

COMPARISON OF INITIAL LA PATTERNS AS THE ROAD TO SUCCESSFUL ENDOCARDIAL «BOX LESION» ABLATION

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Guidelines on atrial fibrillation

Recommendations for left atrial ablation

Recommendations	Class*	Level†	Ref.‡
Ablation of common atrial flutter is recommended as part of an AF ablation procedure if documented prior to the ablation procedure or occurring during the AF ablation.	I	B	
Catheter ablation for paroxysmal AF should be considered in symptomatic patients who have previously failed a trial of antiarrhythmic medication.	IIa	A	
Ablation of persistent symptomatic AF that is refractory to antiarrhythmic therapy should be considered a treatment option.	IIa	B	
In patients post-ablation, LPRMH or LWH should be considered as "bridging therapy" prior to resumption of systemic OAC, which should be continued for a minimum of 3 months. Thereafter, the individual stroke risk factors of the patient should be considered when determining if OAC therapy should be continued.	IIa	C	
Continuation of OAC therapy post-ablation is recommended in patients with 1 "major" (definite) or ≥2 "moderately relevant non-major" risk factors (i.e., CHA ₂ VASc score ≥2).	IIa	B	
Catheter ablation of AF in patients with heart failure may be considered when antiarrhythmic medications, including anticoagulants, fail to control symptoms.	IIb	C	
Catheter ablation of AF may be considered prior to antiarrhythmic drug therapy in symptomatic patients despite adequate oral antiarrhythmic therapy.	IIb	C	

Recommendations for surgical ablation of AF

Recommendations	Class*	Level†	Ref.‡
Surgical ablation of AF should be considered in patients with symptomatic AF undergoing concomitant surgery.	III	B	139, 141, 142
Surgical ablation of AF should be performed in patients with symptomatic AF undergoing concomitant surgery if feasible.	IIb	C	

*Class of recommendation.

†Level of evidence.

‡References.

AF = atrial fibrillation.

4.3. AF Catheter Ablation for Rhythm: Recommendations

Class I

AF catheter ablation for symptomatic paroxysmal patients who are intolerant to at least 1 class I or III antiarrhythmic medication when a rhythm-control strategy is desired. (Level of Evidence: A)

AF catheter ablation, assessing procedural risks and outcomes relevant to the individual patient is recommended. (Level of

ablation is reasonable for some patients with symptomatic persistent AF refractory or intolerant to at least 1 class I or III antiarrhythmic medication. (Level of Evidence: A)

In recurrent symptomatic paroxysmal AF, ablation is a reasonable initial rhythm-control strategy before therapeutic trials of antiarrhythmic therapy, after weighing the risks and benefits of medical and ablation therapy.^{20,40} (Level of

ablation may be considered for symptomatic (>12 months) persistent AF intolerant to at least 1 class I or III antiarrhythmic medication when a rhythm-control strategy is desired.^{20,40} (Level of Evidence: B)

AF catheter ablation may be considered before initiation of antiarrhythmic drug therapy with a class III antiarrhythmic medication for symptomatic AF when a rhythm-control strategy is desired. (Level of Evidence: C)

AF catheter ablation should not be performed in patients who cannot be treated with anticoagulation during the procedure and after the procedure. (Level of

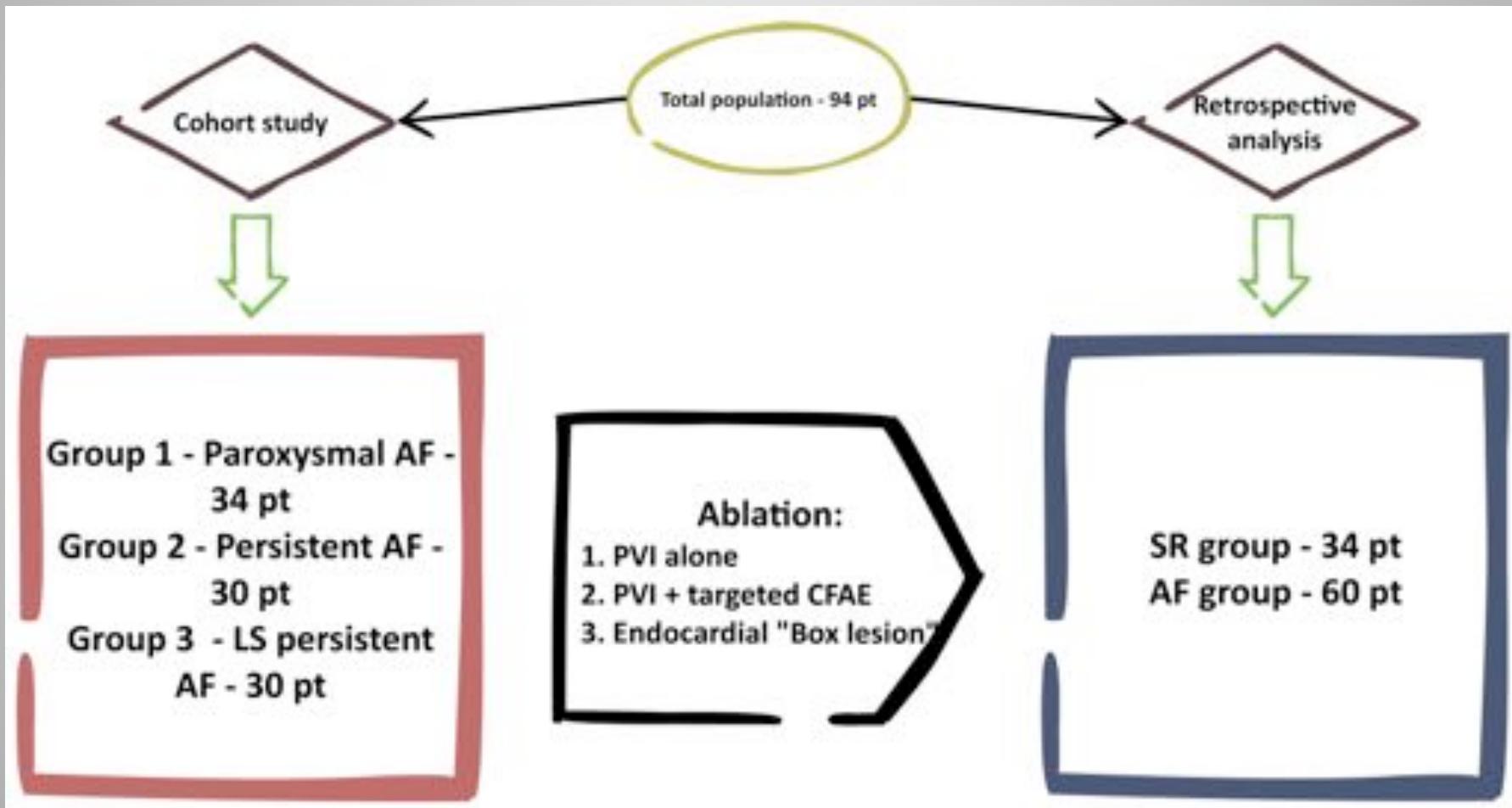
AF catheter ablation to restore sinus rhythm should not be performed with the sole intent of obviating the need for anticoagulation. (Level of Evidence: C)

