



Herzfokus 2016 „Lungenembolie und Vorhofflimmern“

Freitag 15.01.2016

Medikamentöse Therapie und Ablation von Vorhofflimmern

Stephan Willems

**Klinik für Kardiologie mit Schwerpunkt Elektrophysiologie
Universitäres Herzzentrum Hamburg**

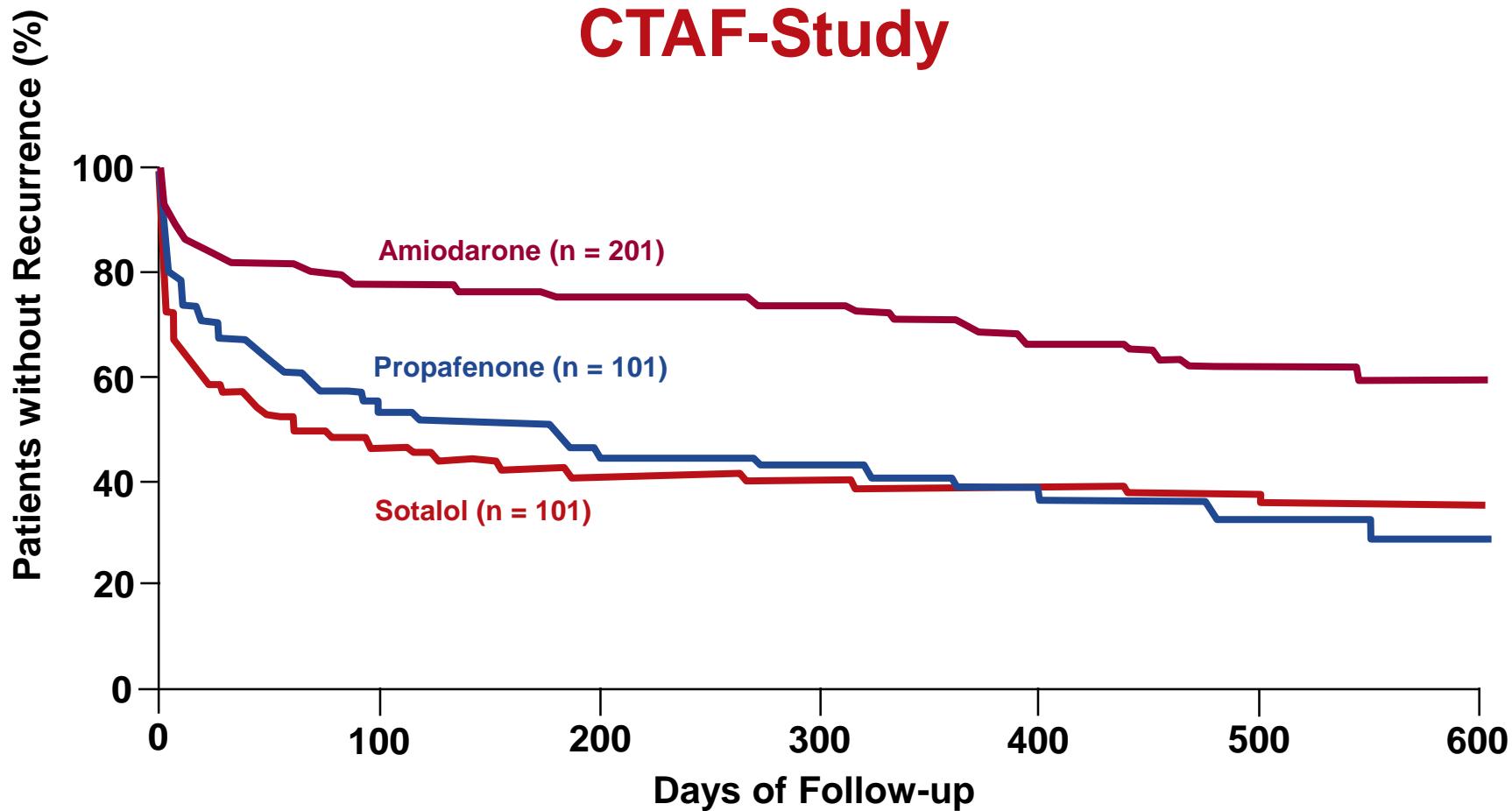
Medikamentöse Rhythmuskontrolle

Ablation bei PAF (vs. AAtx)

Ablation bei pers. AF

Ausblick

AA-Therapie bei Vorhofflimmern



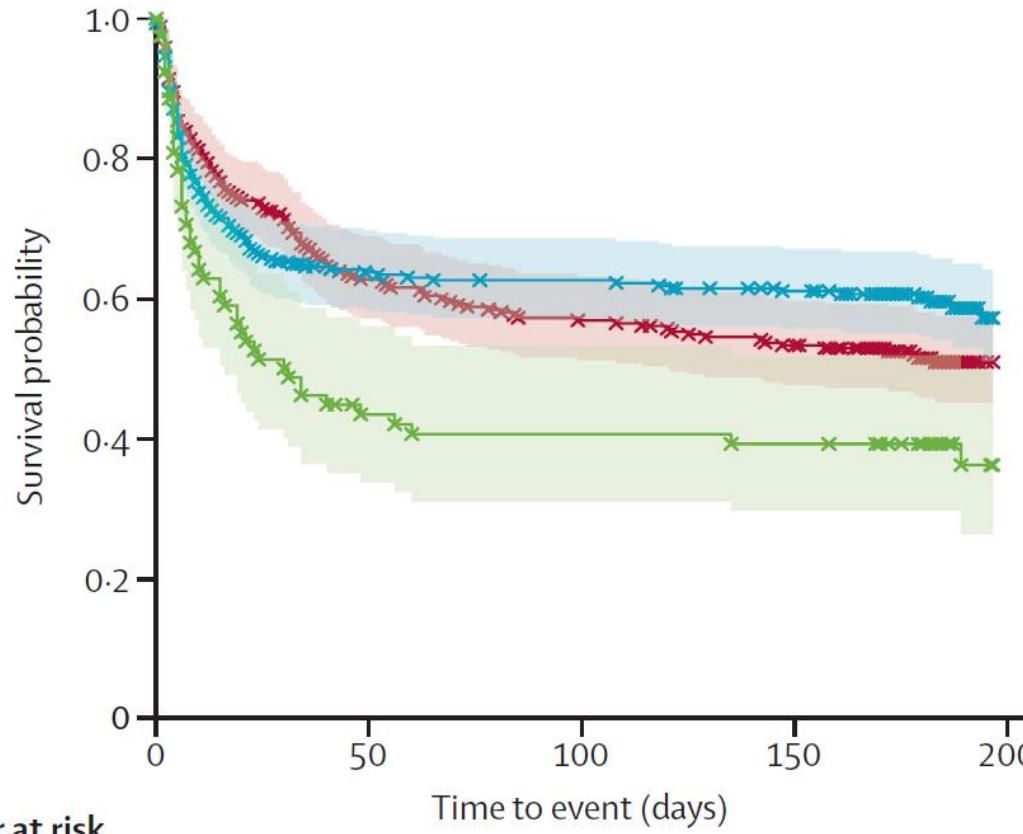
Tx.interruption:
(FU 468 d)

Amio	34 % (AE 18%)
Sot./Prop	46 % (AE 11%)

FLEC- SL: Primary outcome (ITT)

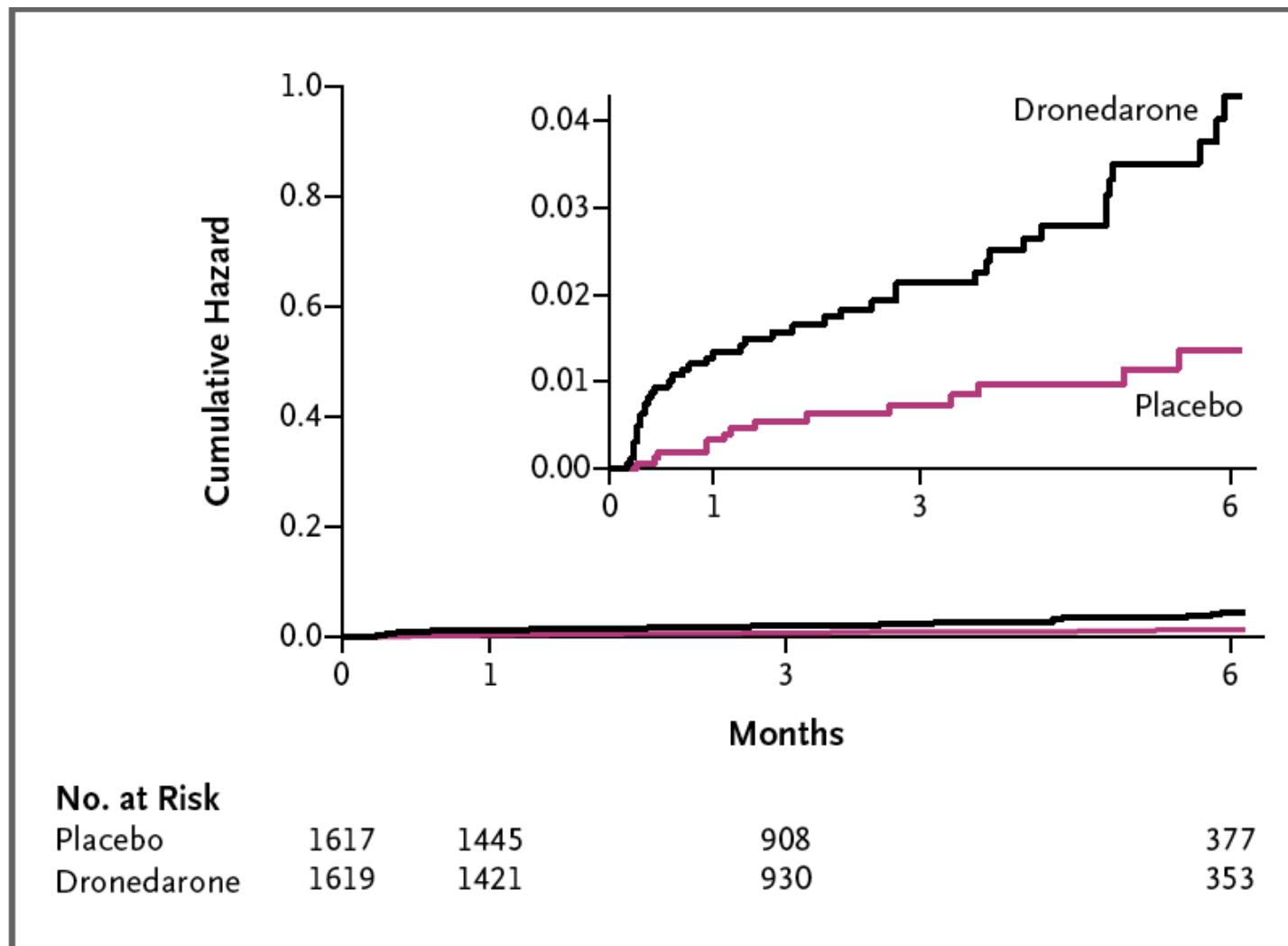
635 patients, mean age 64 years, flecainide 4 weeks vs long-term therapy

