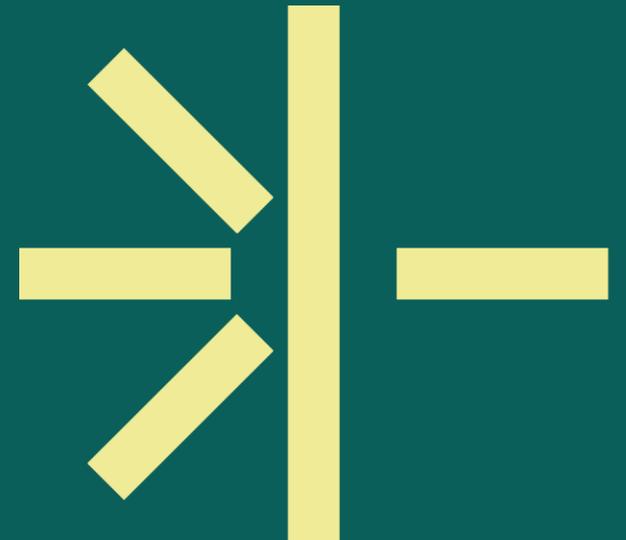




Was hat Demenz mit Vorhofflimmern zu tun ?

Prof. Christian Sticherling

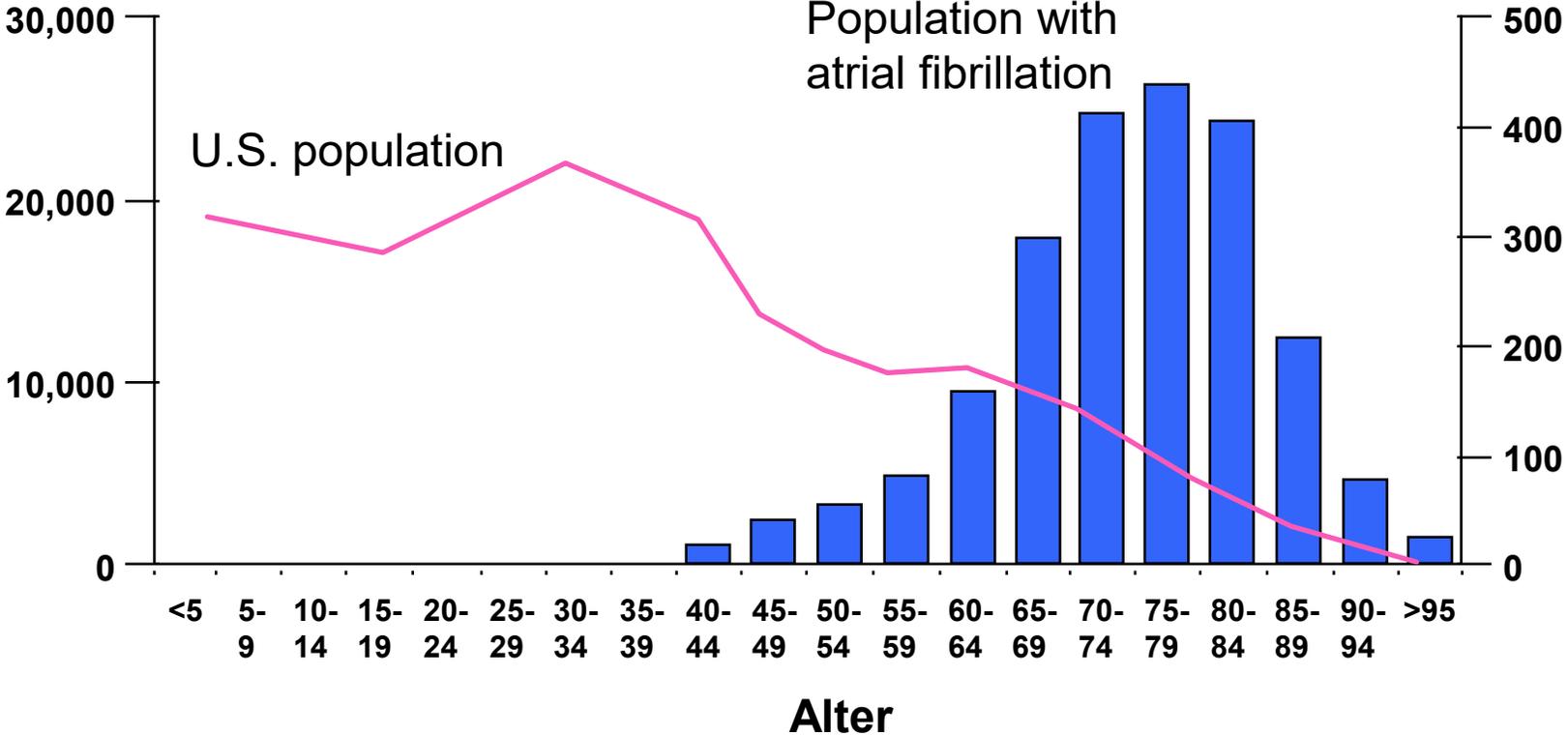
Universitäres Herzzentrum Basel



Vorhofflimmern Erkrankung des Alters

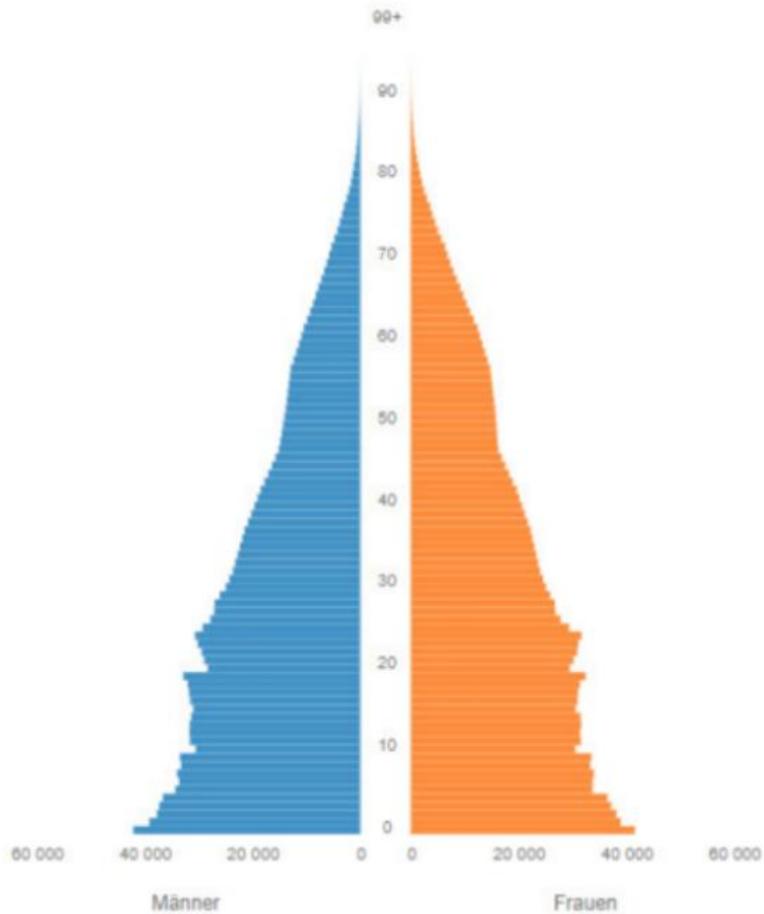
U.S. Population
x 1000

Population mit VHF
x 1000

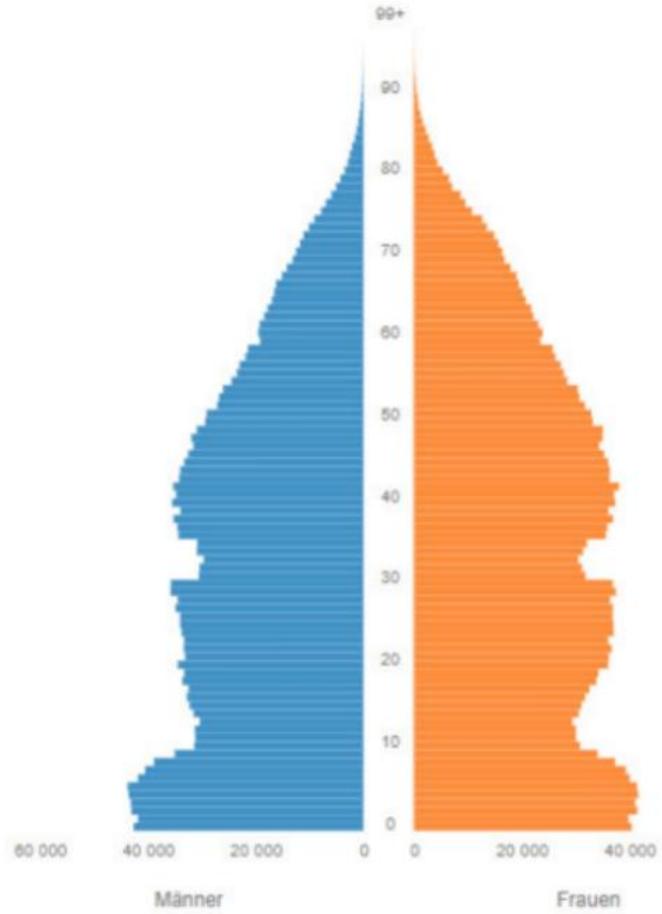


Prävalenz des Vorhofflimmerns wird wegen demographischen Wandels deutlich zunehmen

