



UNIVERSITA DEGLI STUDI DI MILANO

I.R.C.C.S POLICLINICO SAN DONATO

CENTRO PER LO STUDIO E LA TERAPIA DELLE MALATTIE CARDIOVASCOLARI

“E. MALAN”

DEBATE

**There is no Place for Medical Treatment
of Atrial Fibrillation in 2011:
The Case for Catheter Ablation**

Riccardo Cappato, MD

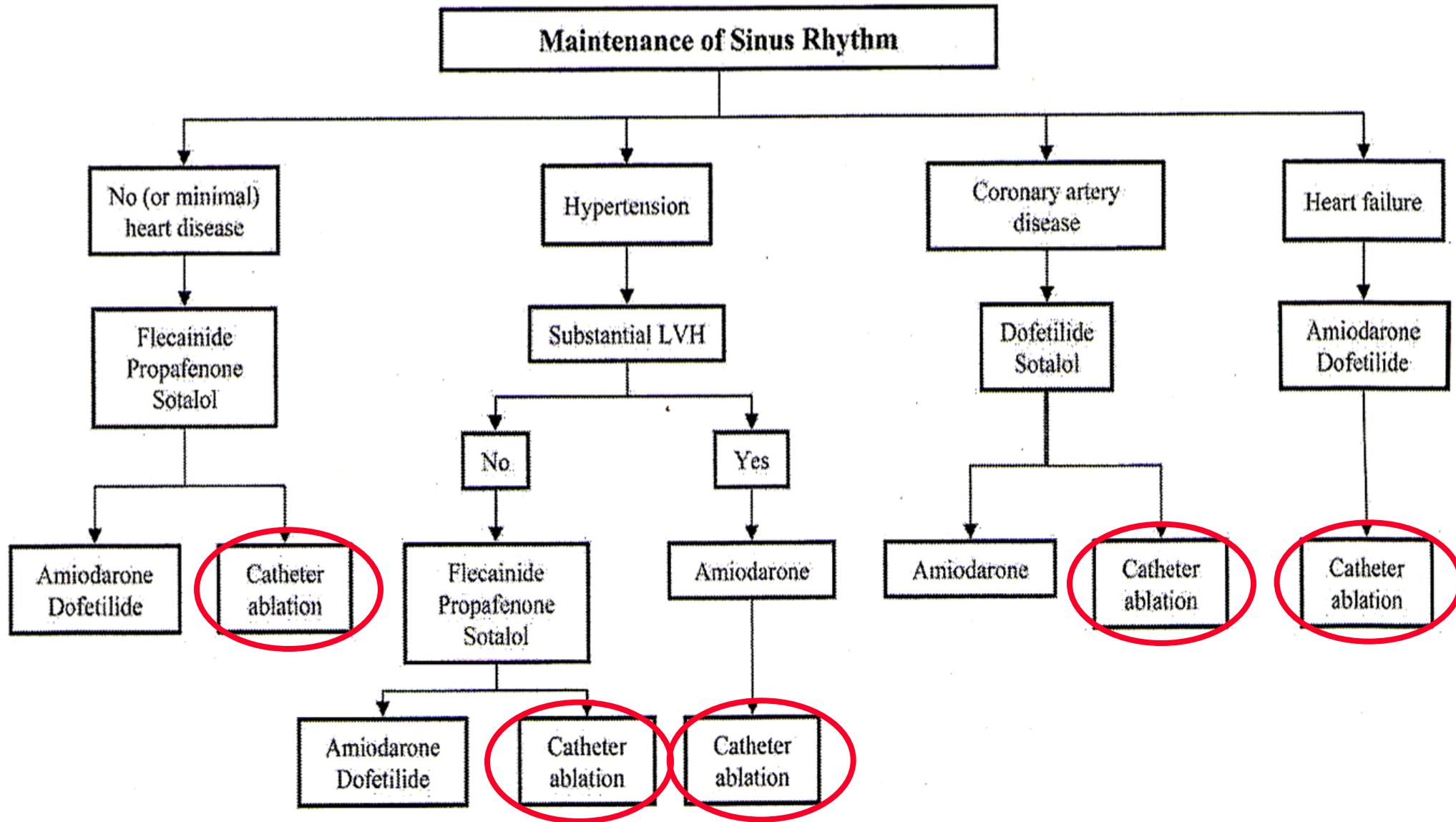


No Place for Medical Treatment of AF in 2011?

Forward

- No conclusive, “evidence-based medicine”-supported demonstration for catheter ablation as a primary indication in pts with AF

Indications



AF Ablation

Recommendations for left atrial ablation

Recommendations	Class ^a	Level ^b	Ref. ^c
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	33
Catheter ablation for paroxysmal AF should be considered in symptomatic patients who have previously failed a trial of antiarrhythmic medication.	IIa	A	96, 131, 132, 133, 135, 137, 138
Ablation of persistent symptomatic AF that is refractory to antiarrhythmic therapy should be considered a treatment option.	IIa	B	33

C?

C?