Primary outcome: time to persistent atrial fibrillation or death, monitored by telemetric ECG

**Number at risk**

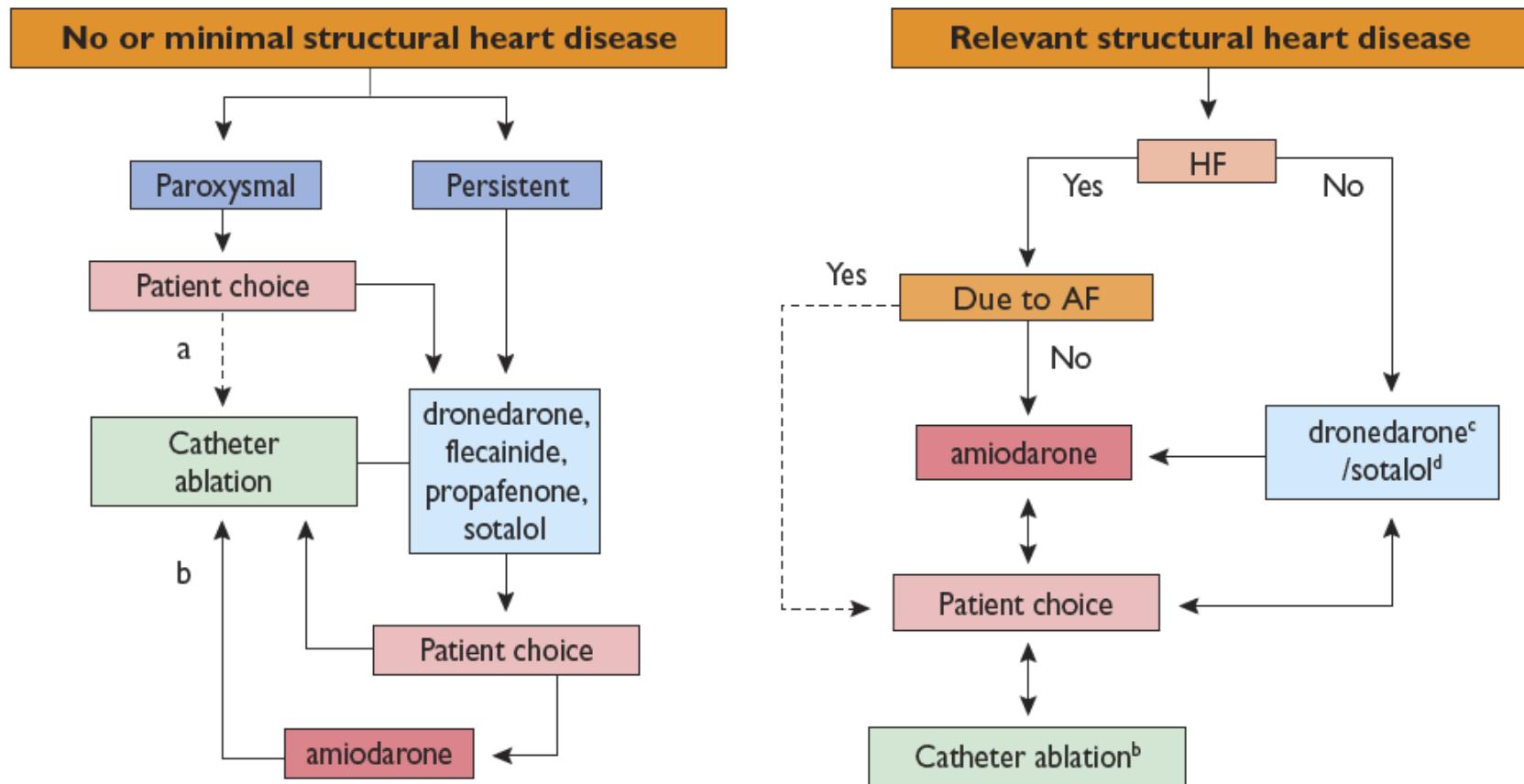
Control group	81	31	29	28
Short-term treatment group	273	161	145	135
Long-term treatment group	281	166	162	152

Primary Endpoint (Stroke, MI, cardiovasc. Death, embolism)



Katheterablation bei Vorhofflimmern

Indikationsstellung



AF = atrial fibrillation; HF = heart failure. ^aUsually pulmonary vein isolation is appropriate. ^bMore extensive left atrial ablation may be needed.
^cCaution with coronary heart disease. ^dNot recommended with left ventricular hypertrophy. Heart failure due to AF = tachycardiomypathy.



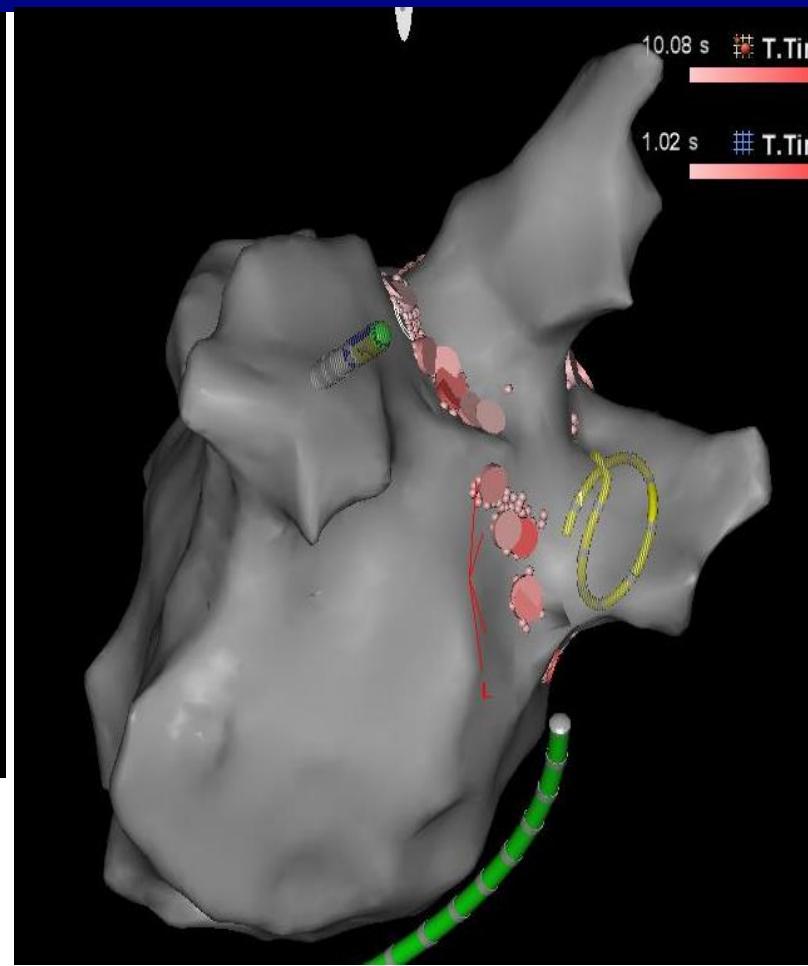
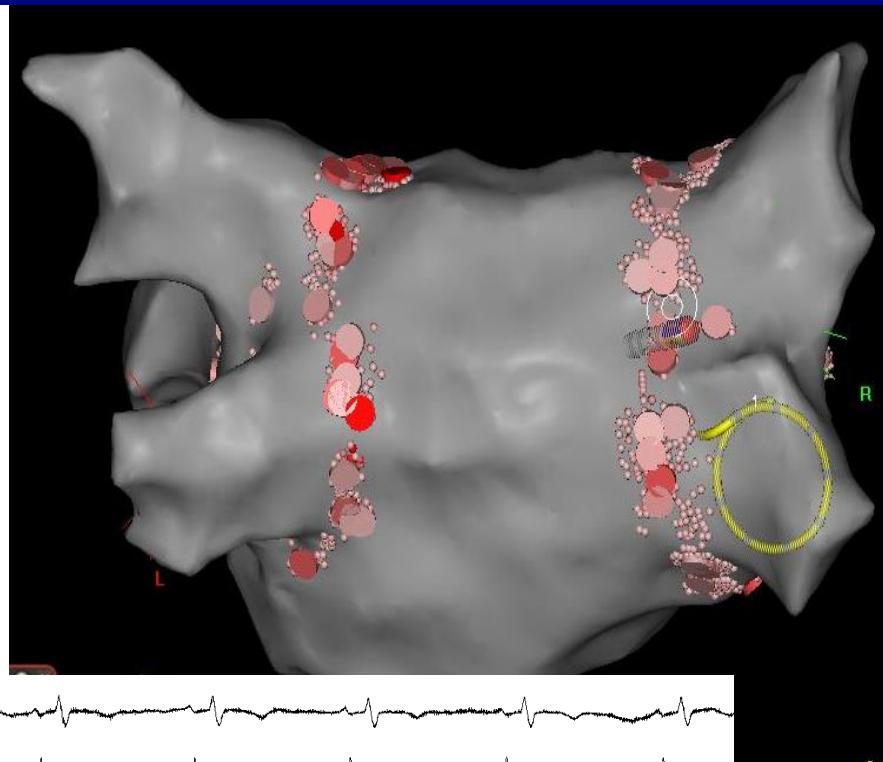
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Katheterablation bei Vorhofflimmern