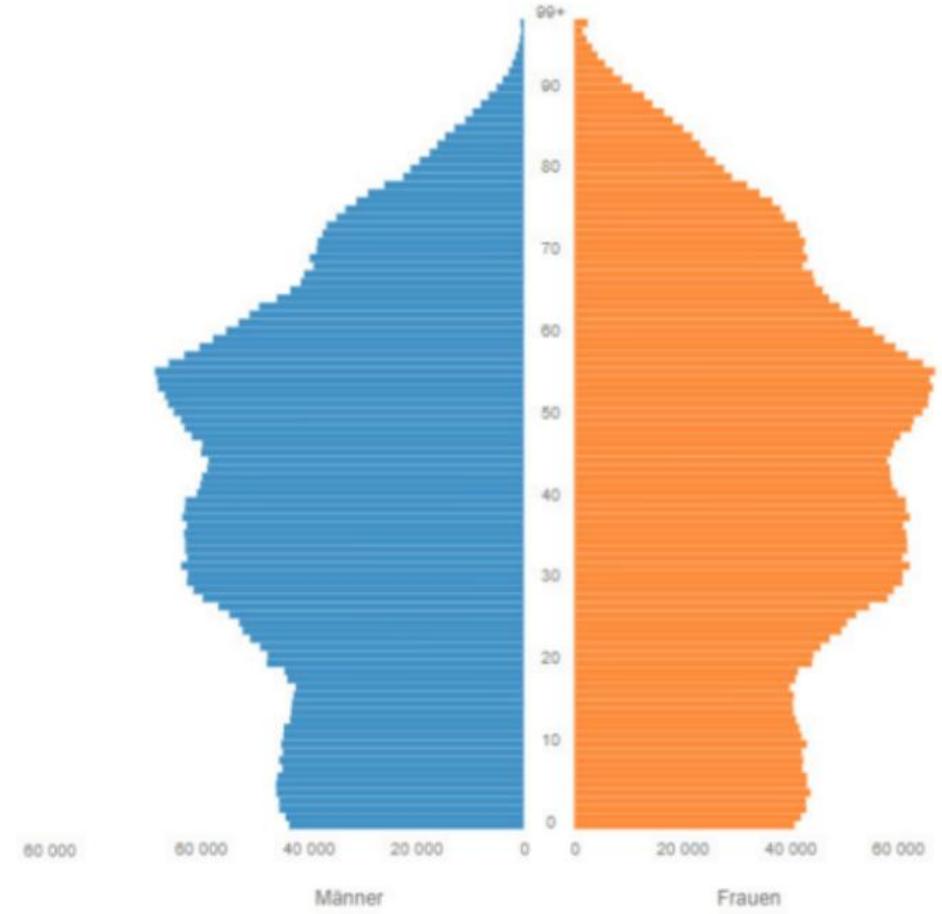
1900



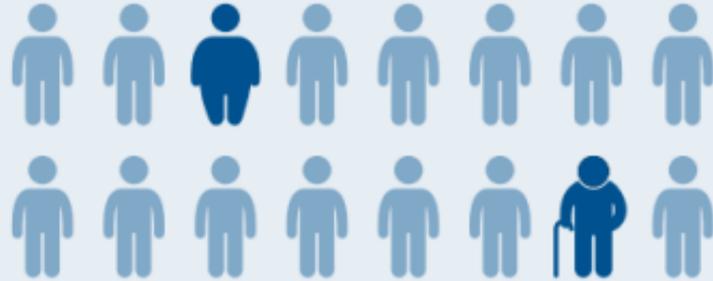
1950



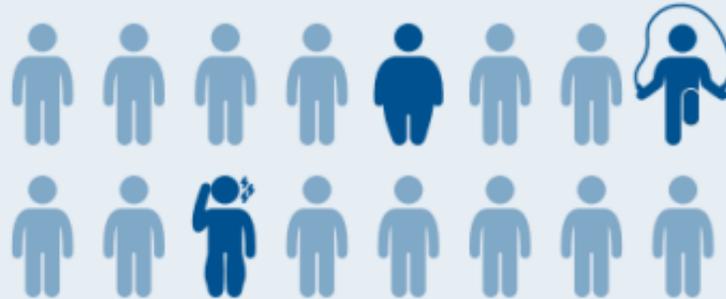
2020



Population



It is estimated that 2–3% have atrial fibrillation (AF) and 5–10% have atrial cardiomyopathy.



Risk factors

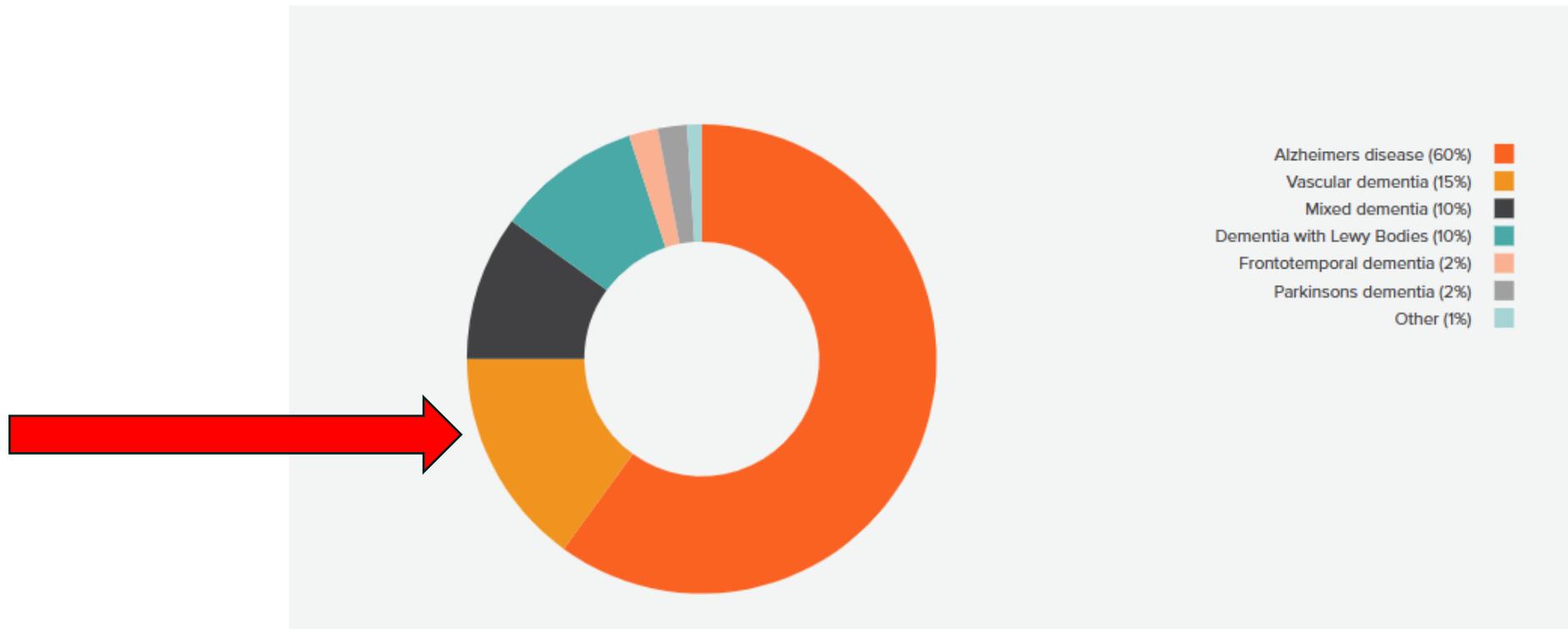
- Metabolic
- Inflammation
- Vascular
- Cardiac strain
- Ageing & frailty
- Genetics