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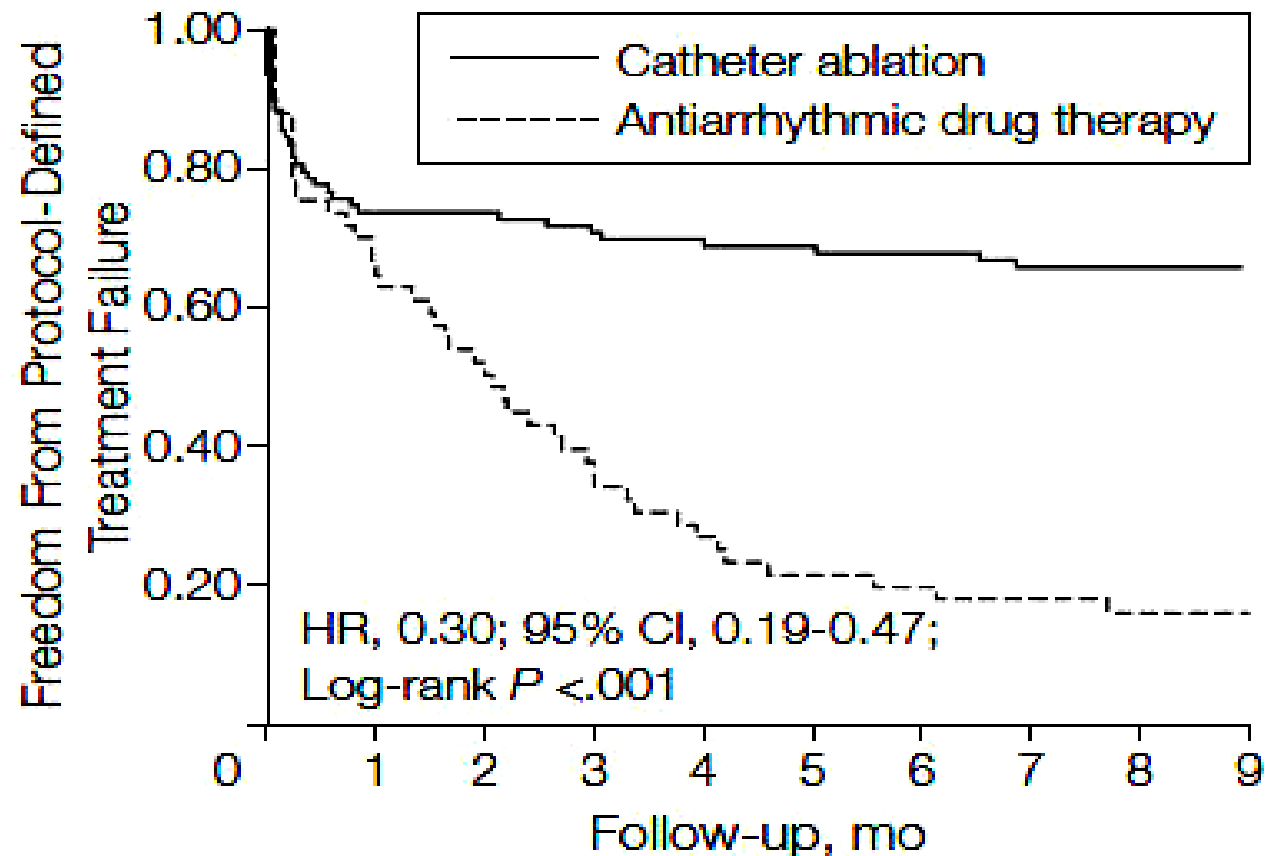
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There is no Place for **Exclusive** Medical Treatment
of Atrial Fibrillation in 2011:
The Case for Catheter Ablation

Riccardo Cappato, MD

Protocol-Defined Treatment Failure



No. at risk										
Catheter ablation	106	75	75	72	70	70	69	67	65	51
Antiarrhythmic drug therapy	61	36	28	20	15	12	11	10	7	3

Methodological adv.

- Multi-center
- Prospective
- Randomized
- Reproducible ablation design (PV isolation)
- Paroxysmal AF
- Outcome judged by external referee committee



No Place for Exclusive Medical Treatment of AF in 2011?

First statement

- If restoration of stable sinus rhythm is considered a clinical priority, then catheter ablation is largely superior to AADs to achieve this endpoint in pts with paroxysmal AF
- PV isolation is effective in 67% of pts

Success Rates According to the Number of Procedures Performed per Center

10 months FU, 1.3 proc/pt

Procedure per Center	No. of Center s	No. of Pts	Success without AADs		Success with AADs		Overall Success	
			Total No of Pts	Total Rate Median [interquartile]	Total No of Pts	Rate Median [interquartile]	Total No of Pts	Rate Median [interquartil]
1-30	10	176	64	33.3 [12.0-50.0]	79	50.0 [25.0-52.0]	143	83.3 [75.0-90.5]
31-60	13	461	185	39.4 [18.2-50.0]	190	31.7 [26.7-55.6]	375	86.7 [80.5-93.0]
61-90	9	524	246	46.6 [40.4-64.0]	150	24.0 [18.3-52.1]	396	73.7 [65.2-94.6]
91-150	18	1,803	983	63.0 [46.2-66.3]	415	19.8 [11.0-21.8]	1,398	80.8 [63.0-83.3]
151-200	10	1,469	874	68.1 [53.3-70.0]	221	11.0 [4.5-21.7]	1,095	75.0 [68.6-81.3]
201-300	8	1,704	1,069	67.9 [46.5-72.4]	228	5.1 [0.0-14.2]	1,297	81.2 [74.4-89.6]
>300	17	10,172	7,067	74.5 [67.4-75.5]	764	8.6 [0.6-11.5]	7,831	80.0 [76.0-83.8]
TOTAL	85	16,309	10,488	70.0 [57.7-75.4]	2,047	10.0 [0.5-17.1]	12,535	80.0 [74-83.8]