Komplikationen

	Worldwide survey I ¹⁸	Worldwide survey II ³⁵	Bhargava ³⁴	Dagres ³⁹	ESC-Pilot study
Procedures (n)	11762	20825	1691	1000	1391
TIA or stroke (%)	0.6	0.7	0.3	0.4	0.6
Tamponade (%)	0.9	1.0	0.3	1.3	1.3
Symptomatic PV stenosis (%)	0.4	0.23	1.1	0.1	0
Atrio-oesophageal fistula (%)	0	0.03	0	0.2	0
Periprocedural death (%)	0.05	0.12	0.06	0.2	0
Total major complications* (%)	4.5	3.6	2.7	3.9	1.7

*Major complications are those that are deemed serious, those that have lasting sequelae, or that delay discharge.

PV, pulmonary vein; TIA, transient ischaemic attack.



Europace (2012) **14**, 325–330
doi:10.1093/europace/eur328



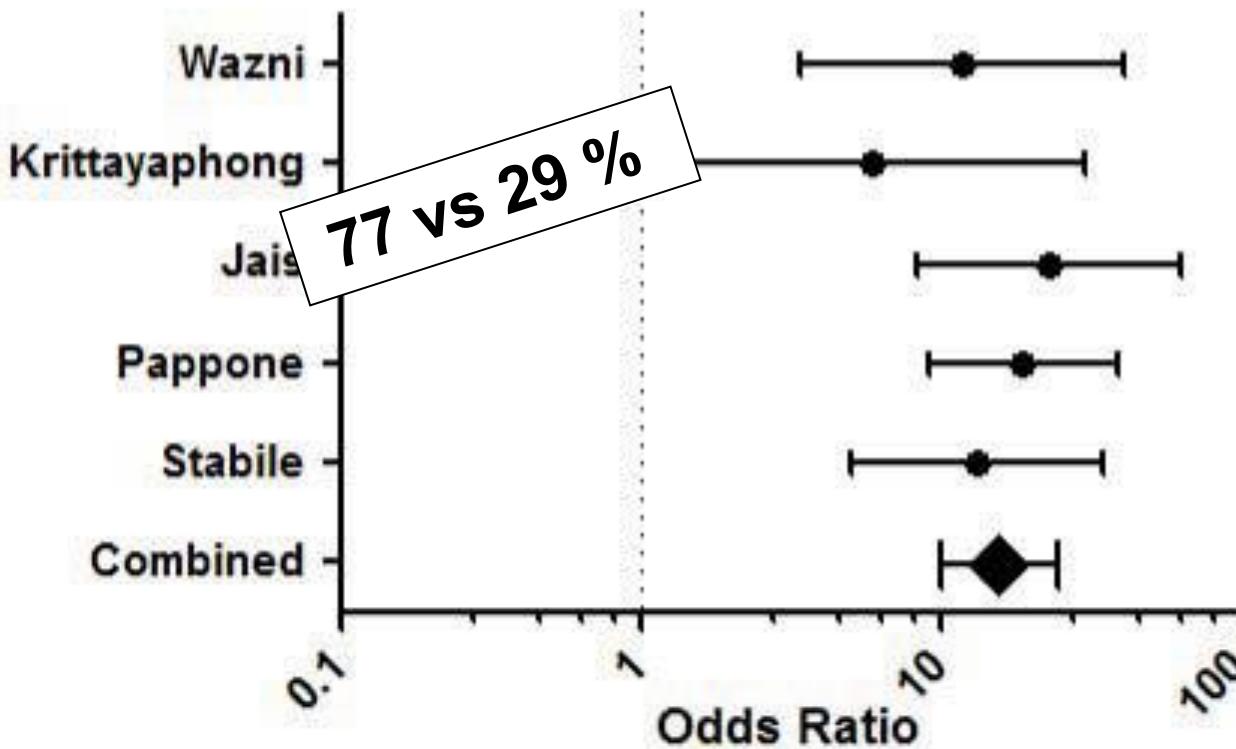
Propofol sedation administered by cardiologists without assisted ventilation for long cardiac interventions: an assessment of 1000 consecutive patients undergoing atrial fibrillation ablation

Tushar Vilas Salukhe^{1,2*}, Stephan Willems¹, Imke Drewitz¹, Daniel Steven¹, Boris A. Hoffmann¹, Katrin Heitmann¹, and Thomas Rostock^{1,3}

¹Department of Electrophysiology, University Heart Centre, University Hospital Eppendorf, Hamburg, Germany; ²Department of Electrophysiology, Royal Brompton Hospital and Imperial College, Sydney Street, London SW2 6NP, UK; and ³Department of Medicine II, Section of Electrophysiology, Johannes Gutenberg University, Mainz, Germany

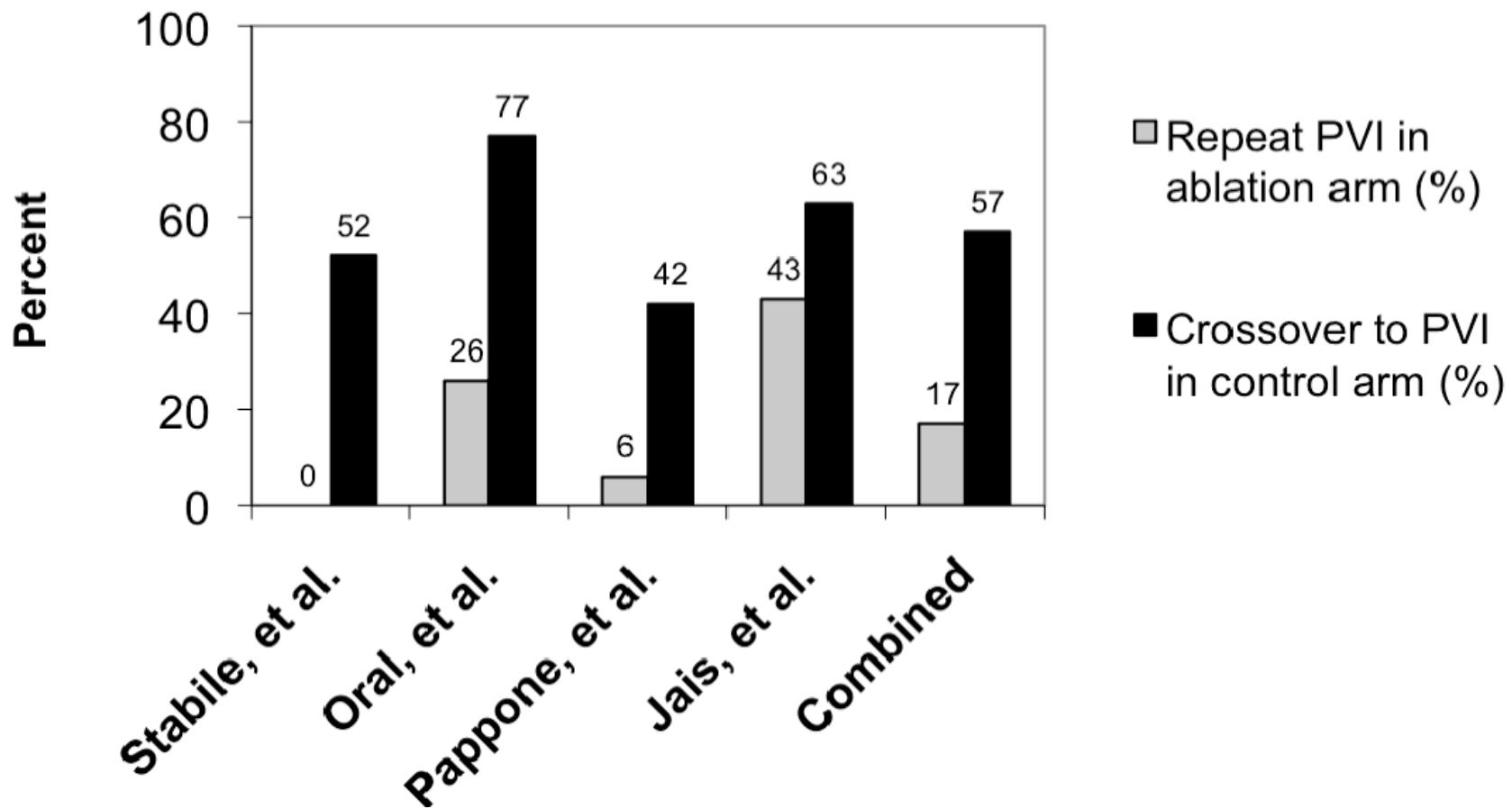
Ablation vs. AA Tx

Freiheit von Vorhofflimmern (Odds ratios) nach 12 Monaten (n=693)