Lebenszeit-Risiko:
20-30%

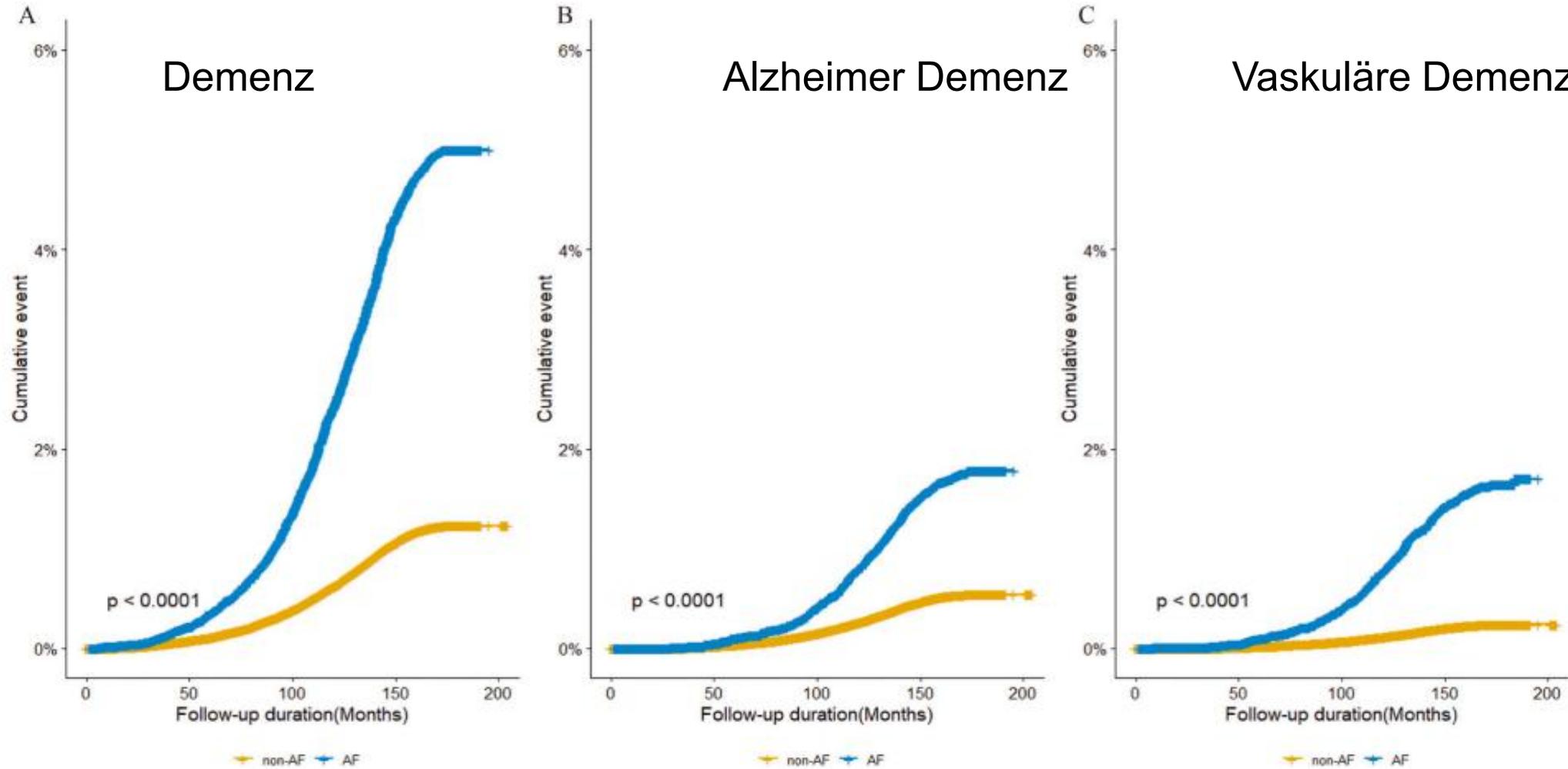
Demenz

- Prävalenz weltweit: 47 Millionen Menschen (2050: 131 Millionen !!)
- Prävalenz bei über 65-jährigen: 15%
- Prävalenz bei über 85-jährigen: 50%

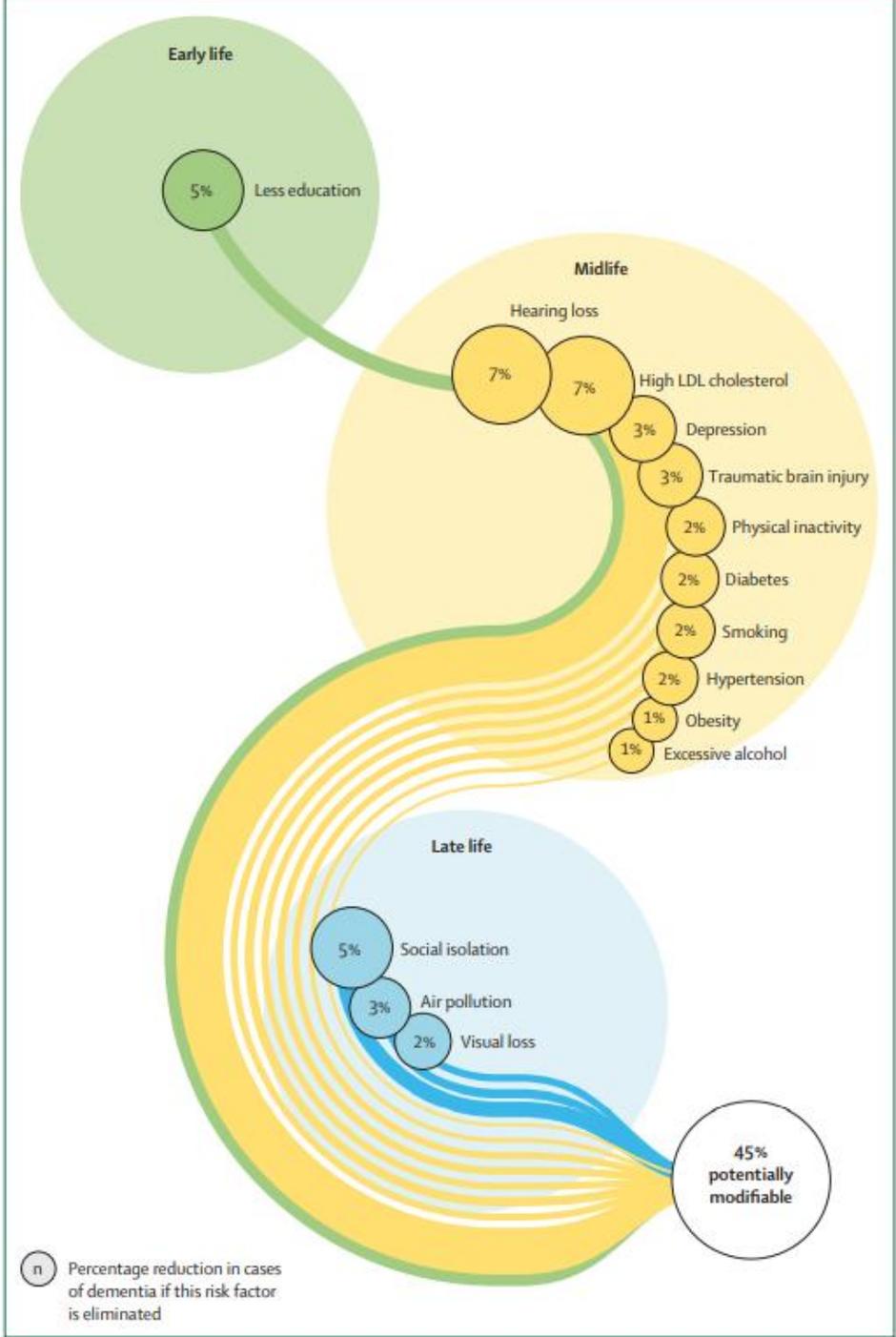
BREAKDOWN OF DEMENTIA BY DISEASE TYPE



UK Biobank 373'145 Teilnehmer, mittleres FU 13.45 Jahre



Ist das Risiko für eine Demenz modifizierbar?



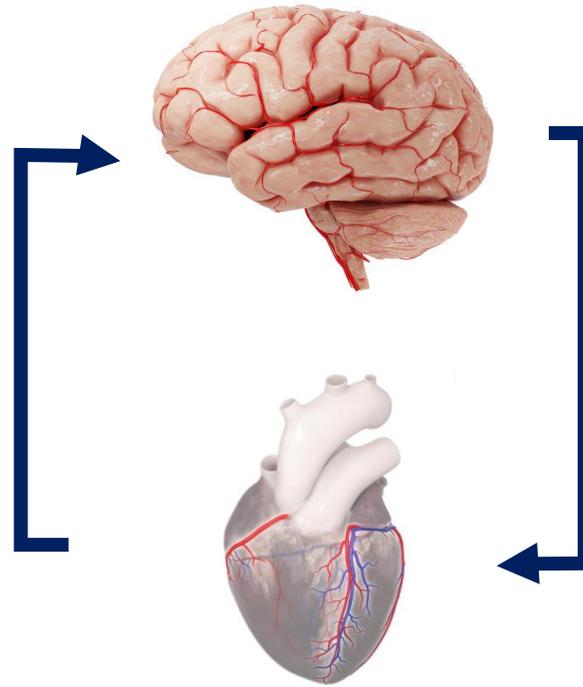
Risikofaktoren für das Auftreten von Vorhofflimmern



