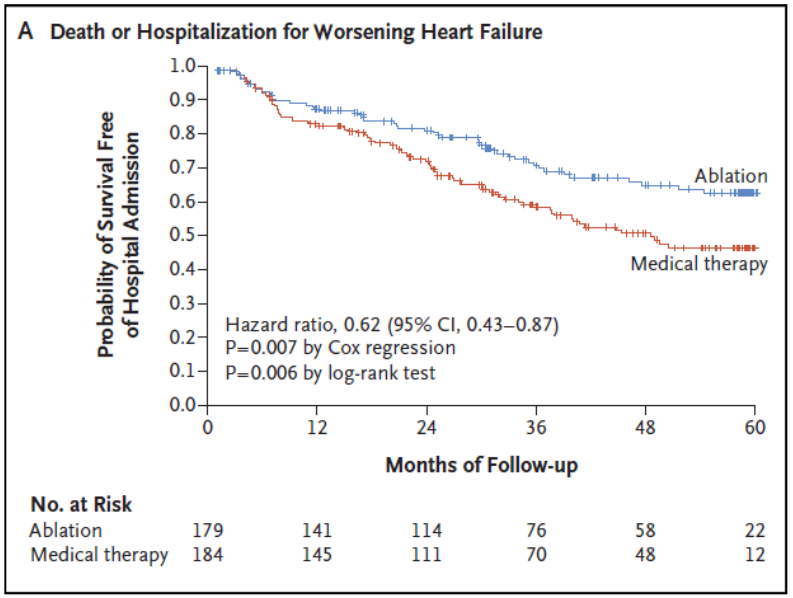
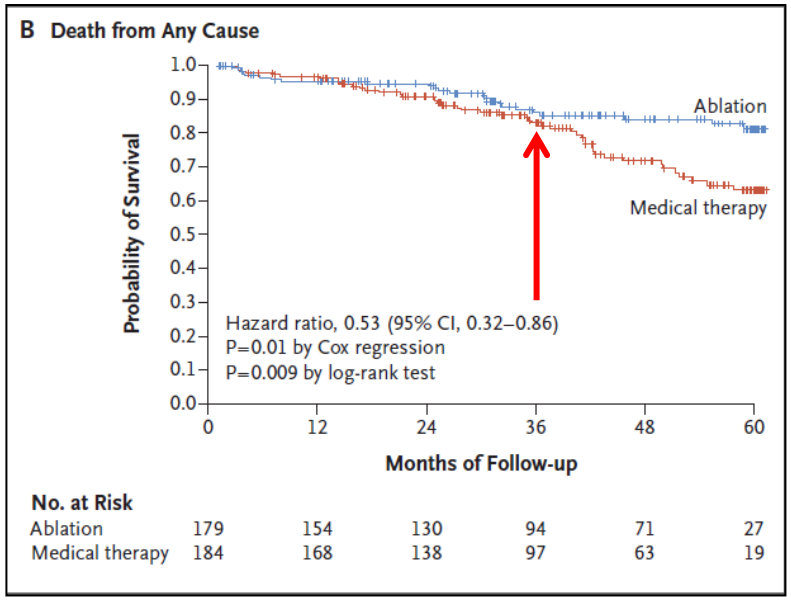