NO CLEAR VALUES OF REVERSE ATRIAL MODELING

AIM

to find the initial clinical electro-mechanical patterns in patients with successful RFA in the late postoperative period

Design



Anamnesis

	Group 1	Group 2	Group 3
Age, y	51,91±11,49*	55,83±7,87*	56,1±11,66*
Gender, n	m-15; f-19	m-20; f-10	m-14; f-16
AF anamnesis, month	11,57±4,13**	32,67±10,84**	39,98±12,44**
Concomitant cardiac pathology	Mitral regurgitation – 9, CAD – 8	Mitral regurgitation – 15, CAD - 8	Mitral regurgitation – 17, CAD - 6
Procedure	Lone PVI – 12 PVI+CFAE – 11 Endocardial «Box Lesion» - 11	Lone PVI – 10 PVI+CFAE – 10 Endocardial «Box Lesion» - 10	Lone PVI – 10 PVI+CFAE – 10 Endocardial «Box Lesion» - 10

(* - $p=0,217$; ** - $p=0,001$)

Computer Echocardiography

		Group 1	Group 2	Group 3	p
	LA LD, Group 1	6±0,738	6,994±1,171	7,367±1,006	0,002
LVES, cm ²	LA AP, cm	3,306±0,537	93,829,4662±0,8866	0,983935±0,9787,005	0,699
LVED, cm ²		5,167±0,5655	5,362±0,5913	5,207±0,452	0,341
ESV, ml	LA vol, ml	6,114±0,91	7,294±0,937	7,073±0,968	0,0102
EDV, ml	LA vol, ml	128,09±30,52	96,93±23,63	55,695±12,35	0,314
SV, ml	LA vol, ml	82,96±18,803	87±22,265	54 76,2±16,094	0,189
LVEF, %	LA Index, abs	54,60±15,89	89,274±49,18,978947±33,02	77,97±8,104	0,124
dLA, cm		4,074±0,6663	4,663±0,810	5,084±0,745	0,001
MV annulus, cm	RSPV, cm	3,313±0,4639	3,624±0,4654	3,753±0,403	0,045
		1,559±0,25	1,606±0,357	1,871±0,370	0,004
	RIPV, cm	01	9	4	0,018
	LSPV, cm	1,788±0,33	2,025±0,240	2,124±0,301	0,006
		33	8	1	
	LIPV, cm	1,635±0,24	1,781±0,281	1,753±0,293	0,275
		73		9	