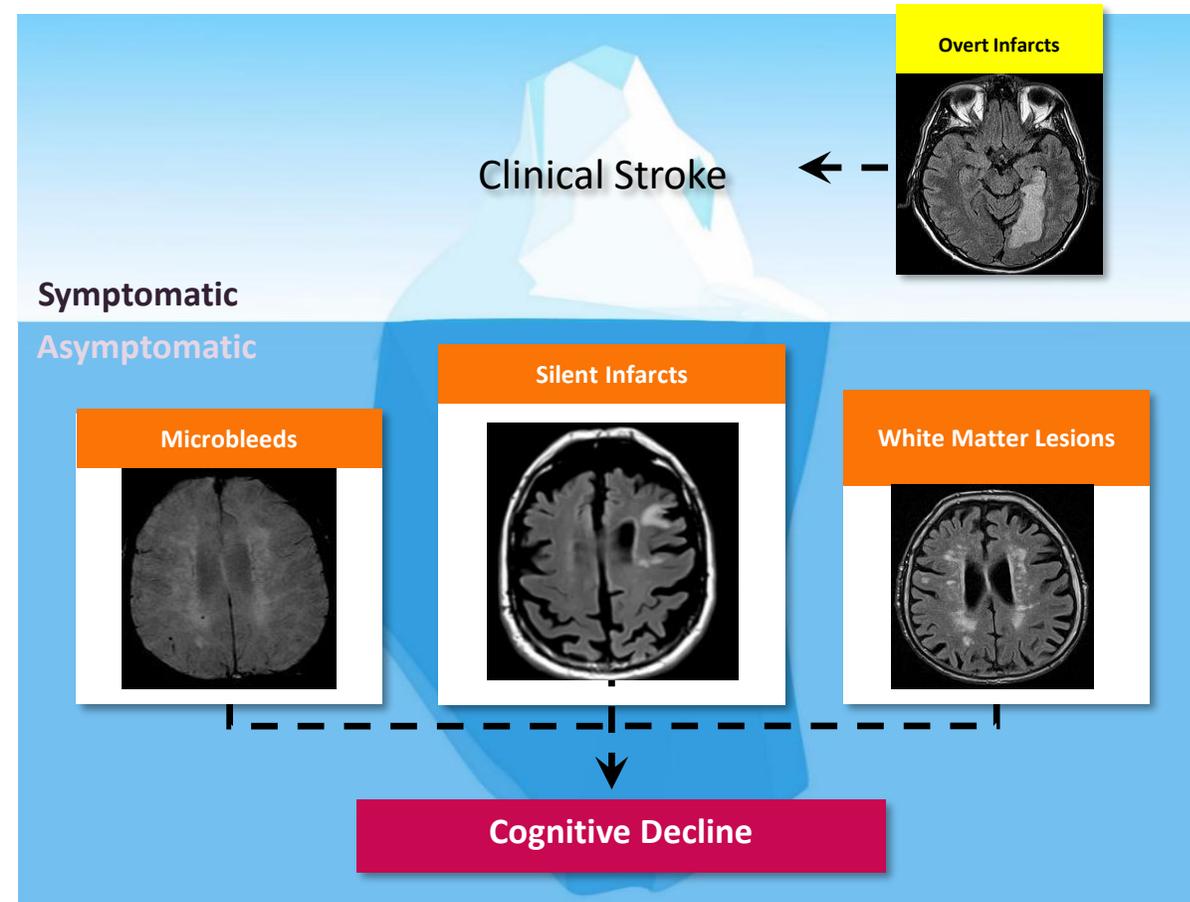
Comorbidity and risk factor management

Hypertension	Heart failure	Overweight or obese	Obstructive sleep apnoea	Alcohol
Blood pressure lowering treatment (Class I)	Diuretics for congestion (Class I)	Weight loss (target 10%) ^a (Class I)	Management of OSA ^a (Class IIb)	Reduce to ≤3 drinks per week (Class I)
Diabetes mellitus	Appropriate HFrEF medical therapy (Class I)	Bariatric surgery if rhythm control ^a (Class IIb)	Exercise capacity	Other risk factors/ comorbidities
Effective glycaemic control ^a (Class I)	SGLT2 inhibitors (Class I)		Tailored exercise programme (Class I)	Identify and manage aggressively ^a (Class I)

Heart Brain axis



1737 Patienten aus
14 CH-Zentren
Mittleres Alter: 73 Jahre
90% OAC
Alle bekamen MRI
und MOCA



MOCA (Montreal Cognitive Assessment)

- Besser als Mini Mental Status bei «mild cognitive Impairment»
- Testet 8 kognitive Domänen in ca. 10 Minuten
- Cut-off: 26/30 Punkten

MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 7.1 Original Version

NAME: _____ Education: _____ Sex: _____ Date of birth: _____
DATE: _____

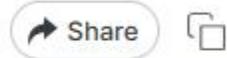
VISUOSPATIAL / EXECUTIVE		Copy cube	Draw CLOCK (Ten past eleven) (3 points)	POINTS			
		<input type="checkbox"/>	<input type="checkbox"/> Contour <input type="checkbox"/> Numbers <input type="checkbox"/> Hands	___/5			
NAMING					___/3		
MEMORY	Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.	FACE	VELVET	CHURCH	DAISY	RED	No points
	1st trial						
	2nd trial						
ATTENTION	Read list of digits (1 digit/sec.). Subject has to repeat them in the forward order. Subject has to repeat them in the backward order.	[]	[]	[]	[]	[]	___/2
	Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors.	[]	[]	[]	[]	[]	___/1
	Serial 7 subtraction starting at 100. 4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt	[]	[]	[]	[]	[]	___/3
LANGUAGE	Repeat: I only know that John is the one to help today. The cat always hid under the couch when dogs were in the room.	[]	[]	[]	[]	[]	___/2
	Fluency / Name maximum number of words in one minute that begin with the letter F	[]	[]	[]	[]	[]	___/1
ABSTRACTION	Similarity between e.g. banana - orange = fruit	[]	[]	[]	[]	[]	___/2
DELAYED RECALL	Has to recall words WITH NO CUE. Category cue. Multiple choice cue.	FACE	VELVET	CHURCH	DAISY	RED	Points for UNCUE recall only
		[]	[]	[]	[]	[]	
ORIENTATION	[] Date [] Month [] Year [] Day [] Place [] City	[]	[]	[]	[]	[]	___/6
© Z.Nasreddine MD		www.mocatest.org		Normal ≥ 26 / 30		TOTAL ___/30	
Administered by: _____						Add 1 point if ≤ 12 yr edu	

Trump Calls Dementia Screening "Very Hard" IQ Test, Then Brags About Result

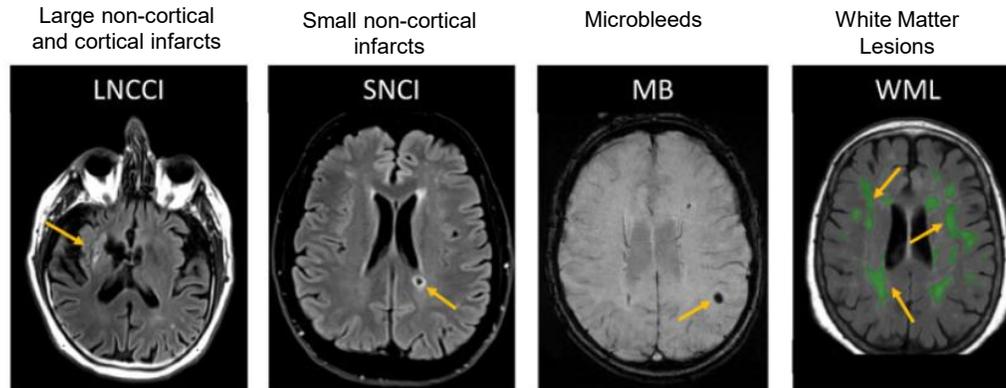
Reports suggest the president was referring to the Montreal Cognitive Assessment (MoCA), a short assessment test to identify early signs of dementia

[NDTV News Desk](#) | [World News](#) | Oct 29, 2025 08:09 am IST ⓘ

Read Time: 2 mins

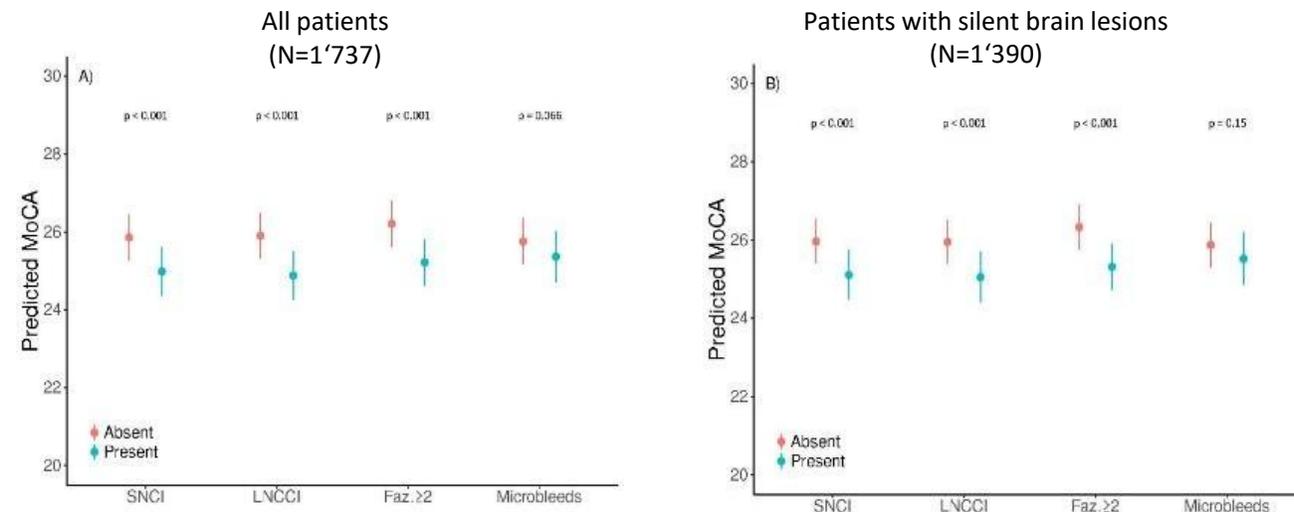
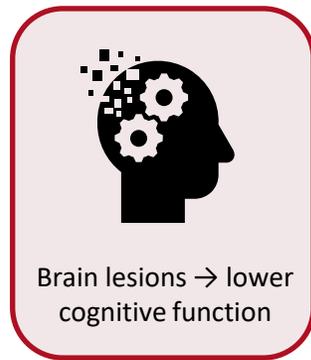