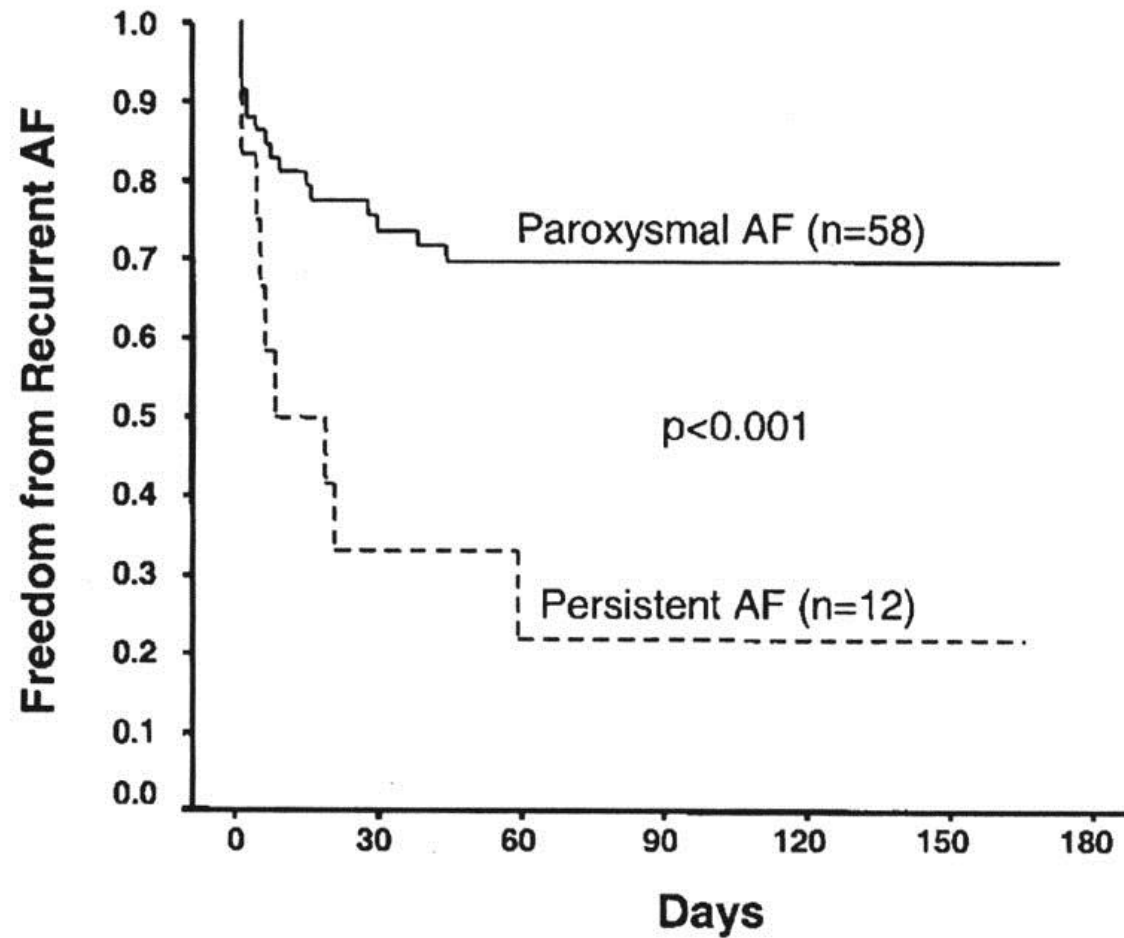


No Place for Exclusive Medical Treatment of AF in 2011?