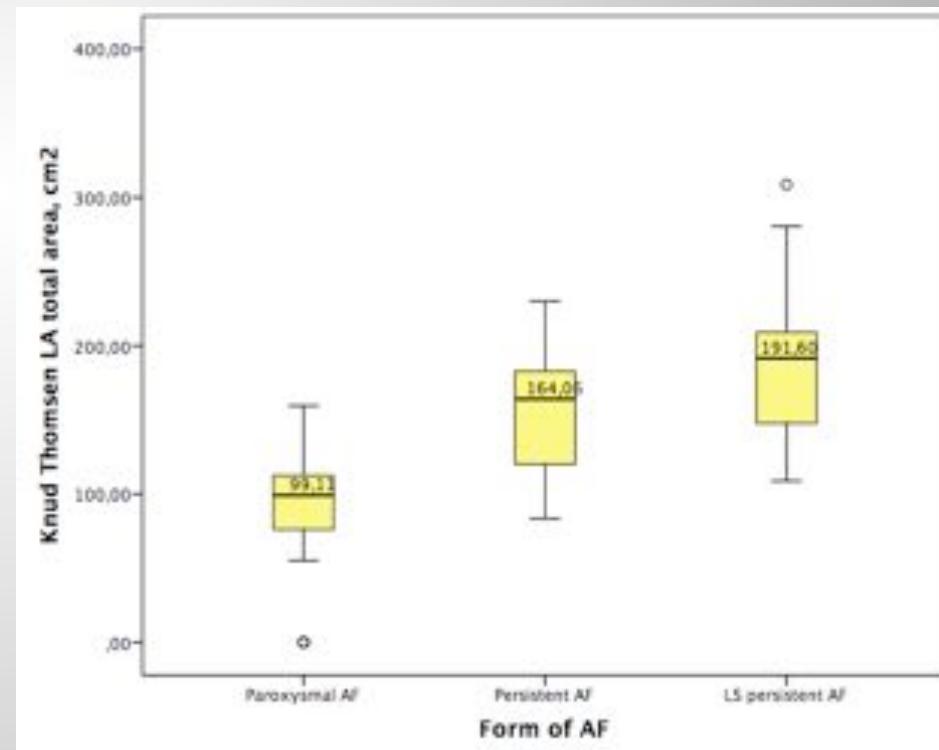
PROSPECTIVE COHORT STUDY RESULTS

LA surface area

- Knud Thomsen's Formula (Surface Area of an Ellipsoid)
- Calculated LA surface area

$$S \approx 4\pi[(a^p b^p + a^p c^p + b^p c^p)/3]^{1/p}$$

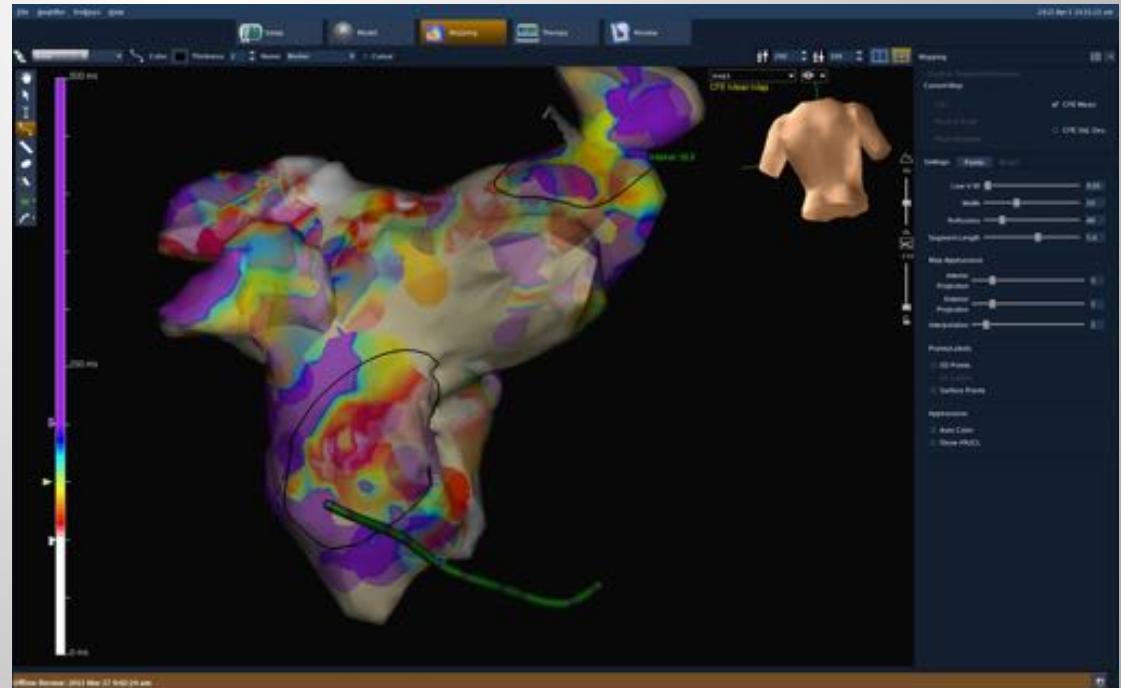
Method of calculation	Value	p
LA CT vol, ml	136,4±68,77	0,516
Knud Thomsen's Formula, ml	140,97±65,69	