Ablation vs. AA Tx

Erneute Ablation und crossover im ersten Jahr



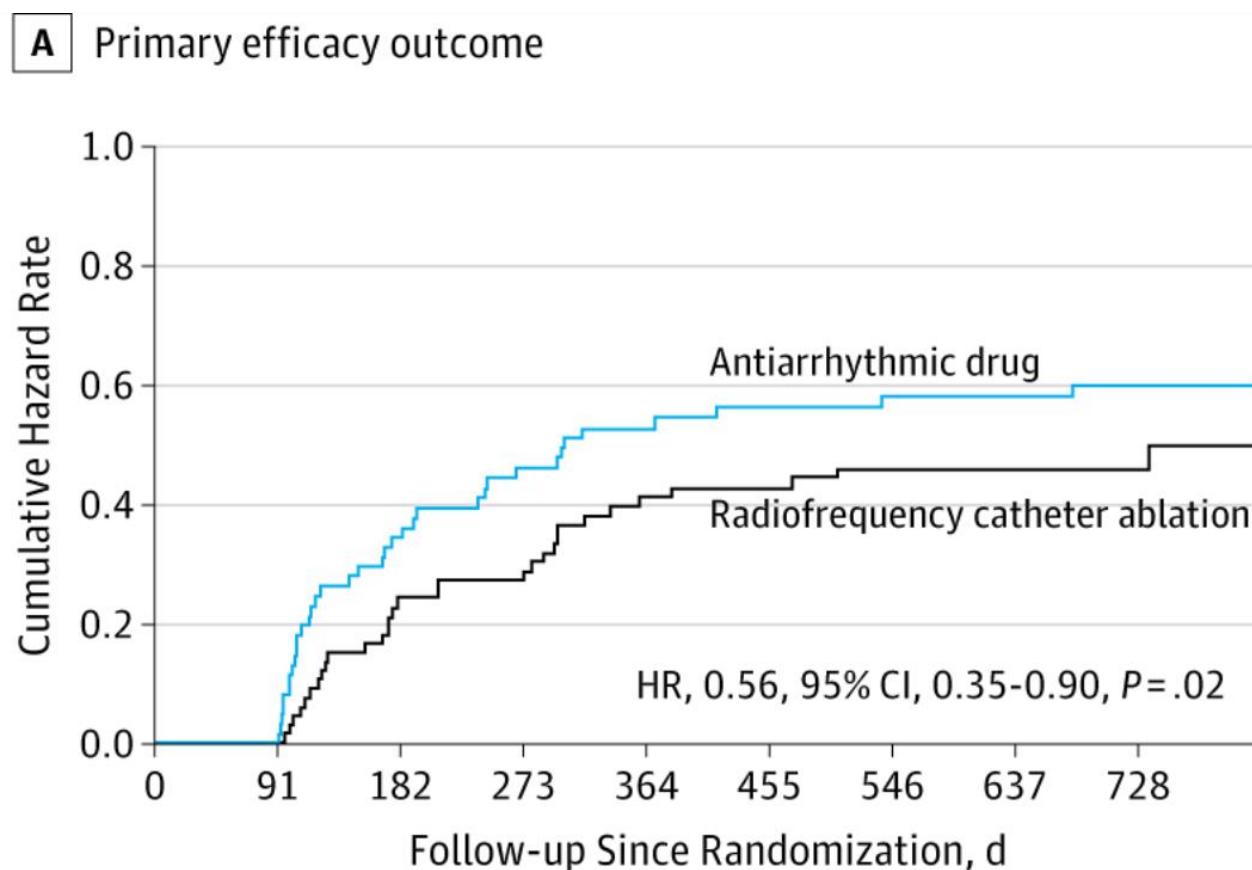


Original Investigation

Radiofrequency Ablation vs Antiarrhythmic Drugs as First-Line Treatment of Paroxysmal Atrial Fibrillation (RAAFT-2) A Randomized Trial

Carlos A. Morillo, MD, FRCPC; Atul Verma, MD, FRCPC; Stuart J. Connolly, MD, FRCPC; Karl H. Kuck, MD, FHRS; Girish M. Nair, MBBS, FRCPC;
Jean Champagne, MD, FRCPC; Laurence D. Sterns, MD, FRCPC; Heather Beresh, MSc; Jeffrey S. Healey, MD, MSc, FRCPC;
Andrea Natale, MD; for the RAAFT-2 Investigators

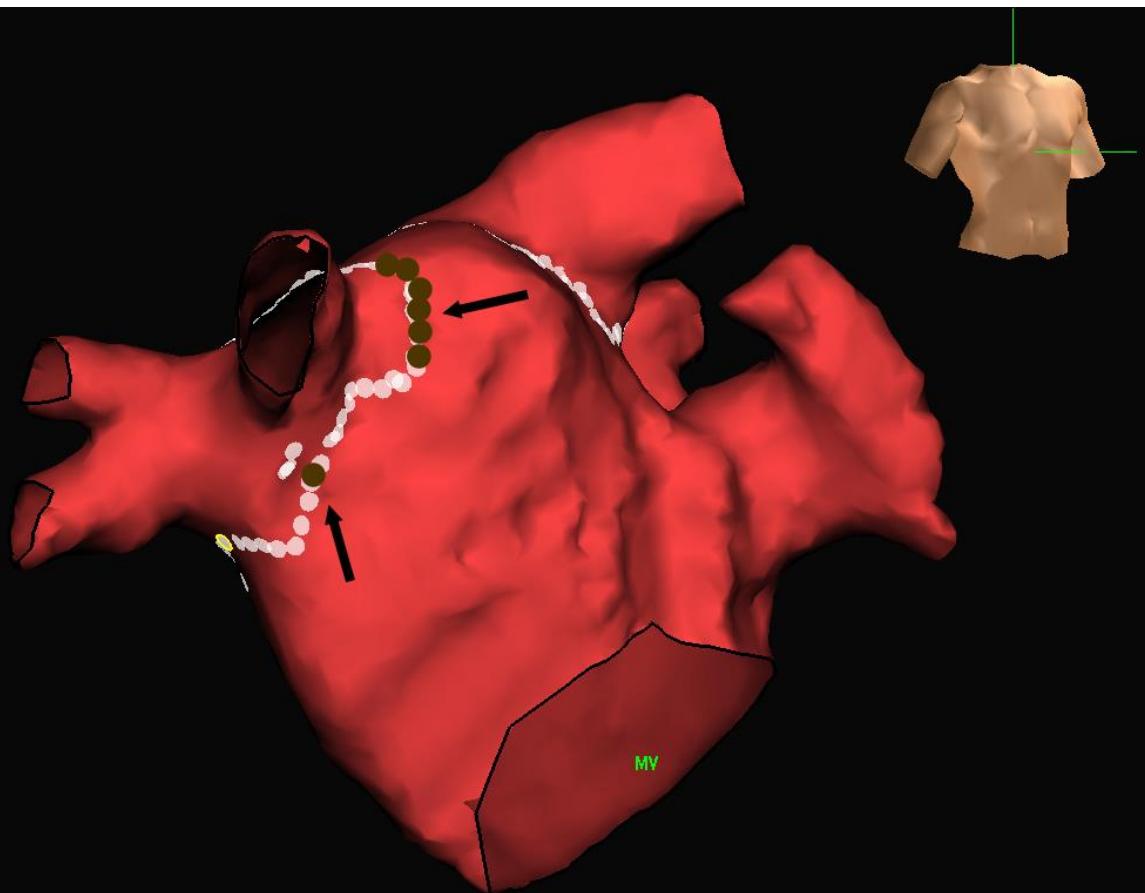
Time to First Recurrence of Any Atrial Tachyarrhythmias



No. at risk

Antiarrhythmic drug	61	61	35	25	21	18	17	17	12
Radiofrequency catheter ablation	66	66	46	39	32	30	28	27	18