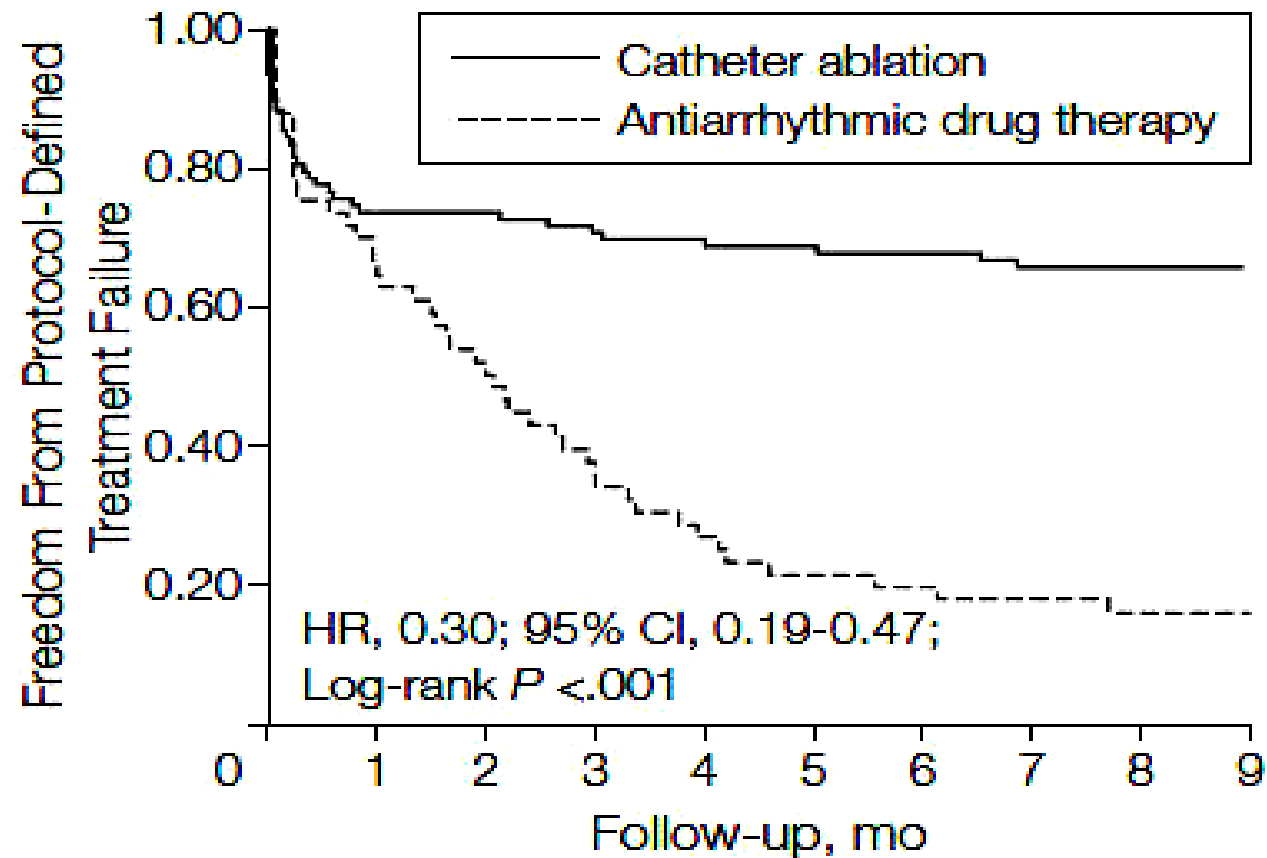
Second statement

- In pts undergoing catheter ablation of AF, previously ineffective AADs may increase success rate of a figure approaching a 10% absolute rate the ultimate follow-up free of symptomatic arrhythmia recurrence

Catheter Ablation of Persistent AF



Protocol-Defined Treatment Failure



No. at risk										
Catheter ablation	106	75	75	72	70	70	69	67	65	51
Antiarrhythmic drug therapy	61	36	28	20	15	12	11	10	7	3



**Is Catheter Ablation of Persistent
and Long-lasting Persistent AF
Worth the Effort?**

Table 4. Multivariable Models: the p-value, Odds Ratio (OR) and Corresponding 95% Confidence Intervals (CI) are Reported for Success Rates Free of AADs, and Overall Success Rates According to the Different Parameters Investigated (AF Type, Year of Start, Geographic Area, Type of Catheter and Ablation Strategy).

	Free of AADs			Overall		
	P	OR	(95%CI)	P	OR	(95%CI)
AF Type						
Persistent vs Paroxysmal	<0.001	0.57	0.51 – 0.65	<0.001	0.53	0.47 - 0.61
Permanent vs Paroxysmal	<0.001	0.40	0.34 – 0.48	<0.001	0.41	0.34 – 0.49
Year of start						
	0.86	0.99	0.96 – 1.04	0.27	1.02	0.99 – 1.05
Procedures						
Increase of 30 procedures	0.02	1.04	1.01 – 1.07	0.25	1.01	0.99 – 1.04
Area						
North America vs Europe	0.79	1.07	0.64 – 1.81	0.99	1.00	0.66– 1. 52
South America vs Europe	0.75	0.79	0.19 – 3.31	0.47	1.51	0.50 – 4.61
Asia/Oceania vs Europe	0.39	1.37	0.67 – 2.77	0.24	1.42	0.80 – 2.55

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Transcatheter Ablation of Atrial Fibrillation

Author	Year	Technique
Schwartz	1994	Left atrium (Maze-like) linear ablation
Haissaguerre	1996	Right (+ left) multiple linear ablation
Haissaguerre	1998	Focal triggering PV ablation
Pappone	2000	Left atrial circumferential PV ablation
Haissaguerre	2000	PV electrical disconnection
Ouyang	2004	Left atrial circumferential electrical disconnection
Nademanee	2004	Fragmented complex (left atrial) potential ablation
Jais	2004	PV electrical disconnection + linear mitral isthmus block
Hocini	2005	PV electrical disconnection + LA roof linear block
Haissaguerre	2005	PV electrical disconnection + multiple linear ablation
Nakagawa	2007	Ganglionated plexi ablation



Catheter Ablation of Paroxysmal vs Persistent AF

Pt characteristics	Paroxysmal AF (pts= 73)	Persistent AF (pts= 47)	P
Age (yrs)	52.8±10.3	52.4±10.3	0.8
Male sex	61 (83.6%)	27 (76.6%)	0.7
Pts with AF duration longer than 5 yrs	4 (3.3%)	15 (31.9%)	<0.01
Number of AA drugs	3.7±1.5	4.2±1.7	<0.05
Atrial flutter	22 (30.1%)	12 (25.5%)	0.6
Heart disease			
- coronary artery	5 (6.8%)	2 (4.7%)	0.9
- valvular	9 (12.3%)	6 (12.7%)	0.9
Hypertension	15 (20.5%)	15 (34.0%)	0.6
Left atrium max TD (mm)	42.9±5.3	44.7±6.9	0.1
EF	0.51±0.09	0.53±0.08	0.8
FU duration (mos)	17.5±8.9	17.1±6.9	0.9