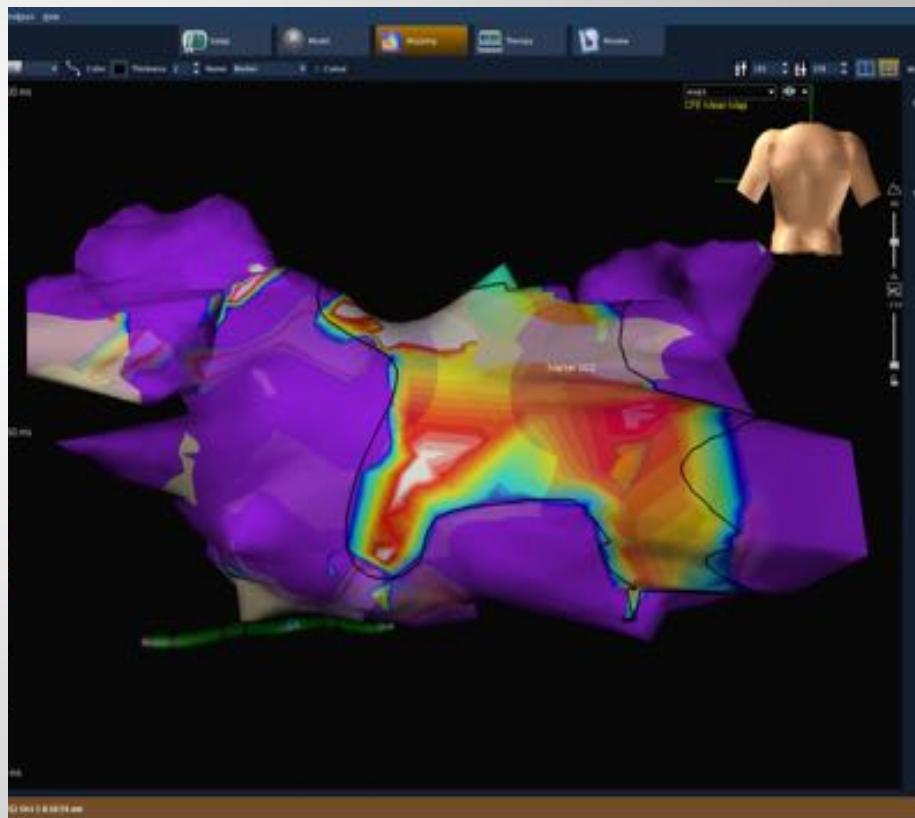
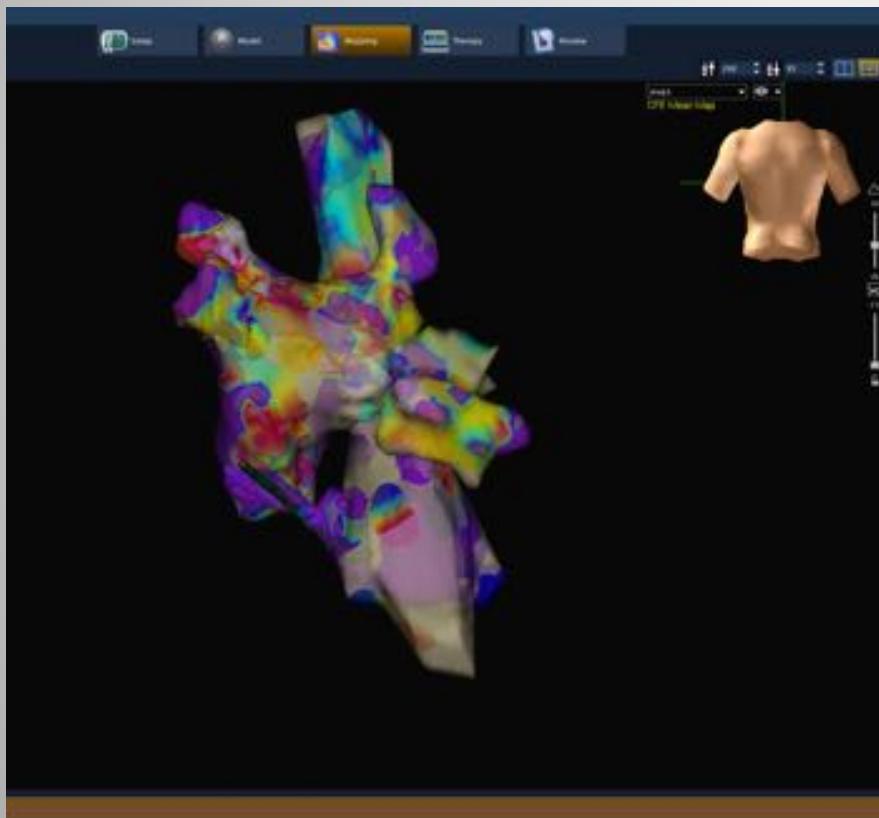
Electroanatomical mapping

Parameters	Values
P-P sensitivity	0,04-0,05 mV
EGM refractory	40 ms
EGM width	20 ms
EGM segment length	8 s
Interpolation	5 mm
Internal/external projection	5 mm