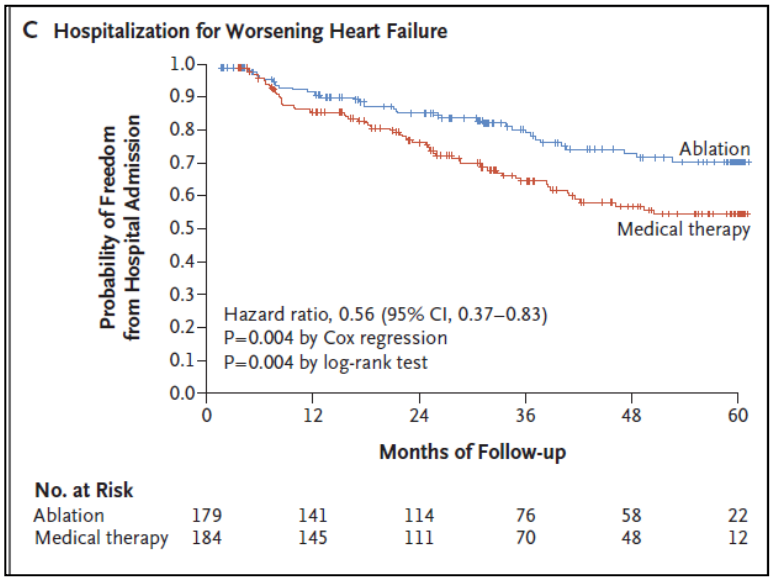
Table 1. Characteristics of the Patients at Baseline.*

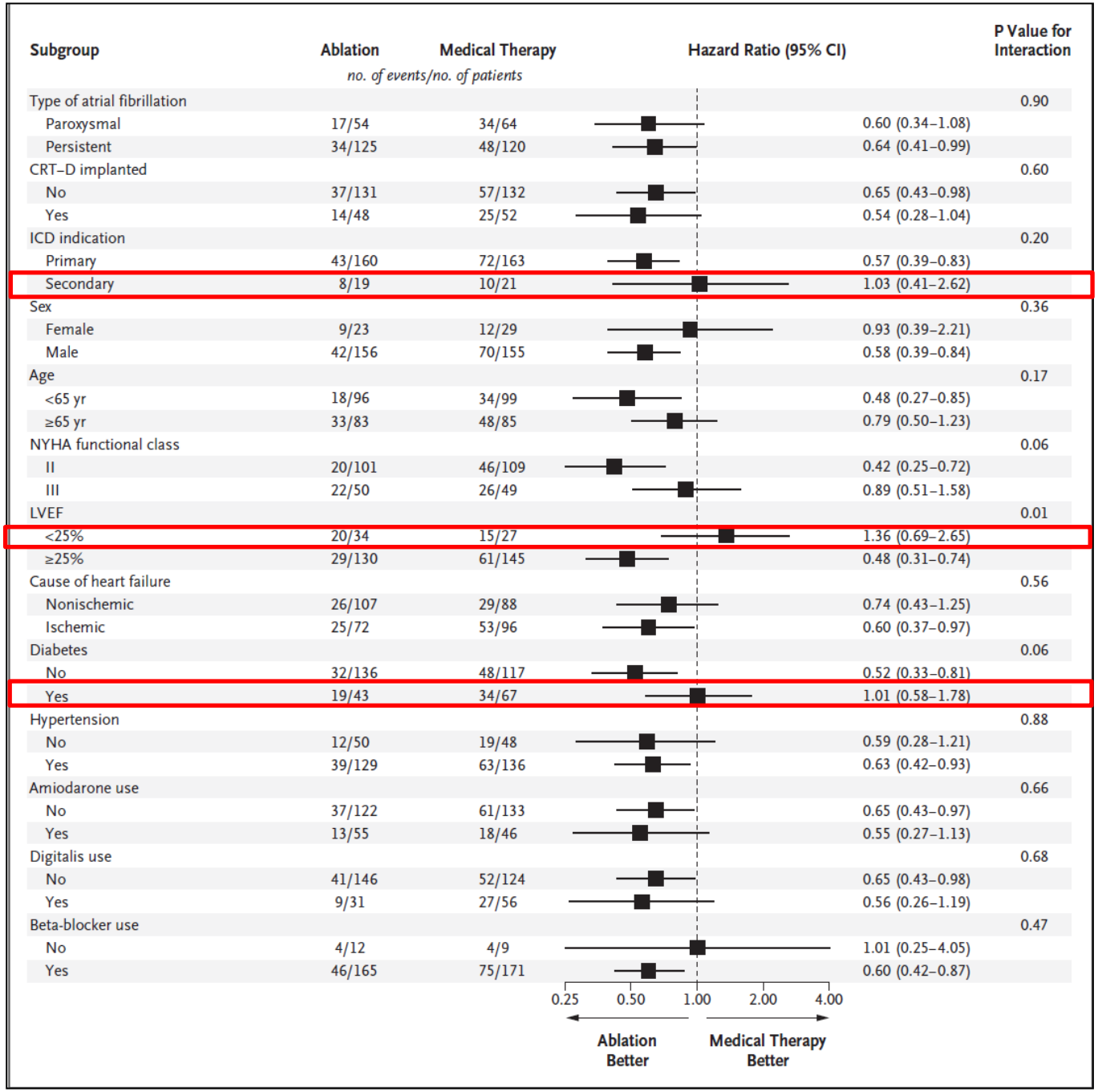
Characteristic	Treatment Type	
	Ablation (N=179)	Medical Therapy (N=184)
Age — yr		
Median	64	64
Range	56–71	56–73.5
Male sex — no. (%)	156 (87)	155 (84)
Body-mass index†		
Median	29.0	29.1
Range	25.9–32.2	25.9–32.3
New York Heart Association class — no./total no. (%)		
I	20/174 (11)	19/179 (11)
II	101/174 (58)	109/179 (61)
III	50/174 (29)	49/179 (27)
IV	3/174 (2)	2/179 (1)
Cause of heart failure — no. (%)‡		
Ischemic	72 (40)	96 (52)
Nonischemic	107 (60)	88 (48)
Type of atrial fibrillation — no. (%)		
Paroxysmal	54 (30)	64 (35)
Persistent	125 (70)	120 (65)
Long-standing persistent (duration >1 year)	51 (28)	55 (30)
Left atrial diameter		
Total no. of patients evaluated	162	172
Median — mm	48.0	49.5
Interquartile range — mm	45.0–54.0	5.0–55.0
Left ventricular ejection fraction		
Total no. of patients evaluated	164	172
Median — %	32.5	31.5
Interquartile range — %	25.0–38.0	27.0–37.0
CRT-D implanted — no. (%)§	48 (27)	52 (28)
ICD implanted — no. (%)§	131 (73)	132 (72)
Dual-chamber	128 (72)	123 (67)
Single-lead device with "floating" atrial sensing dipole	3 (2)	9 (5)
Indication for ICD implantation — no. (%)		
Primary prevention	160 (89)	163 (89)
Secondary prevention	19 (11)	21 (11)
History of amiodarone use — no./total no. (%)¶		
Failure	78/175 (45)	82/176 (47)
Unacceptable side effects	21/175 (12)	24/176 (14)
Nonuse	76/175 (4	