Brain Lesions and Cognitive Function



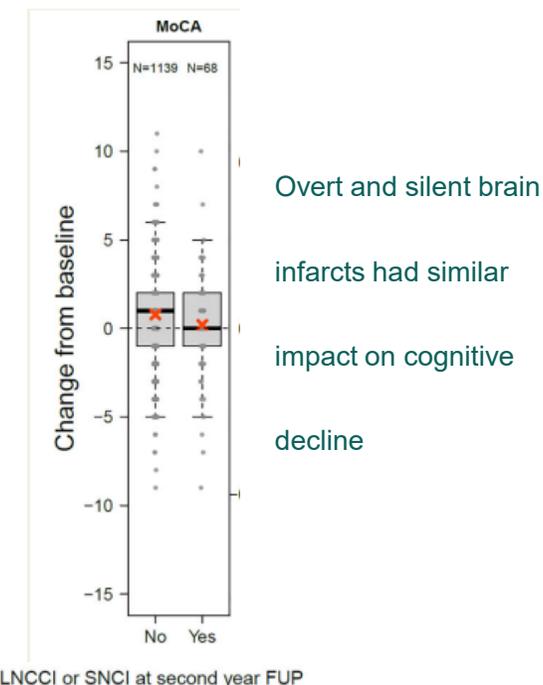
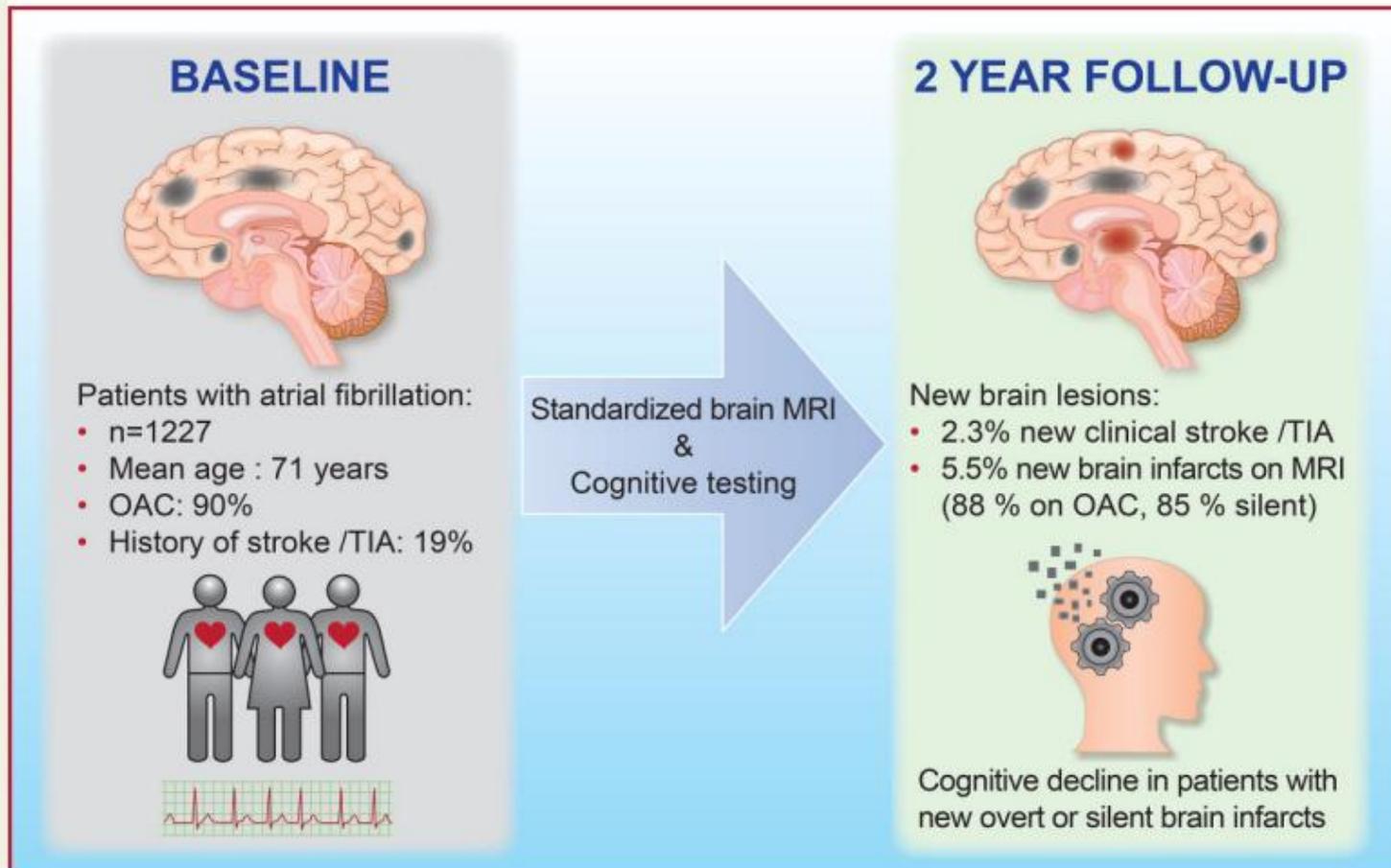
	LNCCI	SNCI	MB	WML
Prevalence	22%	21%	22%	99% 54% with Faz \geq 2
Prevalence in patients without stroke/TIA	15%	18%	20%	99% 50% with Faz \geq 2

Brain Lesions and Cognitive Function



Implications: Silent infarcts contribute to cognitive impairment despite anticoagulation.

Brain Damage and Change in Cognitive Function in Patients with Atrial Fibrillation



Kausalität

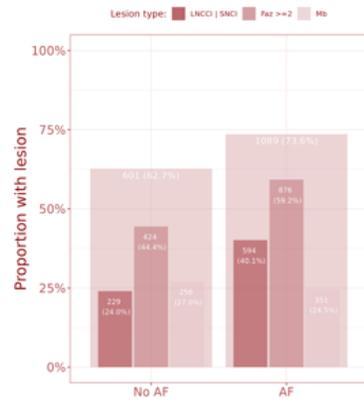


Comparison of 1480 (61%)
AF pts vs 959 (39%) non-AF
pts



Brain lesions

OR 1.79 (95% CI 1.30, 2.45), $p < 0.001$

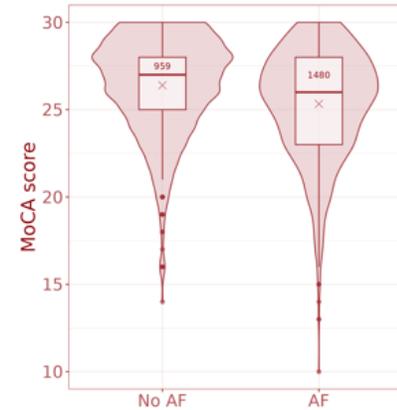


Brain lesions are more frequent in
AF patients



Cognition

β -0.94 (95% CI -1.33; -0.54), $p < 0.001$

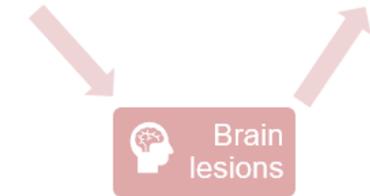


Cognitive function is lower in
AF patients



Effect of AF

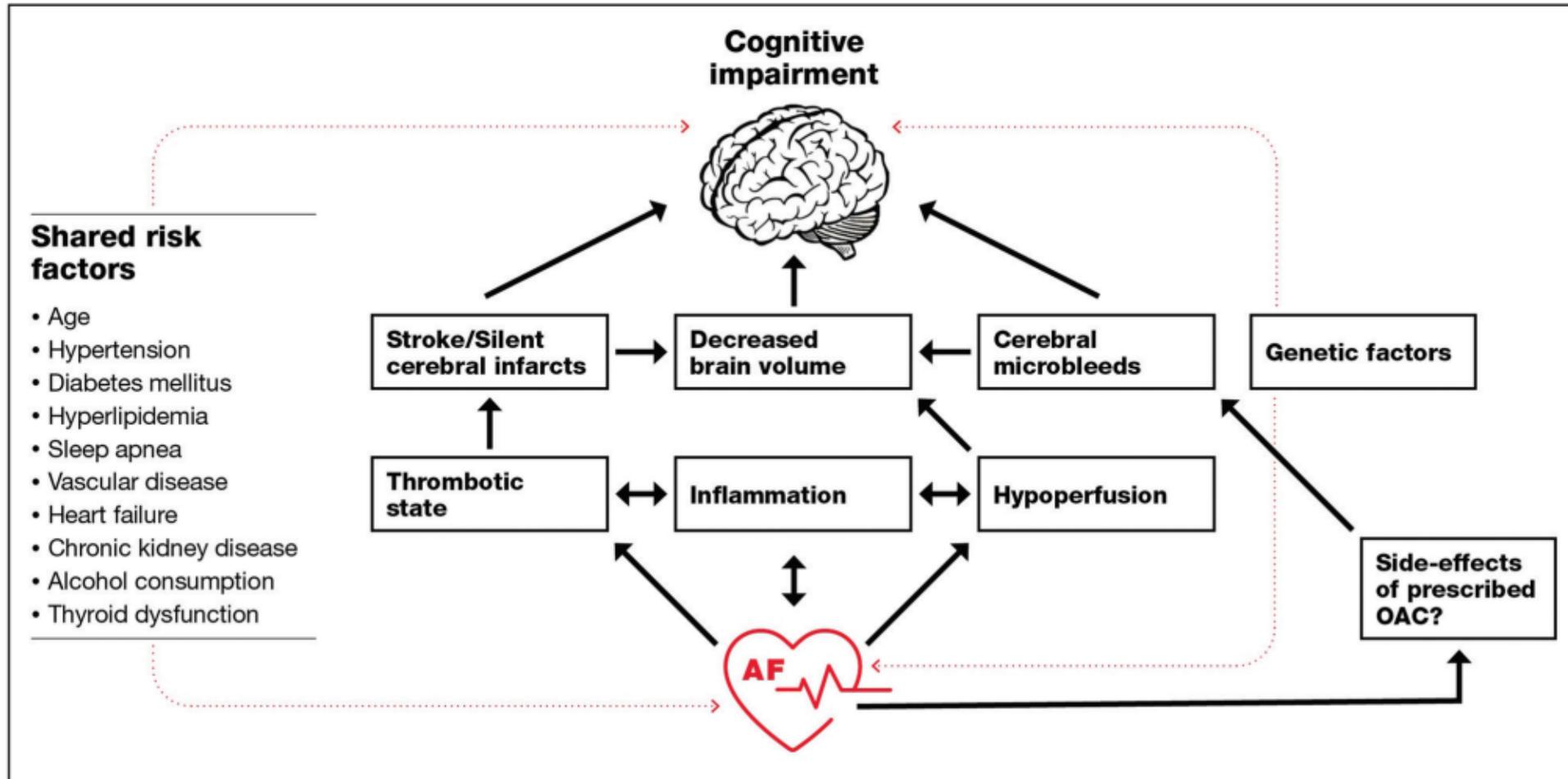
Direct effect
-0.99 (95% CI -1.32; -0.63)