Neue Entwicklungen



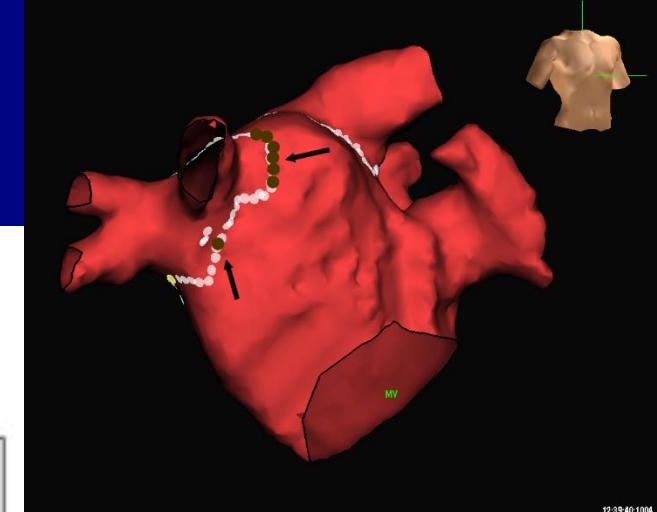
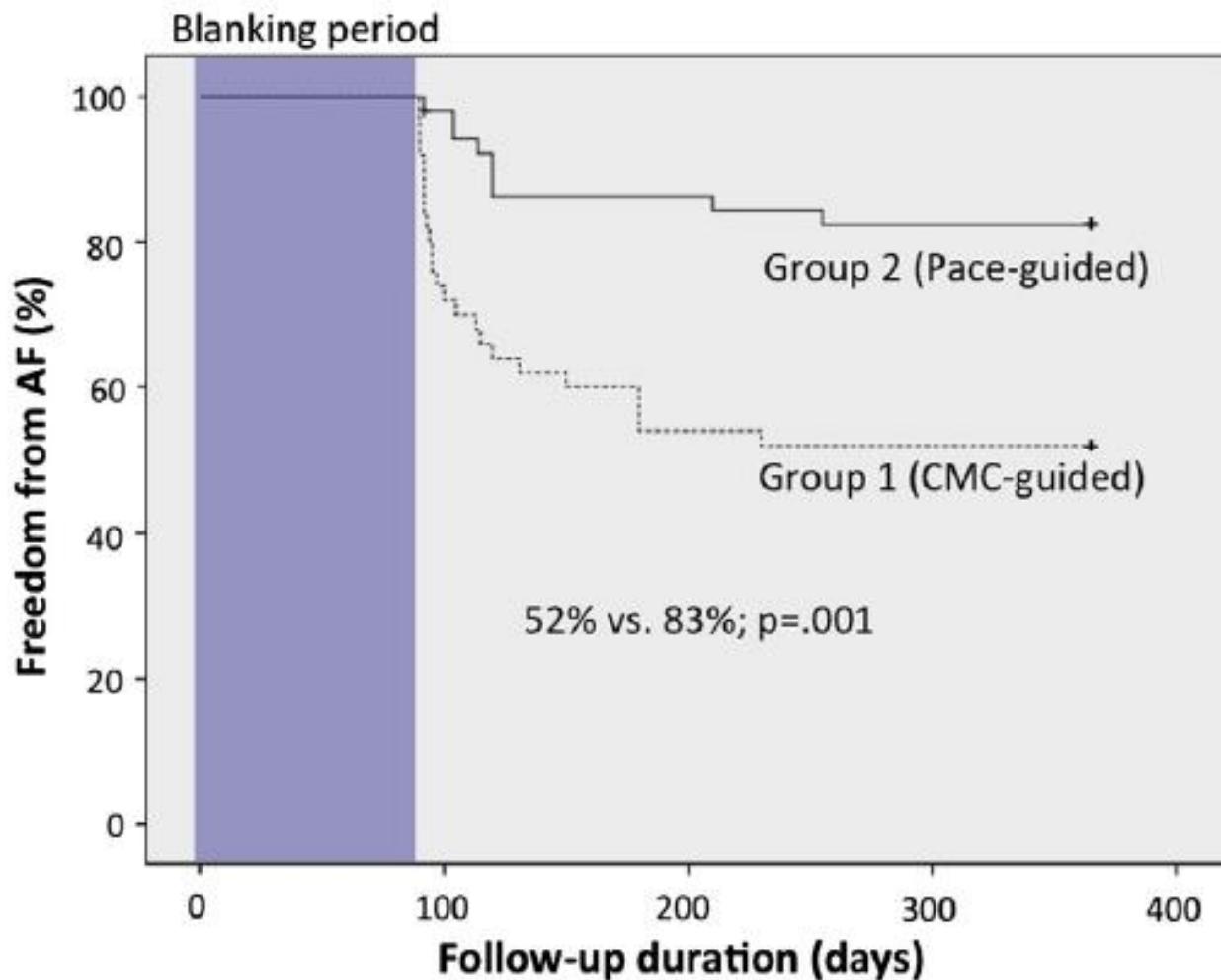
12:39:40:1004

“Optimierung” der PVI:

- Steuerbare Schleusen
- Contact force guidance
- “Loss of pace capture”
- “single shot devices”
- Adenosine challenge



Loss of pace capture approach



12:39:40:1004

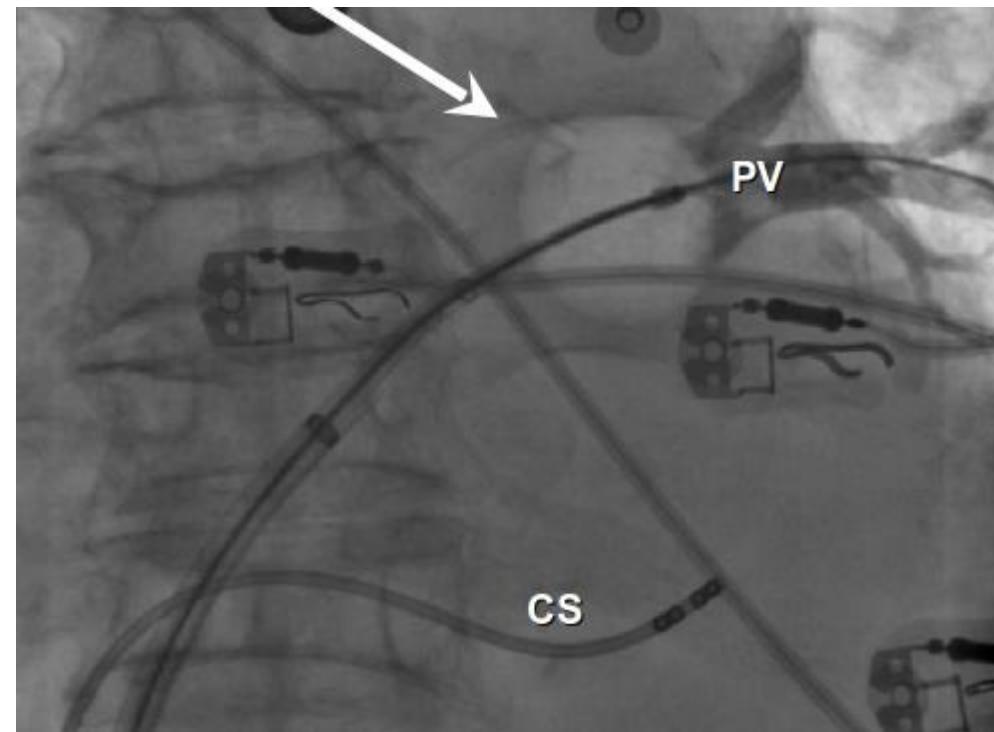
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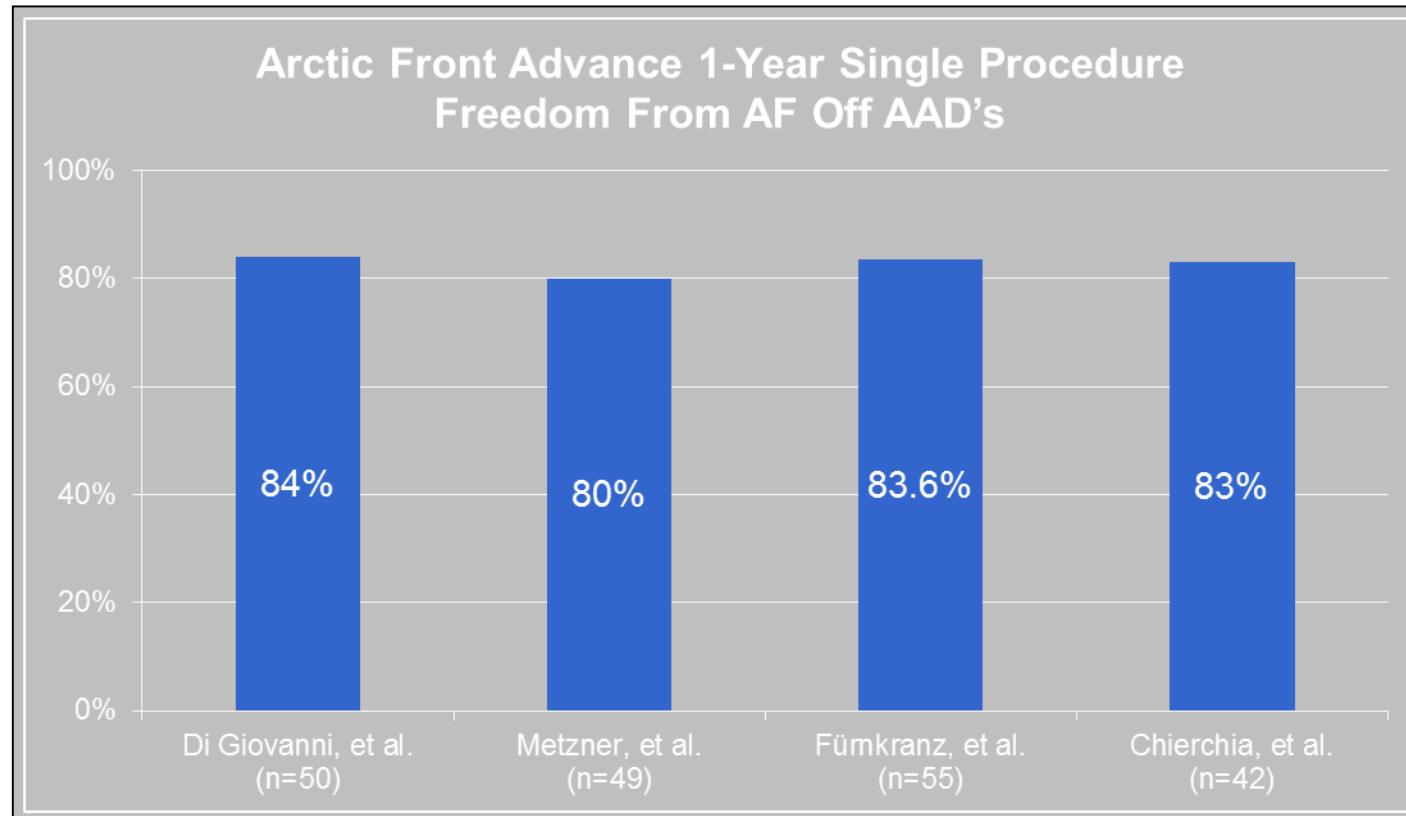
Kryoballon-Ablation