CASTLE AF výsledky








Subgroup
Ablation
Medical Therapy
Hazard Ratio (95% CI)
P Value for Interaction
no. of events/no. of patients
Type of atrial fibrillation 0.90
Paroxysmal 17/54 34/64 0.60 (0.34–1.08)
Persistent 34/125 48/120 0.64 (0.41–0.99)
CRT–D implanted 0.60
No 37/131 57/132 0.65 (0.43–0.98)
Yes 14/48 25/52 0.54 (0.28–1.04)
ICD indication 0.20
Primary 43/160 72/163 0.57 (0.39–0.83)
Secondary 8/19 10/21 1.03 (0.41–2.62)
Sex 0.36
Female 9/23 12/29 0.93 (0.39–2.21)
Male 42/156 70/155 0.58 (0.39–0.84)
Age 0.17
<65 yr 18/96 34/99 0.48 (0.27–0.85)
≥65 yr 33/83 48/85 0.79 (0.50–1.23)
NYHA functional class 0.06
II 20/101 46/109 0.42 (0.25–0.72)
III 22/50 26/49 0.89 (0.51–1.58)
LVEF 0.01
<25% 20/34 15/27 1.36 (0.69–2.65)
≥25% 29/130 61/145 0.48 (0.31–0.74)
Cause of heart failure 0.56
Nonischemic 26/107 29/88 0.74 (0.43–1.25)
Ischemic 25/72 53/96 0.60 (0.37–0.97)
Diabetes 0.06
No 32/136 48/117 0.52 (0.33–0.81)
Yes 19/43 34/67 1.01 (0.58–1.78)
Hypertension 0.88
No 12/50 19/48 0.59 (0.28–1.21)
Yes 39/129 63/136 0.63 (0.42–0.93)
Amiodarone use 0.66
No 37/122 61/133 0.65 (0.43–0.97)
Yes 13/55 18/46 0.55 (0.27–1.13)
Digitalis use 0.68
No 41/146 52/124 0.65 (0.43–0.98)
Yes 9/31 27/56 0.56 (0.26–1.19)
Beta-blocker use 0.47
No 4/12 4/9 1.01 (0.25–4.05)
Yes 46/165 75/171 0.60 (0.42–0.87)
0.25
0.50
1.00
2.00
4.00
Ablation Better
Medical Therapy Better