Indirect effect
-0.06 (95% CI -0.10; -0.02)

Effect of AF on cognition is direct and not
mediated by brain lesions

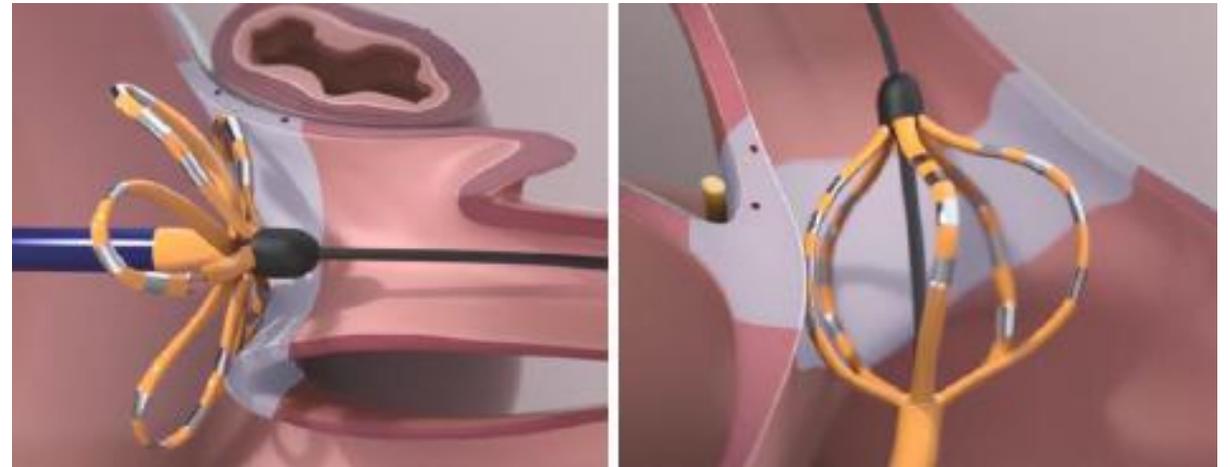
Mögliche Mechanismen



Kann man das Risiko der Entwicklung einer Demenz bei Patienten mit Vorhofflimmern verringern ?

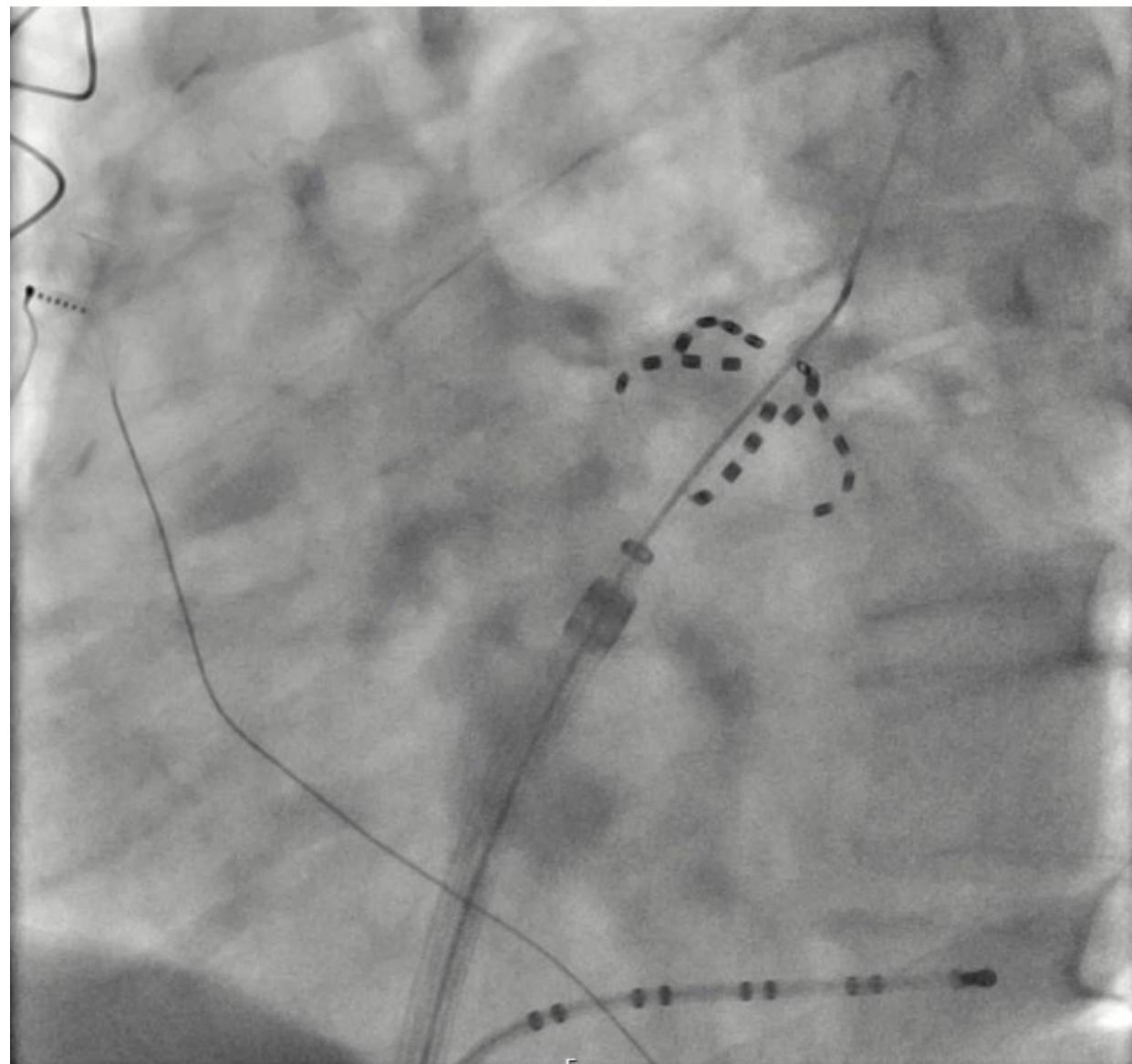
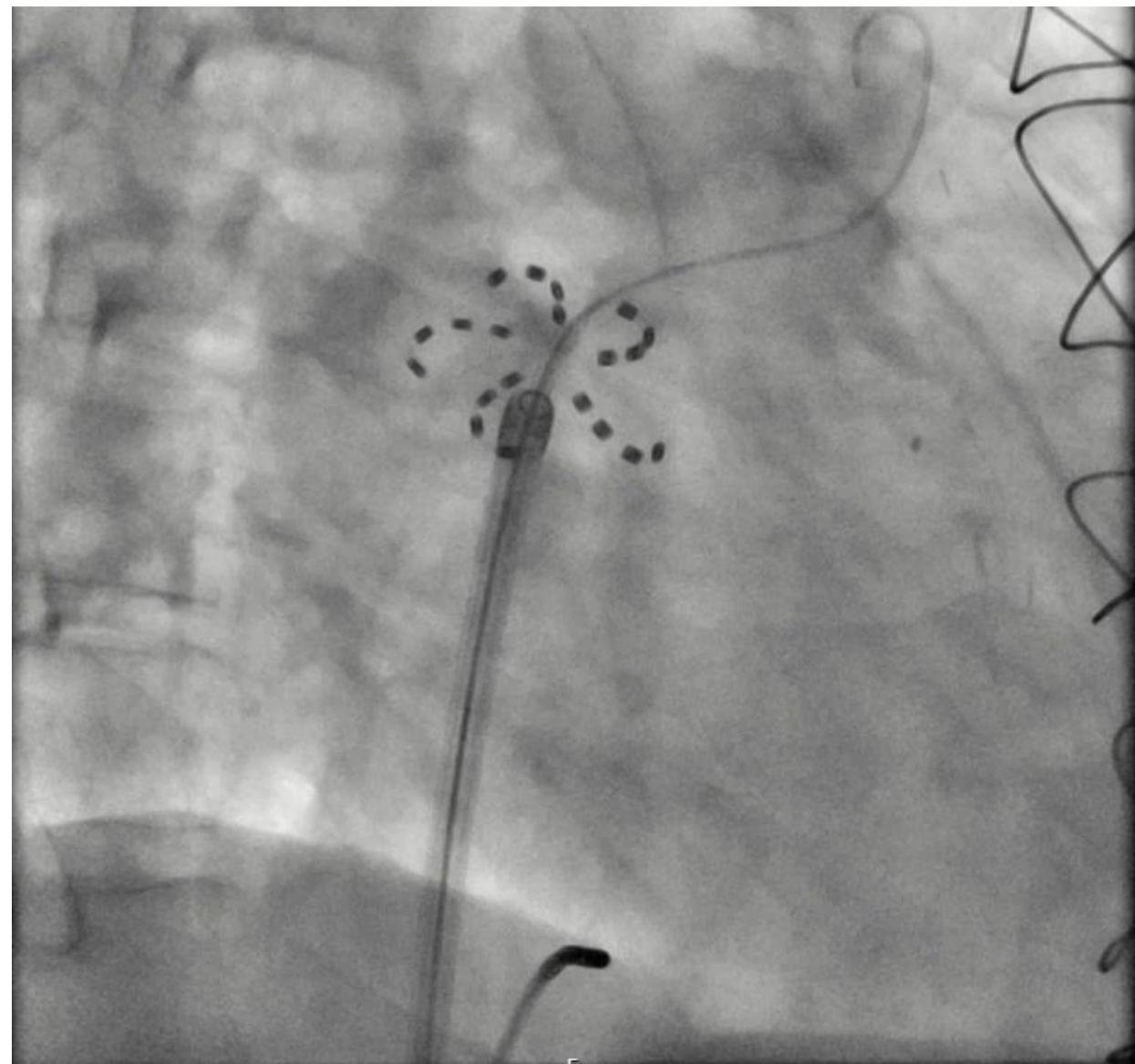