Cryoablation



Kryoballon-Ablation



1. One-Year Follow-Up after Single Procedure Cryoballoon Ablation: A Comparison between the First and Second Generation Balloon. *J Cardiovasc Electrophysiol.* 2014 Mar 18. doi: 10.1111/jce.12409
2. Metzner, et al. One-Year Clinical Outcome after Pulmonary Vein Isolation using the Second-Generation 28mm Cryoballoon. *Circ Arrhythm Electrophysiol.* published online March 8, 2014
3. Fümkranz, et al. Improved One-Year Clinical Success Rate of Pulmonary Vein Isolation with the Second-Generation Cryoballoon in Patients with Paroxysmal. *Journal of Cardiovascular Electrophysiology* DOI: 10.1111/jce.12417
4. Chierchia, et al. Second-generation cryoballoon ablation for paroxysmal atrial fibrillation: 1-year follow-up. *Europace*, DOI 10.1093/europace/eut417

Nachbehandlung

Post-procedurales Management

„.... eine Fortsetzung der dauerhaften OAK nach Ablation ist bei allen Patienten mit einem **CHA₂DS₂-VASc score ≥ 2** unabhängig vom Ergebnis der Ablation empfohlen“.



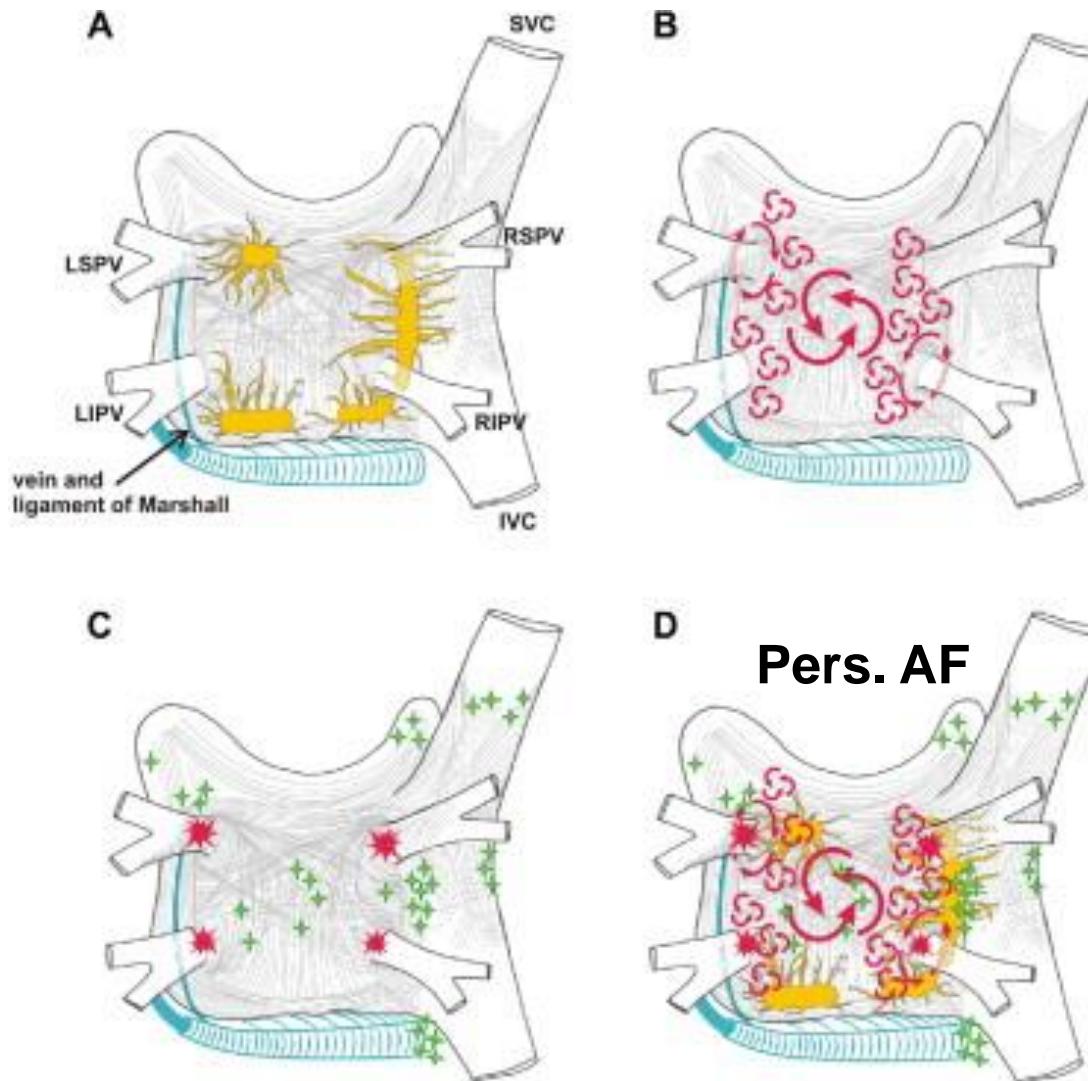
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Ablation bei pers. AF

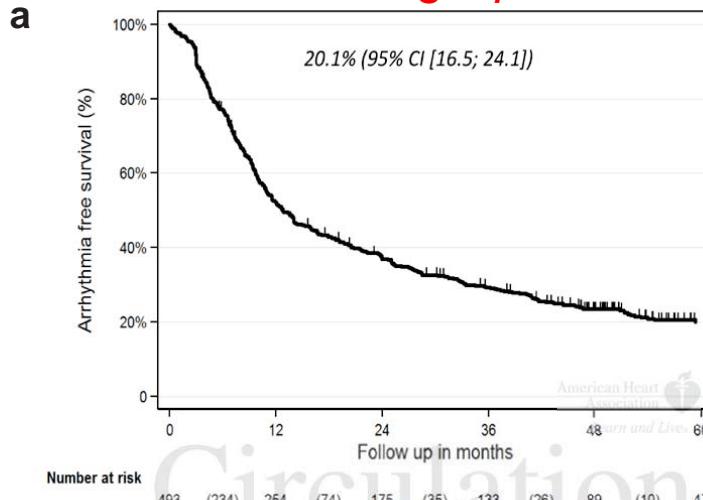
Ausblick

I AF Mechanismen

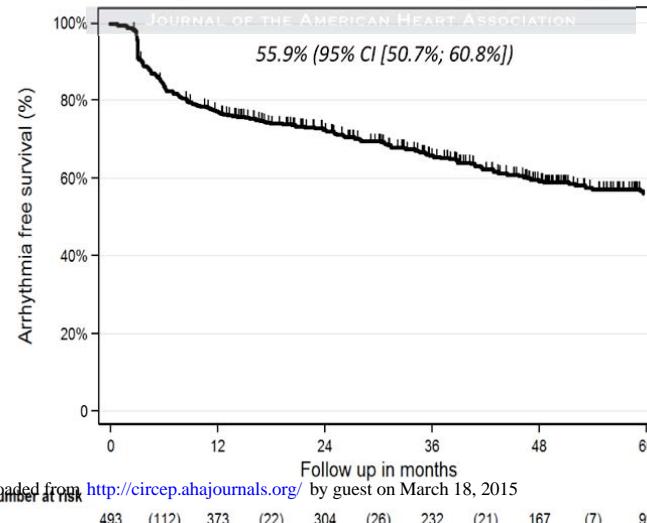


Catheter Ablation in Pers. AF

Outcome of single procedure



Outcome of last procedure



Downloaded from <http://circep.ahajournals.org/> by guest on March 18, 2015

N = 493

- 24% Ls pers AF
- 30 % SHD
- EF 60 %
- 59% AF Termination

2.1 Procedures

4.9 % complications
(0.4% PE)