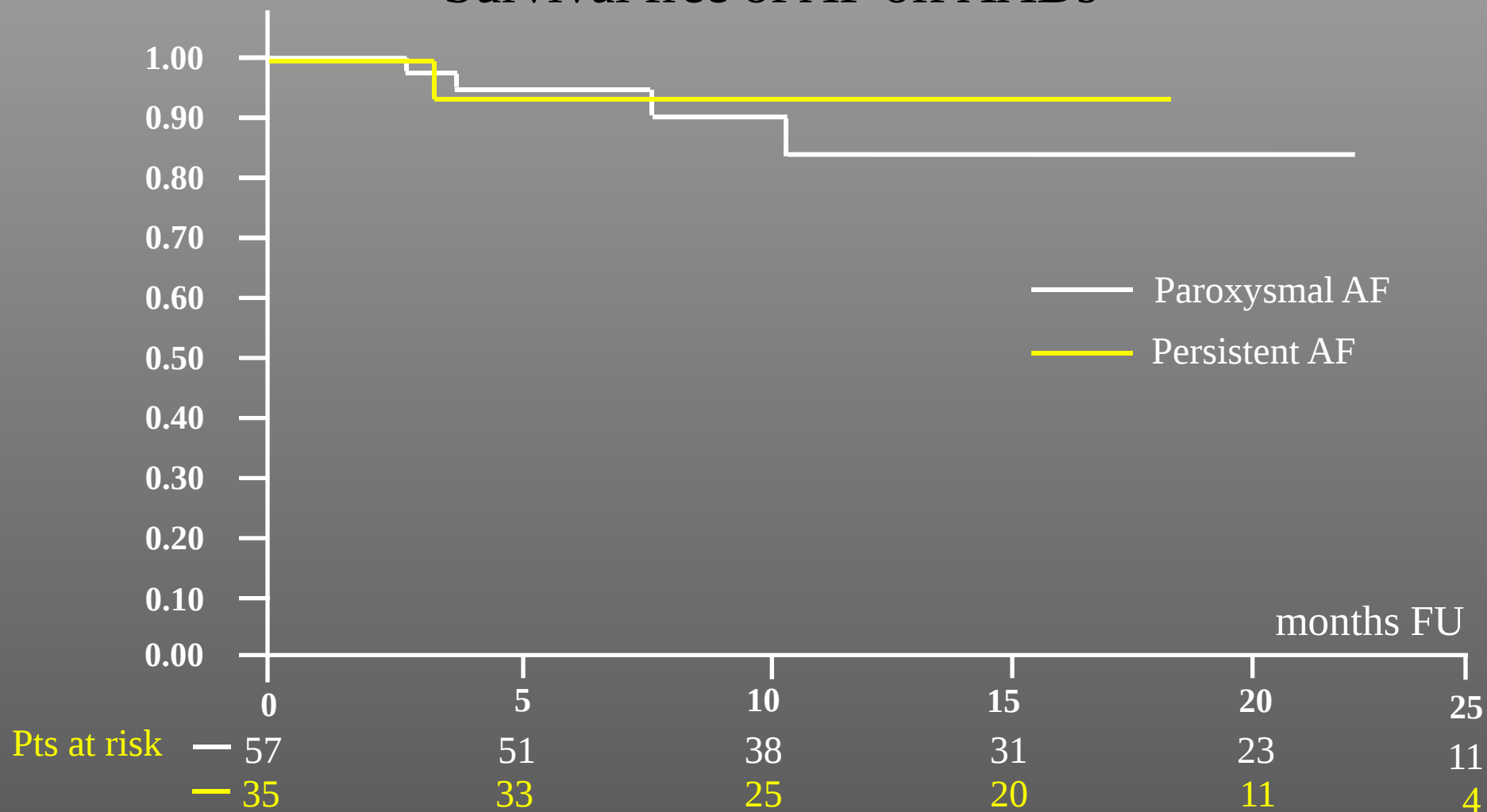
Catheter Ablation of Paroxysmal vs Persistent AF

Clinical Outcome at Different Steps (free of AADs)

Outcome	Paroxysmal AF (pts= 73)	Persistent AF (pts= 47)
Asymptomatic after Step I	37 (50.1%)	11 (23.4%)
Asymptomatic after Step II	21 (28.8%)	27 (57.4%)
Asymptomatic after Step III	8 (10.9%)	5 (10.7%)
All asymptomatic at EoP	66 (89.8%)	43 (90.5%)