ORIGINAL ARTICLE

Pulmonary-Vein Isolation for Atrial Fibrillation in Patients with Heart Failure

Mohammed N. Khan, M.D., Pierre Jaïs, M.D., Jennifer Cummings, M.D., Luigi Di Biase, M.D., Prashanthan Sanders, M.D., David O. Martin, M.D., Josef Kautzner, M.D., Steven Hao, M.D., Sakis Themistoclakis, M.D., Raffaele Fanelli, M.D., Domenico Potenza, M.D., Raimondo Massaro, M.D., Oussama Wazni, M.D., Robert Schweikert, M.D., Walid Saliba, M.D., Paul Wang, M.D., Amin Al-Ahmad, M.D., Salwa Beheiry, M.D., Pietro Santarelli, M.D., Randall C. Starling, M.D., Antonio Dello Russo, M.D., Gemma Pelargonio, M.D., Johannes Brachmann, M.D., Volker Schibgilla, M.D., Aldo Bonso, M.D., Michela Casella, M.D., Antonio Raviele, M.D., Michel Haïssaguerre, M.D., and Andrea Natale, M.D., for the PABA-CHF Investigators*

PABA-CHF: Pulmonary Vein Antrum Isolation versus AV Node Ablation with Bi-Ventricular Pacing for Treatment of Atrial Fibrillation in Patients with Congestive Heart Failure

N Engl J Med 2008;359:1778-85.