The NEW ENGLAND JOURNAL of MEDICINE

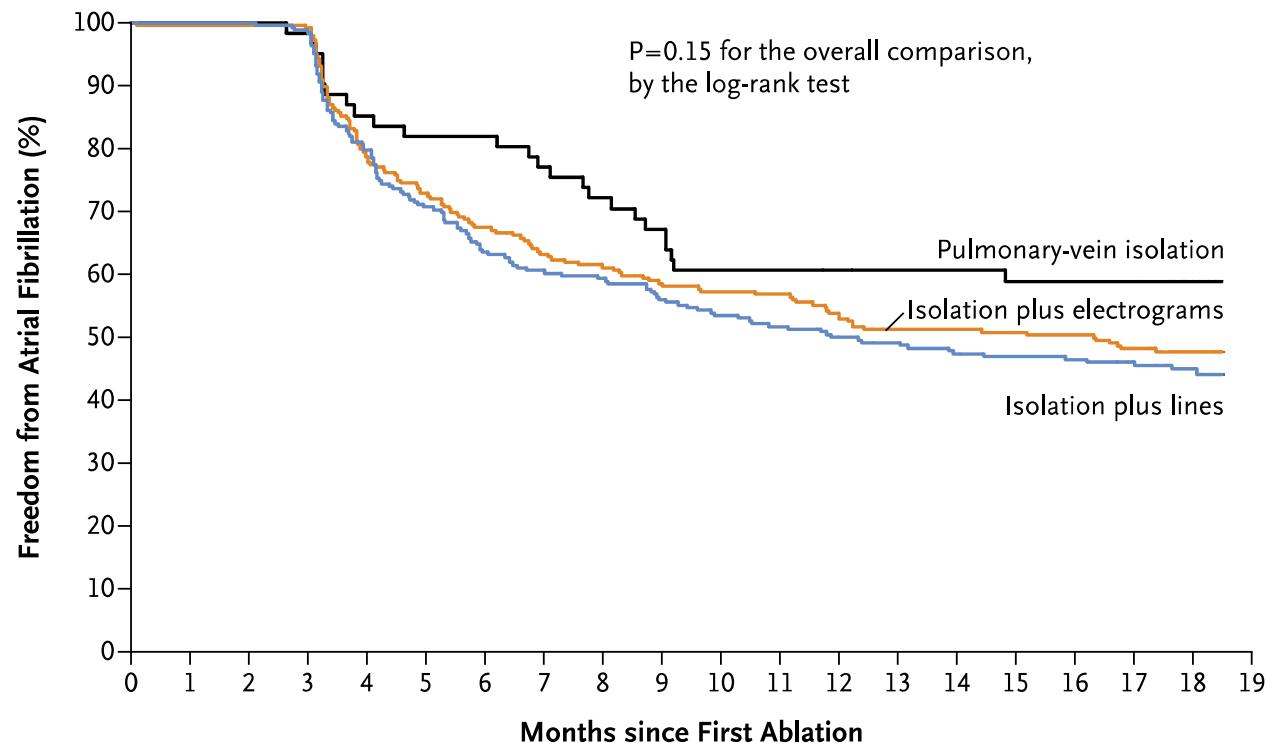
N = 589 with pers AF
1:4:4 random.

ORIGINAL ARTICLE

Approaches to Catheter Ablation for Persistent Atrial Fibrillation

Atul Verma, M.D., Chen-yang Jiang, M.D., Timothy R. Betts, M.D., M.B., Ch.B.,
Jian Chen, M.D., Isabel Deisenhofer, M.D., Roberto Mantovan, M.D., Ph.D.,
Laurent Macle, M.D., Carlos A. Morillo, M.D., Wilhelm Haverkamp, M.D., Ph.D.,
Rukshen Weerasooriya, M.D., Jean-Paul Albenque, M.D., Stefano Nardi, M.D.,
Endrj Menardi, M.D., Paul Novak, M.D., and Prashanthan Sanders, M.B., B.S., Ph.D.,
for the STAR AF II Investigators*

Freedom from AF



No. at Risk

Pulmonary-vein isolation	61	60	50	41	36	23
Isolation plus electrograms	244	242	161	137	124	72
Isolation plus lines	244	240	152	133	115	57

Documented AF > 30 seconds after one procedure with or without AAD

Verma A et al.. N Engl J Med 2015;372:182-22



JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
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PUBLISHED BY ELSEVIER INC.

VOL. 66, NO. 24, 2015

ISSN 0735-1097/\$36.00

<http://dx.doi.org/10.1016/j.jacc.2015.09.088>

Pulmonary Vein Isolation Versus Defragmentation

The CHASE-AF Clinical Trial

Julia Vogler, MD,* Stephan Willems, MD,* Arian Sultan, MD,† Doreen Schreiber, MD,‡ Jakob Lüker, MD,†
Helge Servatius, MD,§ Benjamin Schäffer, MD,* Julia Moser, MD,* Boris A. Hoffmann, MD,* Daniel Steven, MD†

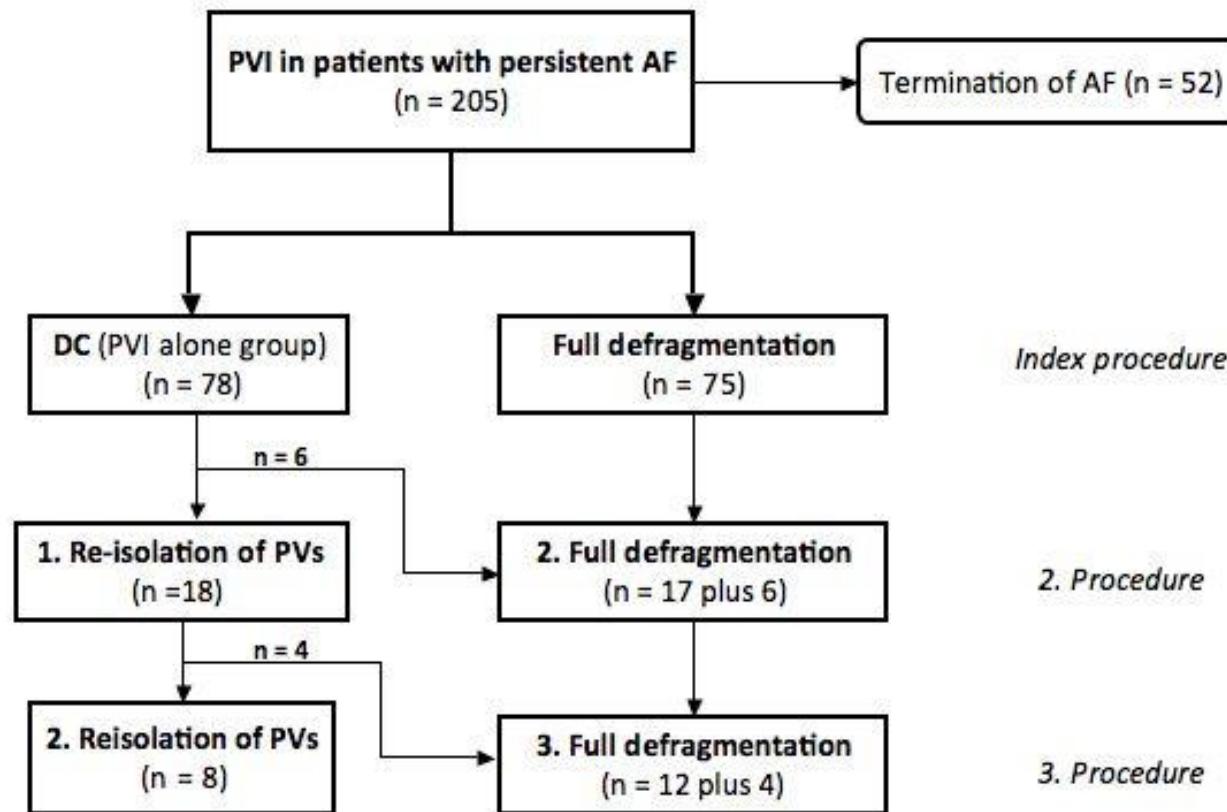


Hypothesis:

Superiority of the stepwise approach
(after a follow-up of 12 months)
Pts. with AF > 7 days