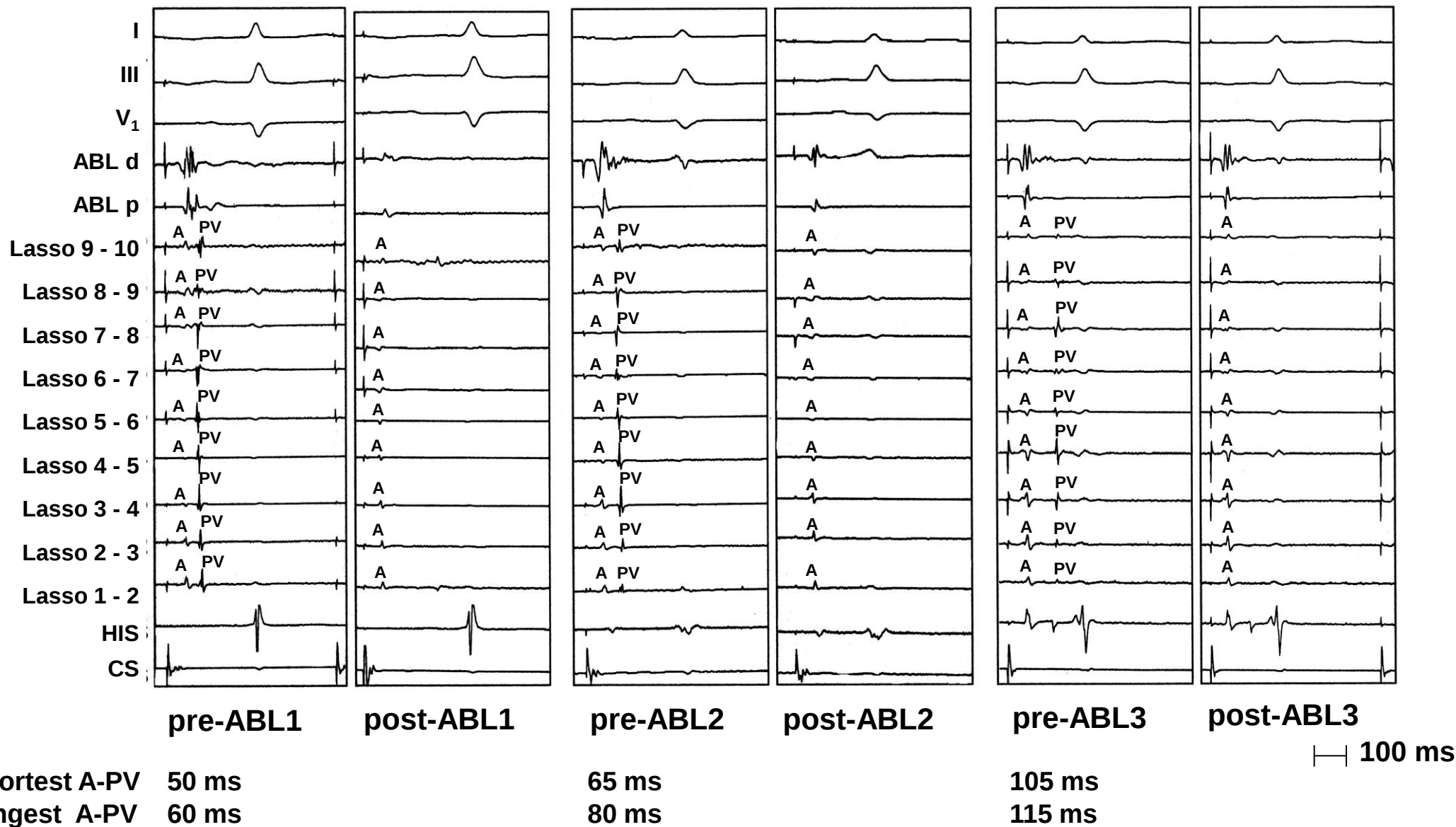
Survival free of AF off AADs



First procedure (day 1)

Second procedure (day 93)

Third procedure (day 234)