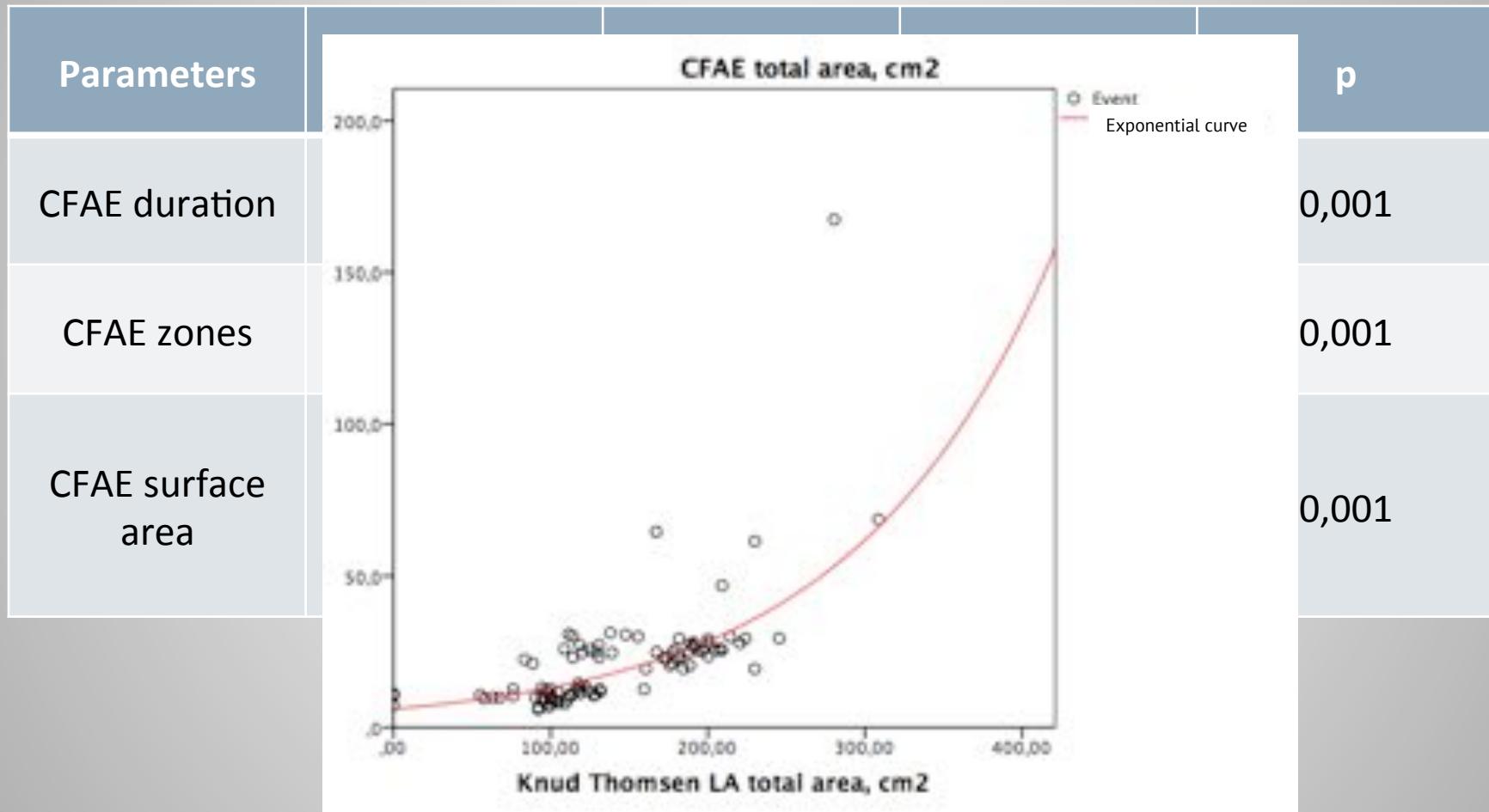
- Lead-up
- Mapping (Step-by-step, OneMap)
- Fusion
- Postprocessing
- CFAE computation



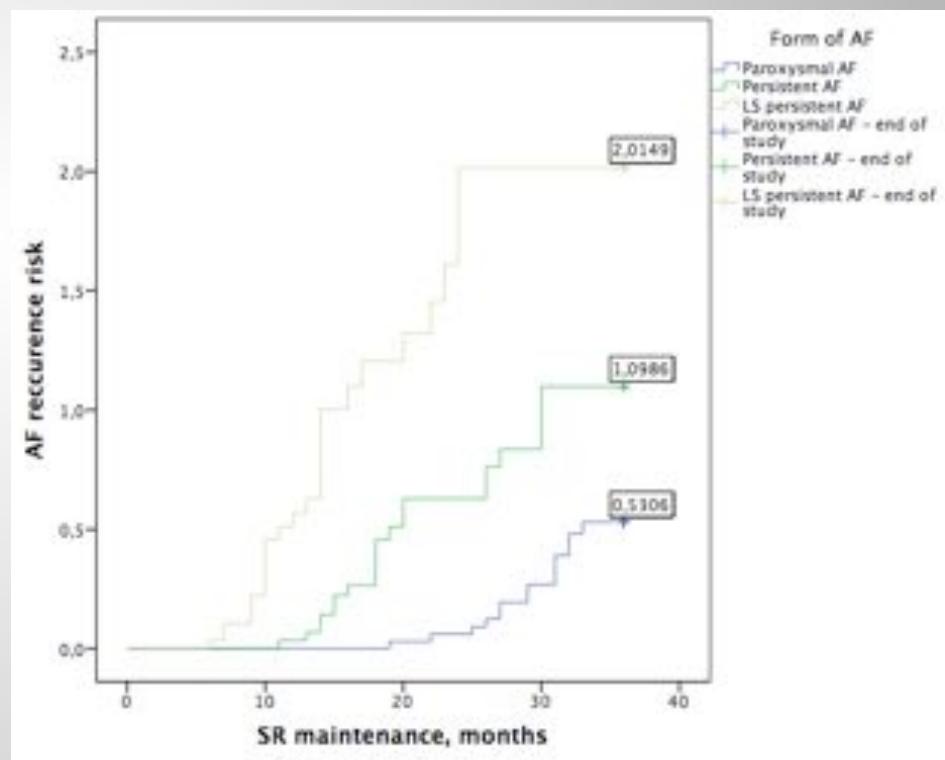
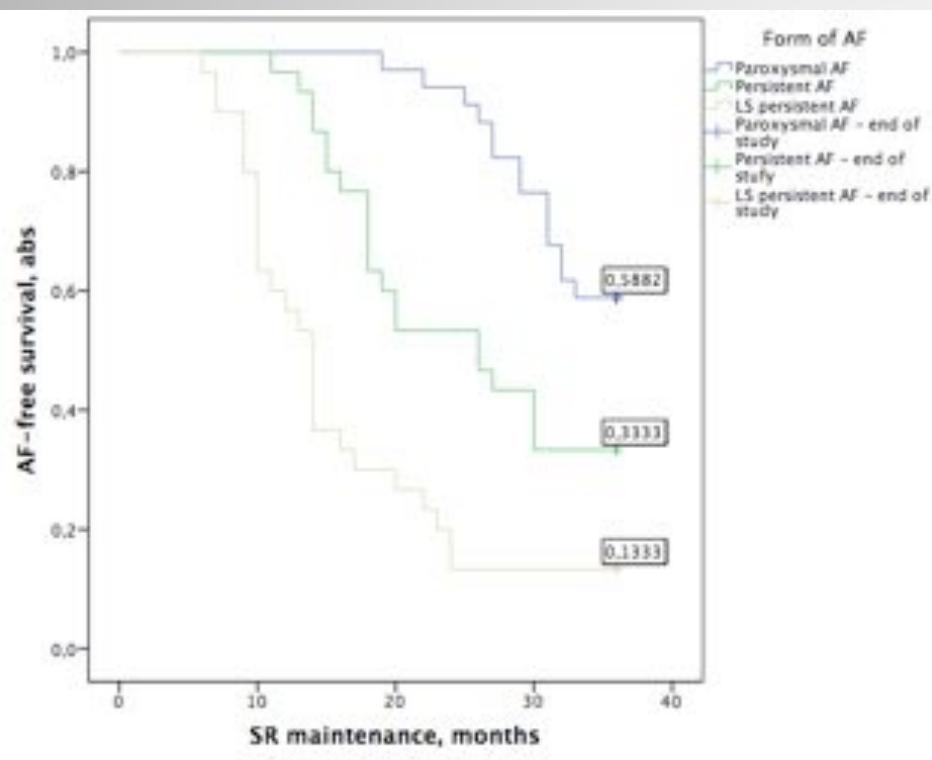
CFAE maps of persistent AF