OAK ?

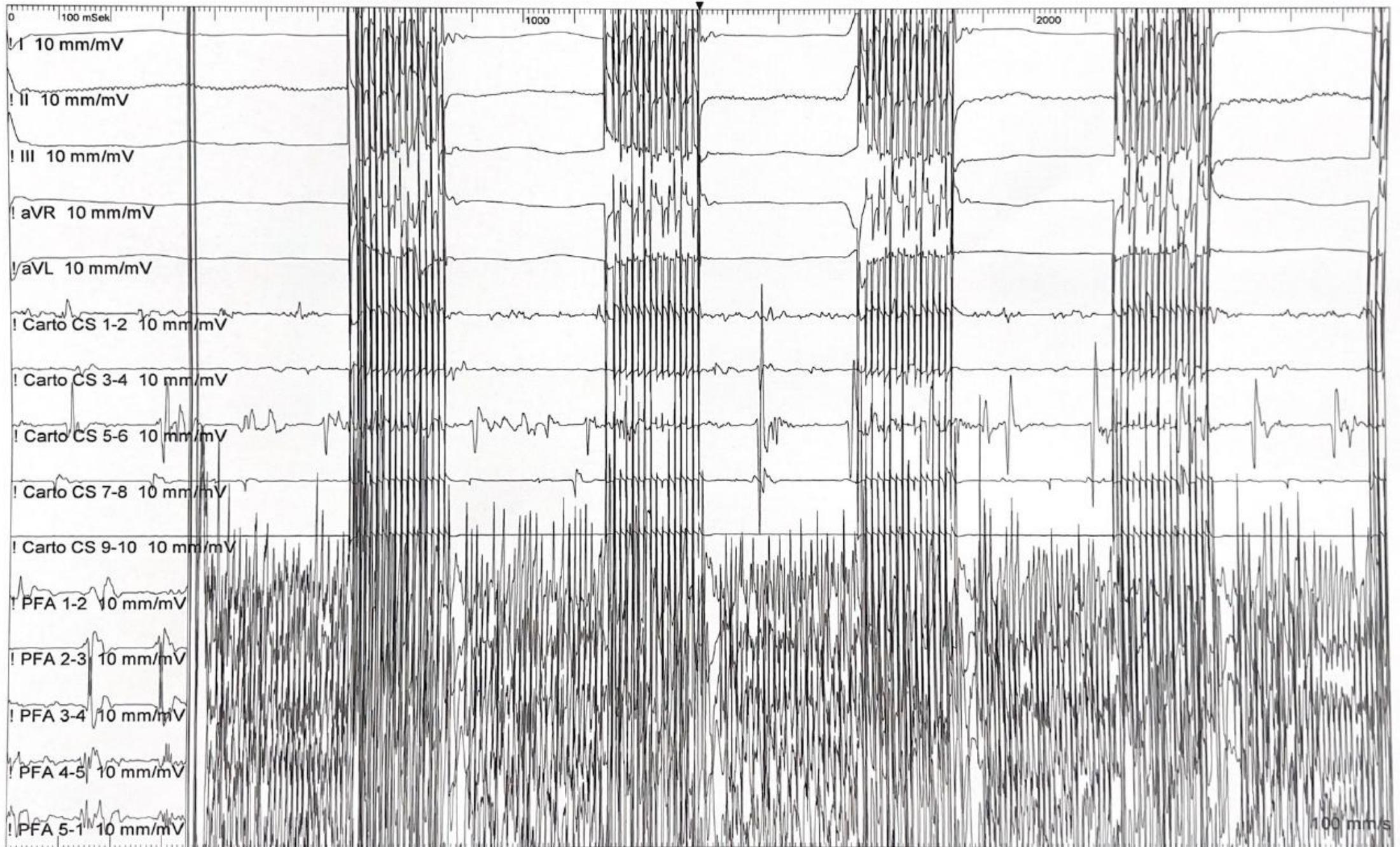


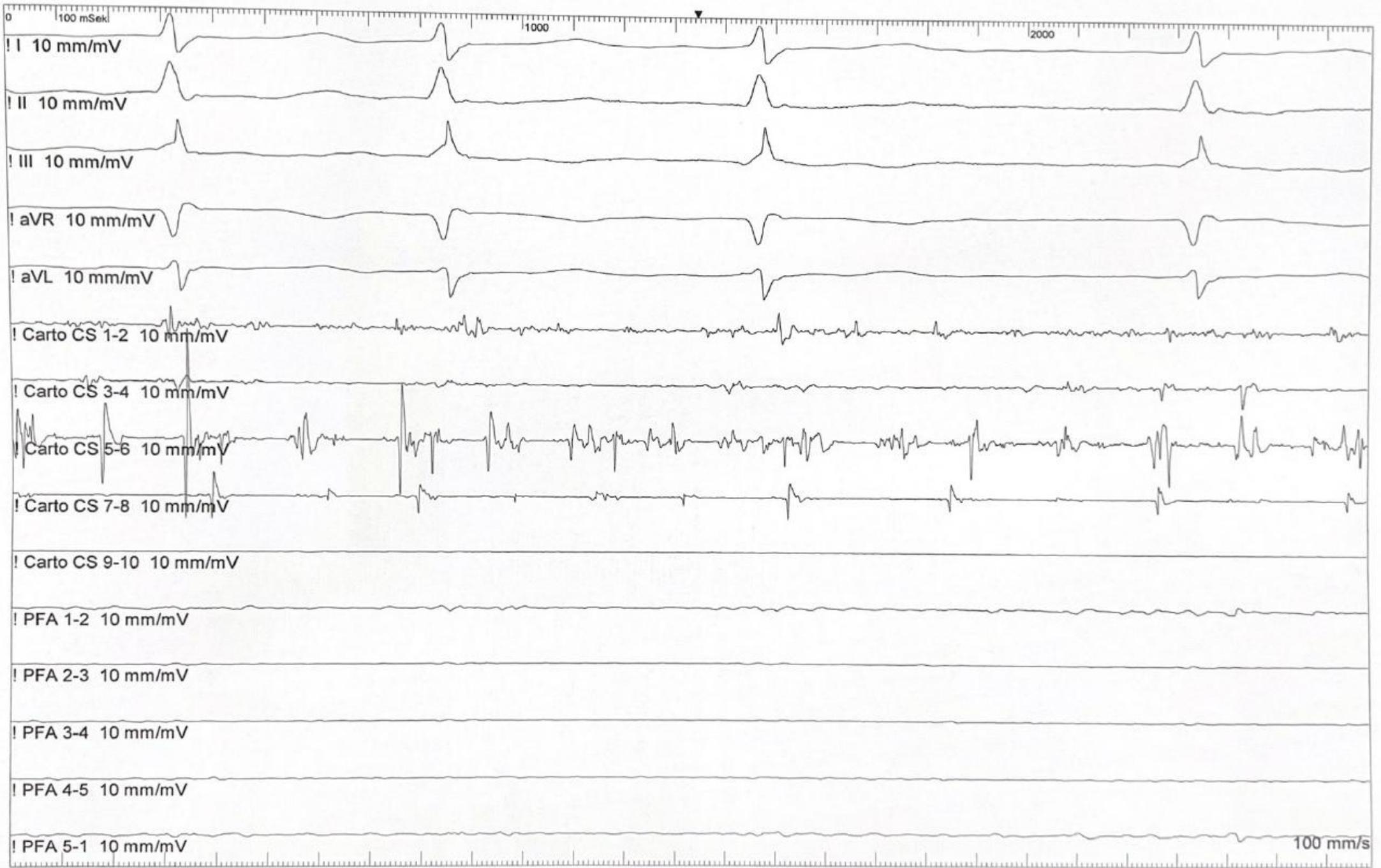
Rhythmuskontrolle

(PVI, medikamentös)