KARDIOCENTRUM

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PABA-CHF studie

Primární cíl studie:
6MWD, EF LK, kvalita života

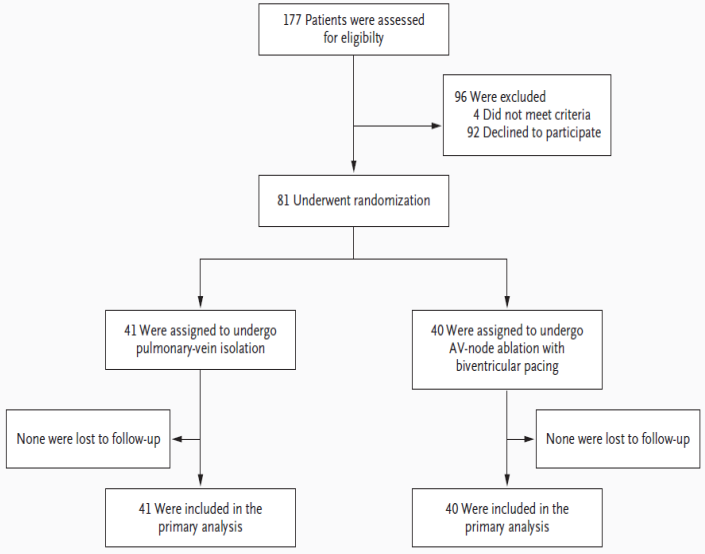
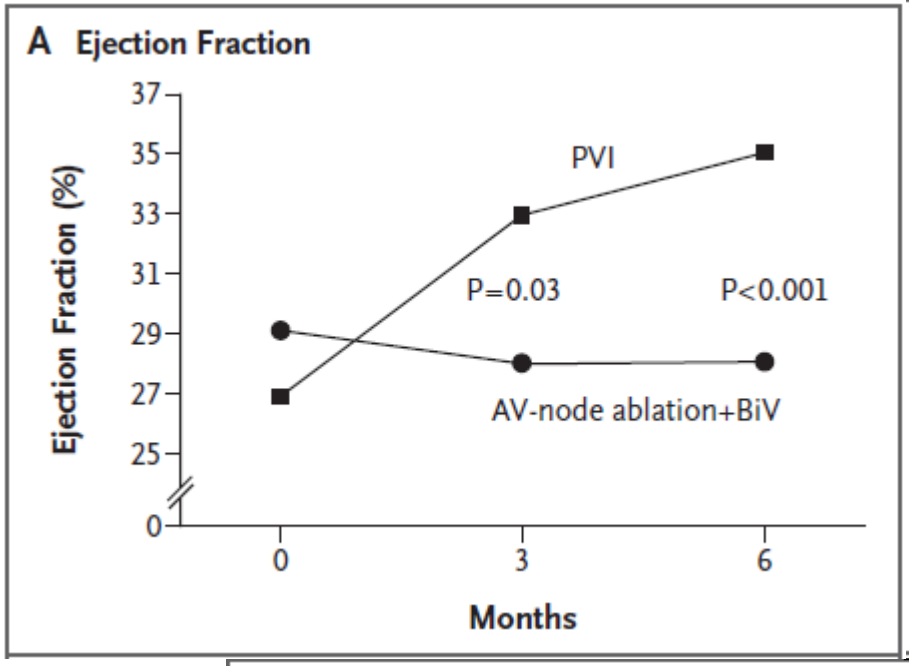


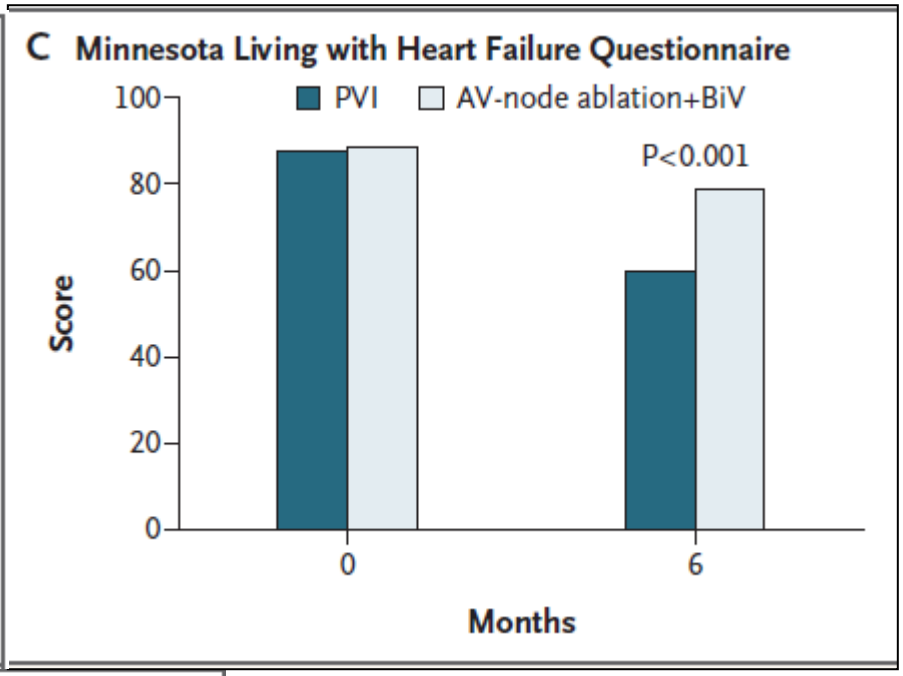
Figure 1. Enrollment and Follow-up of Study Patients.
AV denotes atrioventricular.