CFAE and LA surface area Main electrical features correlations



AF-free survival and risk of recurrence



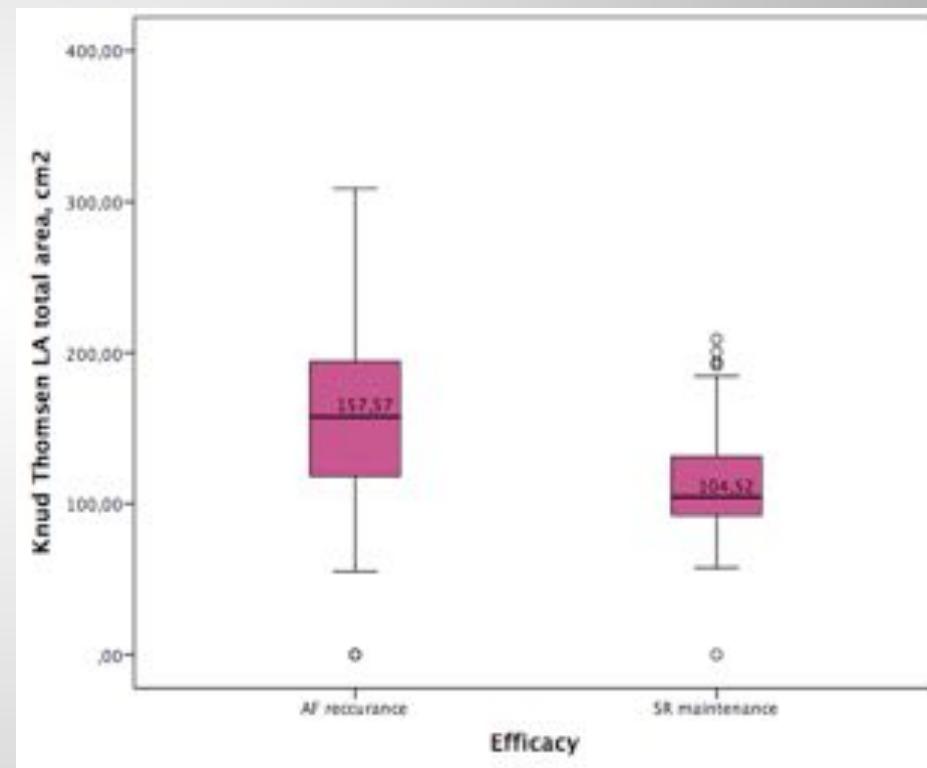
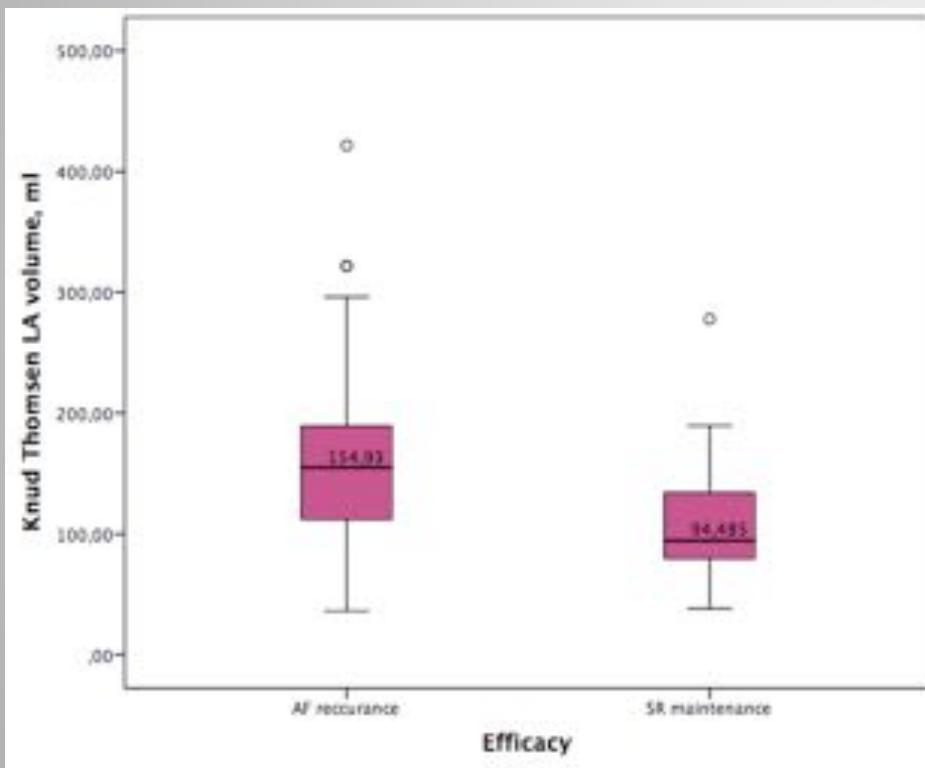
p=0,001