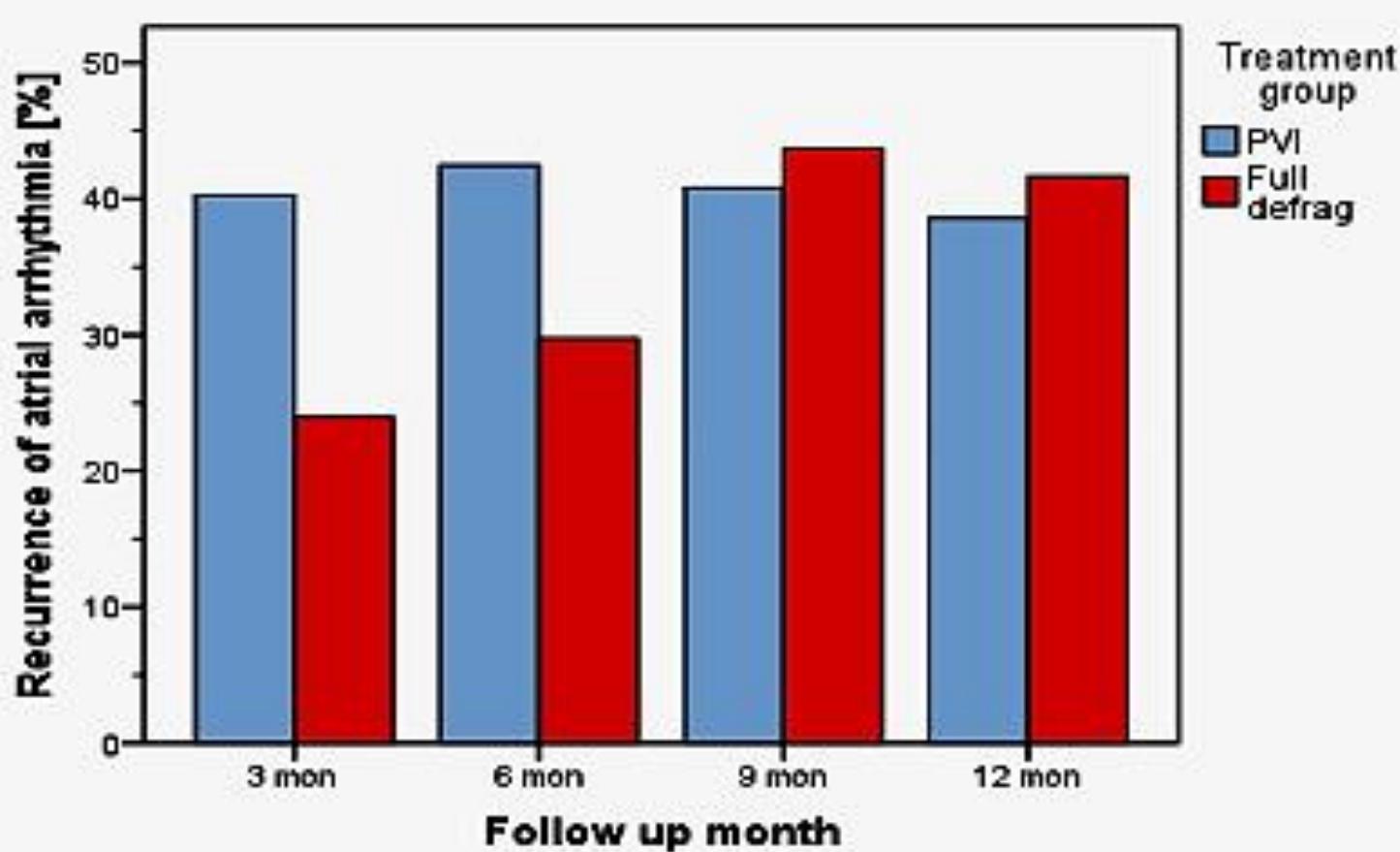
CHASE-AF Study

Study flow chart



CatHeter Ablation of perSistEnd Atrial Fibrillation:
Pulmonary Vein Isolation versus Defragmentation.
The CHASE-AF Study

AF/AT Recurrence including redo procedures (1.6)





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EDITORIAL COMMENT

Ablation of Persistent AF

Have We Come Full Circle, or Are We Chasing Our Tails?*

Matthew Wright, MRCP, PhD



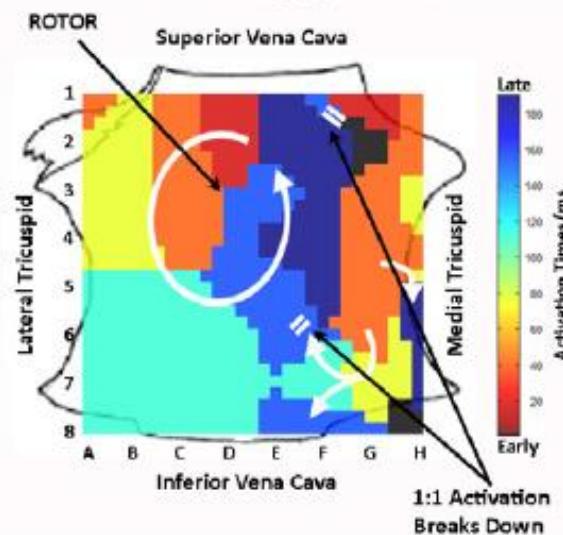
CrossMark

“Focal impulse and rotor modulation”

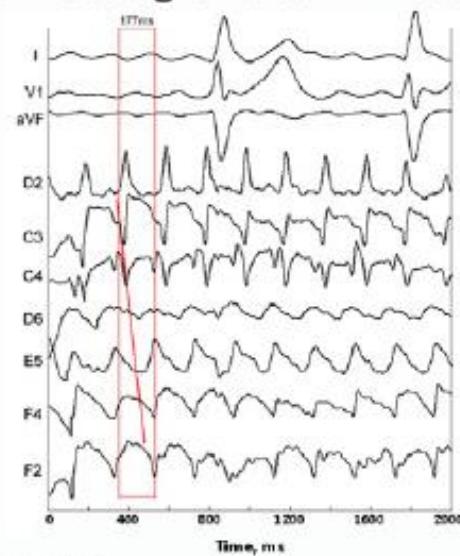
A. RA Basket Fluoroscopy



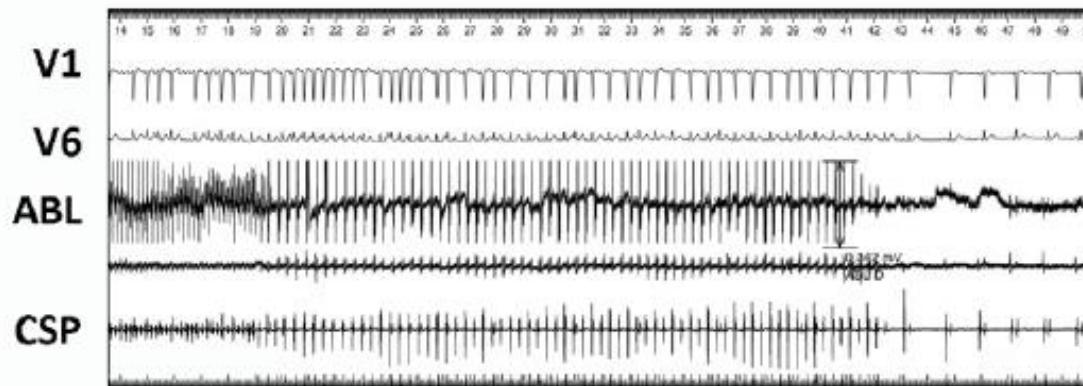
B. RA Rotor in AF



C. Electrograms at RA Rotor



D. FIRM Terminates AF to Sinus Rhythm (<30 seconds)



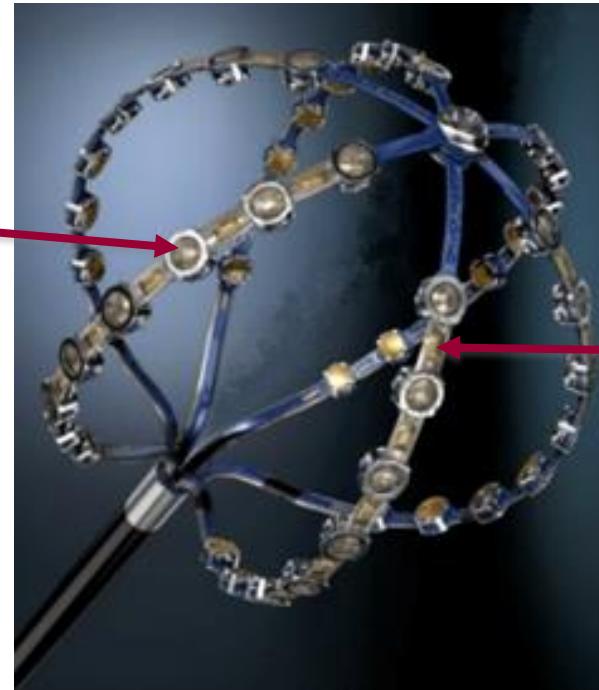
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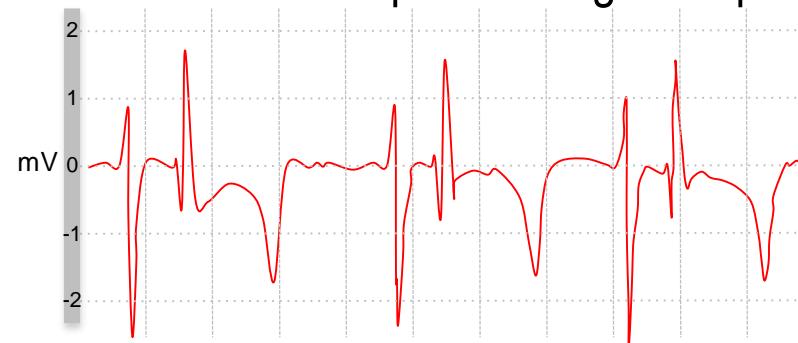
Ausblick

48
Ultrasound
Crystals



48
Engineered
Electrodes

Up to 144,000 ultrasound points/minute
150,000 intra-cardiac unipolar voltage samples/second



Non-Contact
Electrograms

Early treatment of Atrial fibrillation for Stroke prevention.



early treatment of
atrial fibrillation for
stroke prevention trial

Hypothesis: Adequate and early comprehensive rhythm control therapy can prevent AF-related major complications (stroke, death, heart failure) compared to usual care



Primary outcome: composite of cardiovascular death, stroke, and heart failure or acute coronary syndrome measured as hospitalization

Enrolment: Patients with recent-onset AF at risk for stroke or death

- AA bei PAF „PIP“ – „überbrückende“ Tx
- AA vs. Ablation: „Vorteil“ Intervention
- Ablation:
 - Sicheres Verfahren unter entsprechenden Bedingungen – Standards !
 - „Etabliert“ bei PAF (ca. 70 % bzw. „+ x“ bei 2. Abl.)
-> 3 Mon. OAK nach Abl. dann nach RF
 - Verbesserung der Ablationsstrategien bei PAF (PVI-Persistenz, CAF) und pers. AF („Rotoren-Map“)
 - Outcome: Hinweis auf Vorteil Ablation bzw. SR (CABANA, CASTLE-AF, RAAFT, AMICA, EAST)