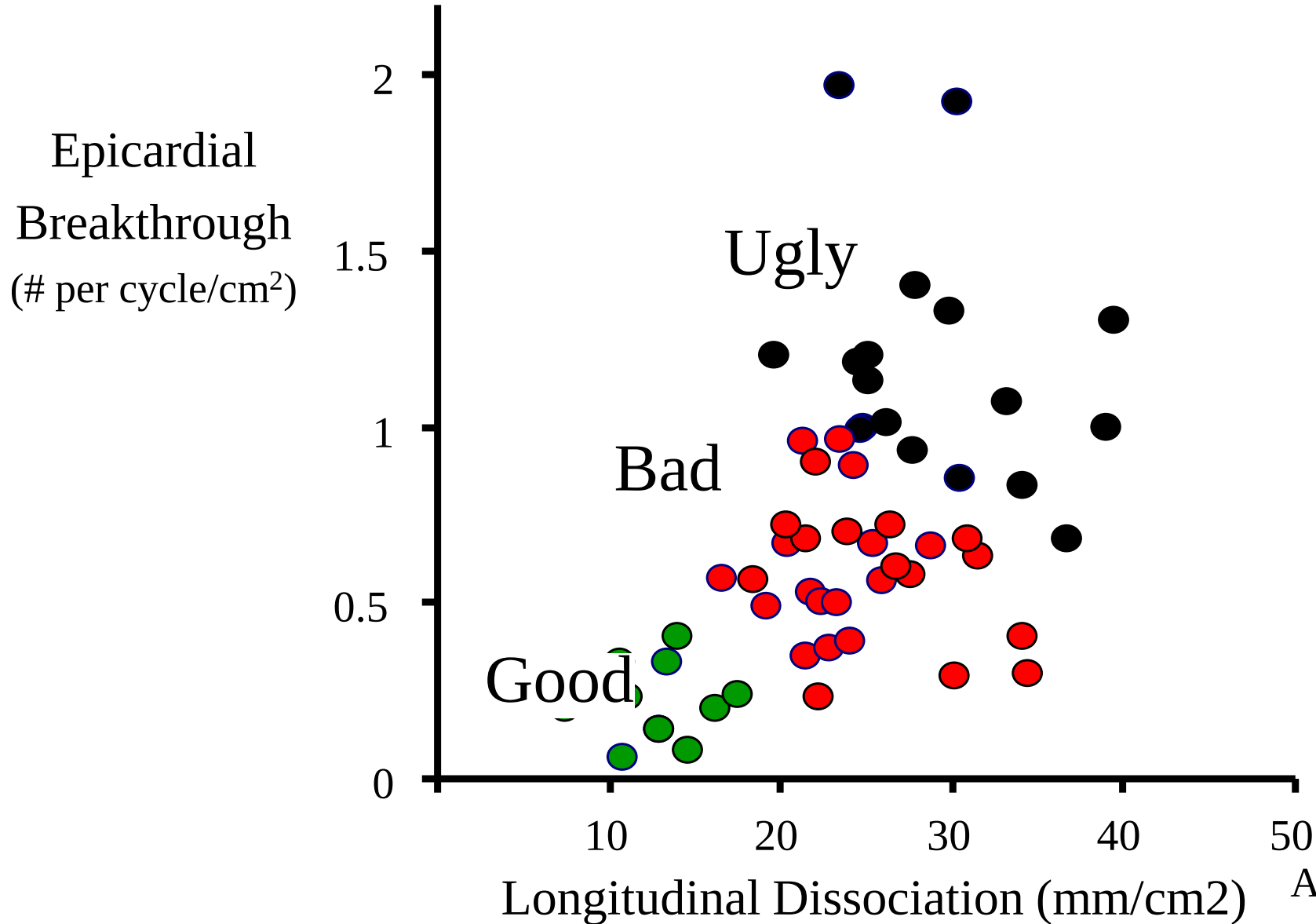


Transcatheter Ablation of AF 2006

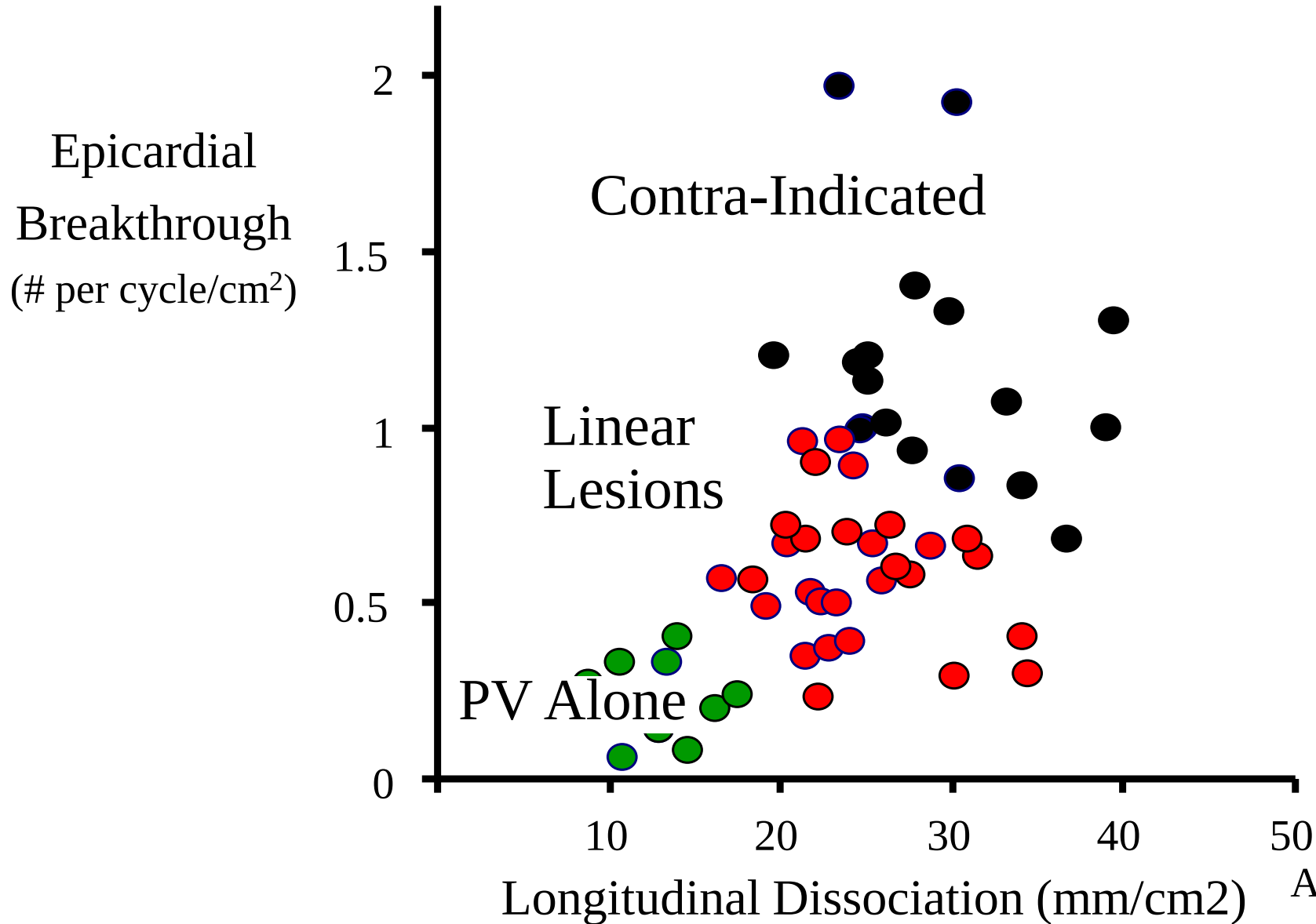
PV isolation and recurrence

- Acute disconnection rate 95.1% - 100.0%
- Conduction recurrence during FU
 - during a 2nd attempt (4.6 ± 1.9 mos.)
 - superior PVs 72.5% - 82.1%
 - inferior PVs 73.8% - 83.3%
 - during a 3rd attempt (5.1 ± 2.4 mos.)
 - Superior PVs only 61.0% - 73.6%

Diagnosis of the Substrate of AF?



Diagnosis Guided Ablation?





No Place for Exclusive Medical Treatment of AF in 2011?