RETROSPECTIVE ANALYSIS

EchoCG and CT values of the heart

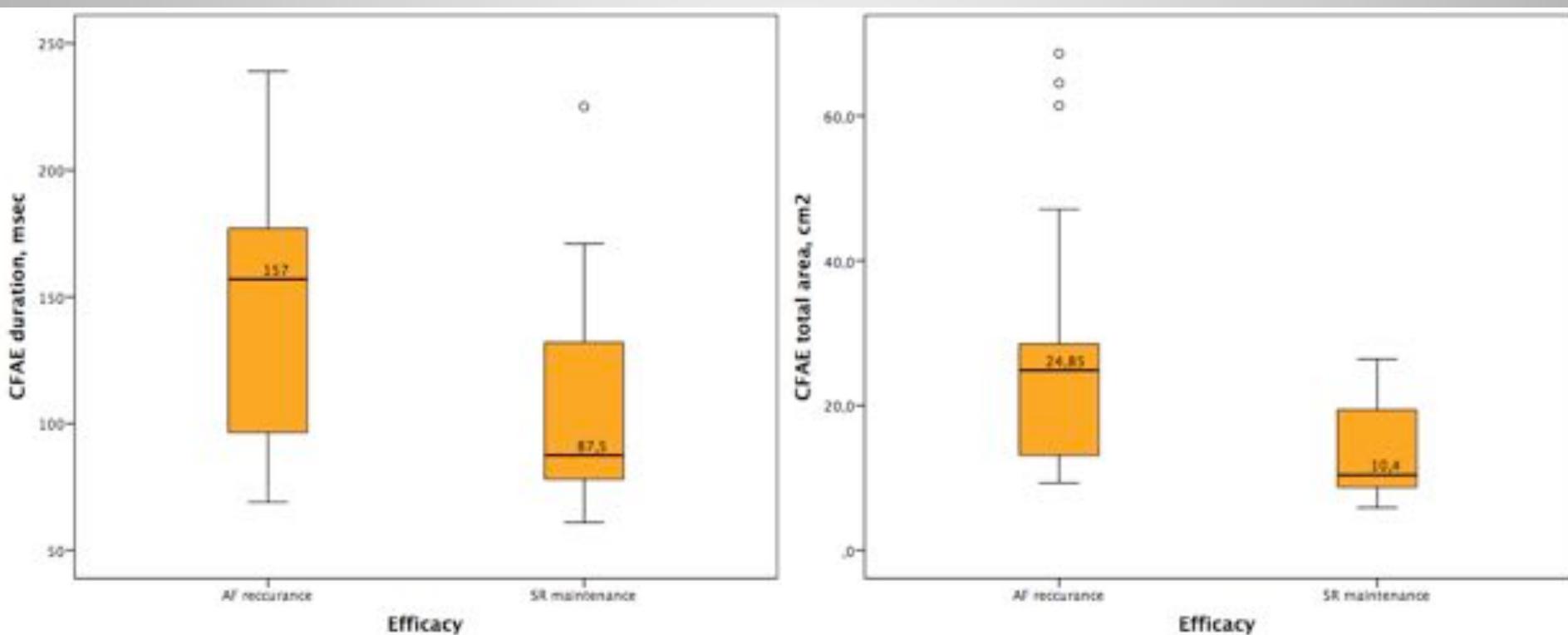
Parameters	Groups	p	Median	Quartile		
				25	50	75
LVES, cm	AF reccurance	0,738	3,4	3,1	3,4	3,8
	SR maintenance		3,4	3,1	3,4	3,85
LVED, cm	AF reccurance	0,893	5,3	4,9	5,3	5,5
	SR maintenance		5,3	4,8	5,3	5,7
ESV, ml	AF reccurance	0,405	47,5	37,25	47,5	62,75
	SR maintenance		51	40	51	66
EDV, ml	AF reccurance	0,499	133,5	111,5	133,5	148,25
	SR maintenance		134	114	134	162
SV, ml	AF reccurance	0,457	79	68	79	91
	SR maintenance		82	70,5	82	102,75
LVEF, %	AF reccurance	0,912	62	56	62	66
	SR maintenance		61	56	61	67,5
dLA, cm	AF reccurance	0,001	4,875	4,2	4,875	5,5
	SR maintenance		4,2	3,7	4,2	4,6
MV annulus, cm	AF reccurance	0,061	3,55	3,3	3,55	3,9
	SR maintenance		3,4	3,1	3,4	3,75
LA LD, cm	AF reccurance	0,01	7	6,25	7	7,925
	SR maintenance		6,3	5,7	6,3	6,6
LA AP, cm	AF reccurance	0,007	4,8	4,075	4,8	5,6
	SR maintenance		4,1	3,6	4,1	4,6
LA TD, cm	AF reccurance	0,012	7,2	6,5	7,2	7,75
	SR maintenance		6,5	5,6	6,5	6,9
LA vol, ml	AF reccurance	0,0001	140	114	140	183,5
	SR maintenance		102,5	84,63	102,5	126,5
LA index, abs	AF reccurance	0,13	71,4	57,205	71,4	101,61
	SR maintenance		52,5	43,64	52,5	83
RSPV, cm	AF reccurance	0,013	2	1,8	2	2,3
	SR maintenance		1,75	1,575	1,75	2,05
RIPV, cm	AF reccurance	0,67	1,7	1,5	1,7	1,9
	SR maintenance		1,65	1,375	1,65	1,9
LSPV, cm	AF reccurance	0,04	2	1,825	2	2,275
	SR maintenance		1,85	1,575	1,85	2,05
LIPV,cm	AF reccurance	0,03	1,8	1,6	1,8	1,9
	SR maintenance		1,55	1,5	1,55	1,8