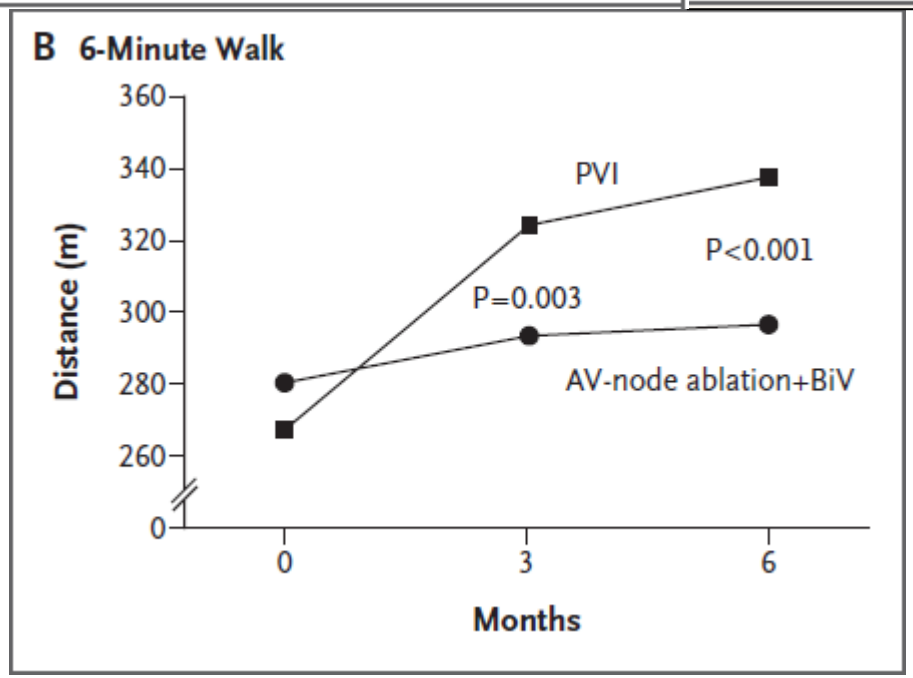
Table 1. Baseline Characteristics of the Patients.*

Characteristic	Pulmonary-Vein Isolation (N=41)	AV-Node Ablation with Biventricular Pacing (N=40)
Age (yr)	60±8	61±8
Male sex (%)	95	88
Coronary artery disease (%)	73	68
Type of atrial fibrillation (%)		
Paroxysmal	49	54
Persistent or long-standing persistent	51	46
Duration of atrial fibrillation (yr)	4.0±2.4	3.9±2.8
Ejection fraction (%)	27±8	29±7
Left atrial internal diameter (cm)	4.9±0.5	4.7±0.6
Heart rate (beats/min)	80±12	82±11
Duration of QRS interval (msec)	92±9	90±10
Distance on 6-minute walk test (m)	269±54	281±44
MLWHF score†	89±12	89±11

N Engl J Med 2008;359:1778-85.







PABA- CHF studie

Limitace:

Otazná reprodukovatelnost výsledků (zkušená centra)

Chybí dlouhodobé sledování

Studie nebyla zaslepena

Cost effectiveness

Závěr

- Ablace fibrilace síní, vede ke zlepšení kvality života, funkční výkonnosti, echokardiografických parametrů
- Tento efekt je prokazatelný i u nemocných se srdečním selháním
- Ukazuje se superiorita i u nemocných se závažným srdečním selháním, kteří mají impantovaný ICD
- U nemocných s těžkým srdečním selháním kde EF LK je 25% a méně, funkční klasifikací NYHA IV je prospěšnost otazná
- Nově existují i mortalitní data, která prokazují příznivý efekt katetrizační ablace fibrilace síní oproti optimání medikaci u nemocných s FS a srdečním selháním