Third statement

- In pts with persistent AF, catheter ablation does not appear to be a reasonable solution except in selected cases
- Among these selected cases, pts with no or minimal underlying heart disease appear to be those who most benefit from this technique; their outcome may mimick that of pts with paroxysmal AF, provided that stable PV isolation is secured at end of RF deployment



No Place for Exclusive Medical Treatment of AF in 2011?

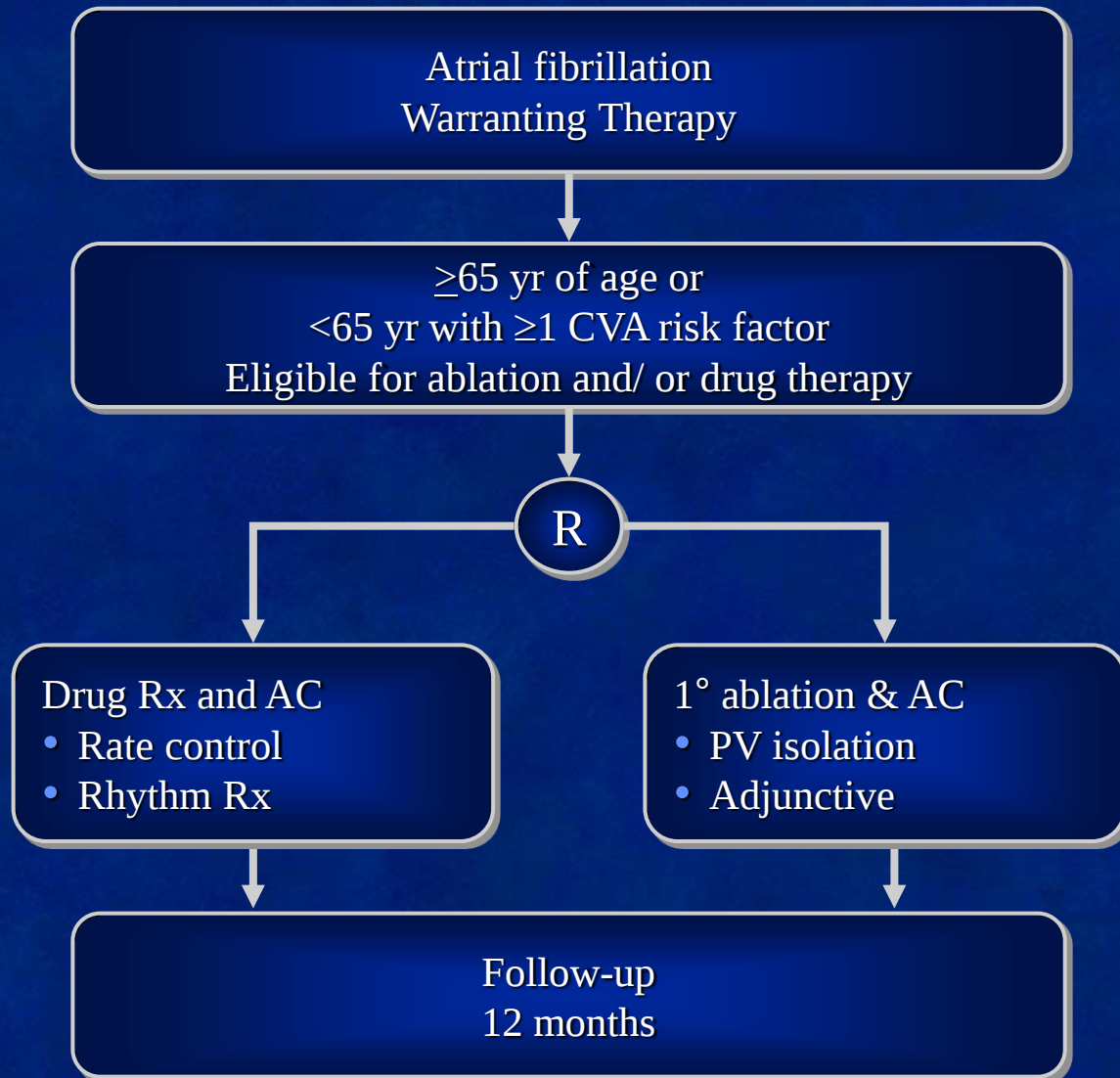
Third statement (cont.)

- Evolution towards persistent AF may be limited by early intervention on paroxysmal AF (working hypothesis)



**No Room for Catheter Ablation of AF
in Pts with Persistent and Long-lasting
Persistent AF and Significant Co-morbidity?**

Design of the CABANA Pilot Study



Inclusion Criteria

- ≥2 paroxysmal AF episodes (≥1 hour) over 4 mos or ≥1 persistent AF episode (>1 week)
- ≥65 yr of age, or <65 yr with ≥1 risk factors

Hypertension

Diabetes

Heart failure

Prior CVA or TIA

LA size >5.0 cm (Vol In ≥40 cc/m²)

EF ≤35 %

- Eligible for ablation and ≥2 rhythm control and/or ≥3 rate control drugs



No Place for Medical Treatment of AF in 2011?

Conclusions

- Catheter ablation alone still away from a conclusive achievement
- Pts with paroxysmal and persistent AF (with no or mild underlying heart disease) benefit from catheter ablation significantly more than with AADs



No Place for Medical Treatment of AF in 2011?

Conclusions

- In pts with paroxysmal and persistent AF (with no or mild underlying heart disease), AADs may still add a 10% absolute benefit on top of catheter ablation effectiveness
- Pts with persistent AF and significant co-morbidity are currently the subject of a large randomized trial testing the impact of catheter ablation on all-cause death