Initial LA mechanical patterns



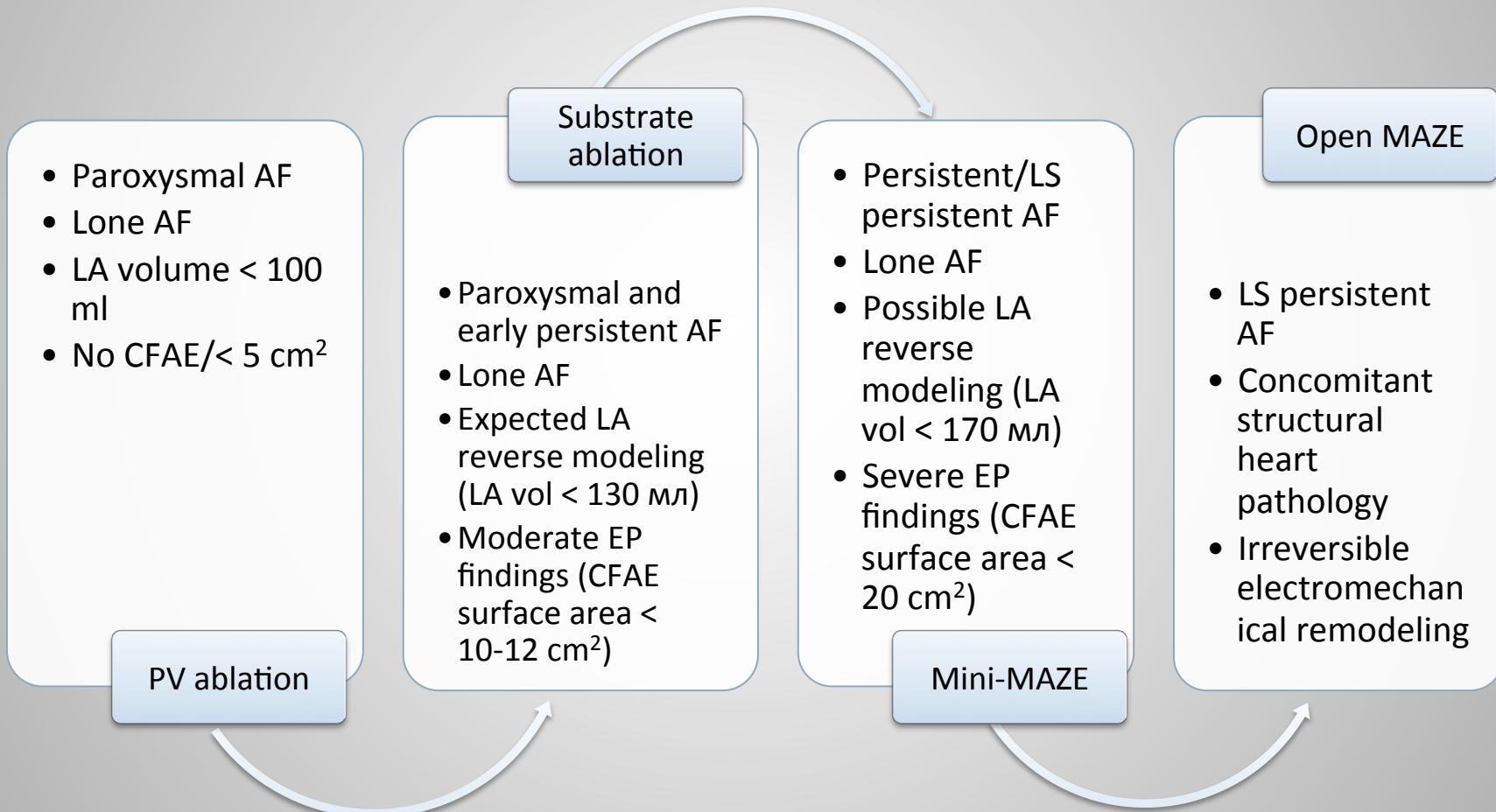
p=0,001

Initial LA electrical patterns



p=0,001

Conclusion



Thank You! Grazie!