Zusammenfassung: 94HR



The NEW ENGLAND
JOURNAL of MEDICINE



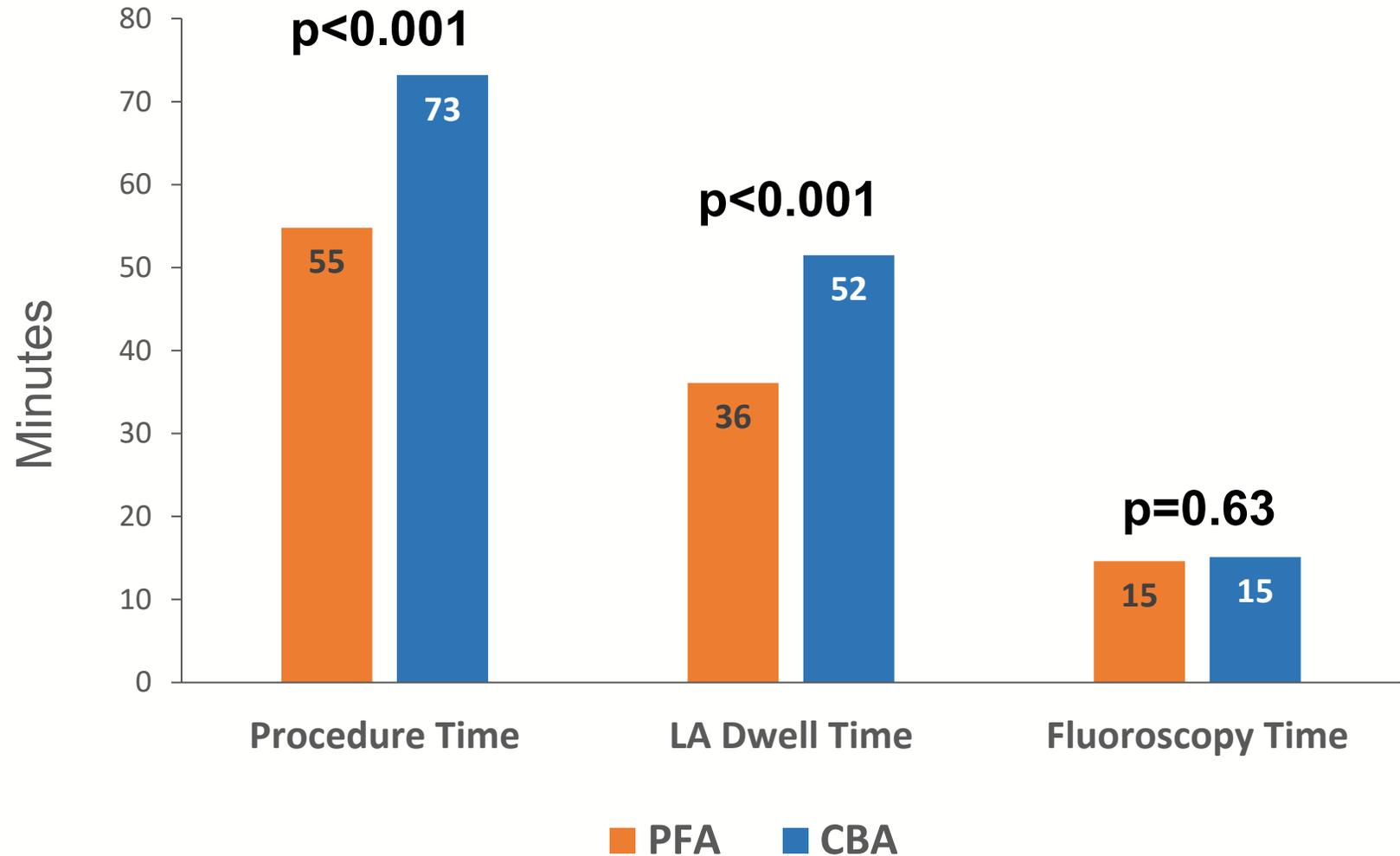
ORIGINAL ARTICLE

Pulsed Field or Cryoballoon Ablation for Paroxysmal Atrial Fibrillation

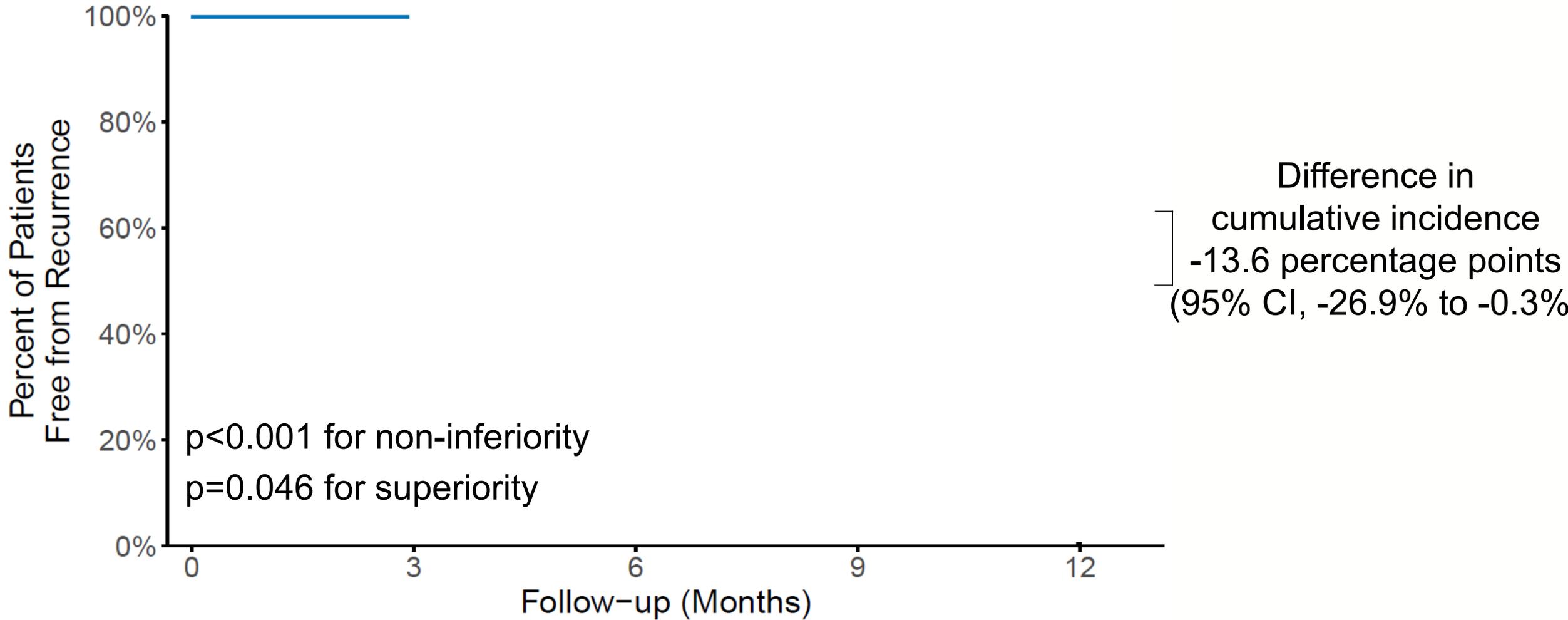
Tobias Reichlin, M.D.,¹ Thomas Kueffer, Ph.D.,¹ Patrick Badertscher, M.D.,²
Peter Jüni, M.D.,³ Sven Knecht, Ph.D.,² Gregor Thalmann, M.D.,¹
Nikola Kozhuharov, M.D.,¹ Philipp Krisai, M.D.,² Corinne Jufer, M.S.,¹
Jens Maurhofer, M.D.,¹ Dik Heg, Ph.D.,⁴ Tiago V. Pereira, Ph.D.,³
Felix Mahfoud, M.D., Ph.D.,² Helge Servatius, M.D.,¹ Hildegard Tanner, M.D.,¹
Michael Kühne, M.D.,² Laurent Roten, M.D.,¹ and Christian Sticherling, M.D.,² for
the SINGLE SHOT CHAMPION Investigators*

Procedural Characteristics

- Deep sedation in 94%, General anesthesia in 6%
- Concomitant CTI ablation in 12%



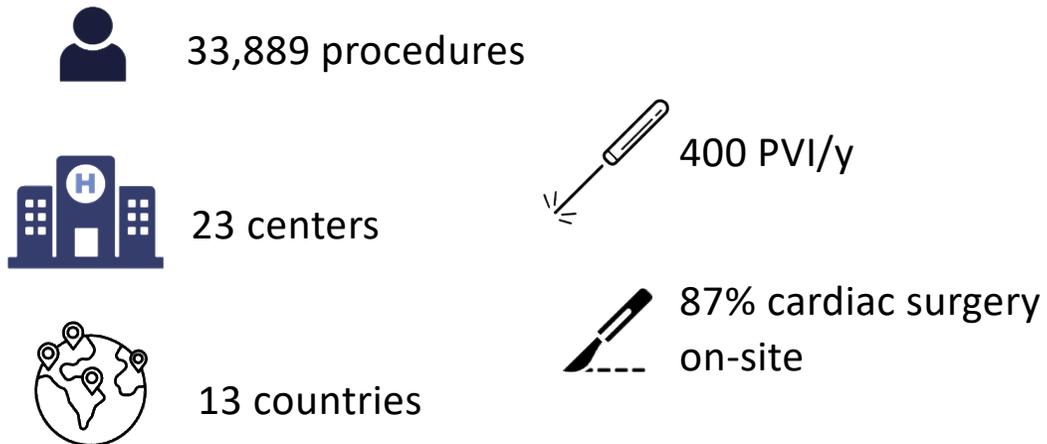
Primary Endpoint: First recurrence of AT/AF/AFL $\geq 30s$



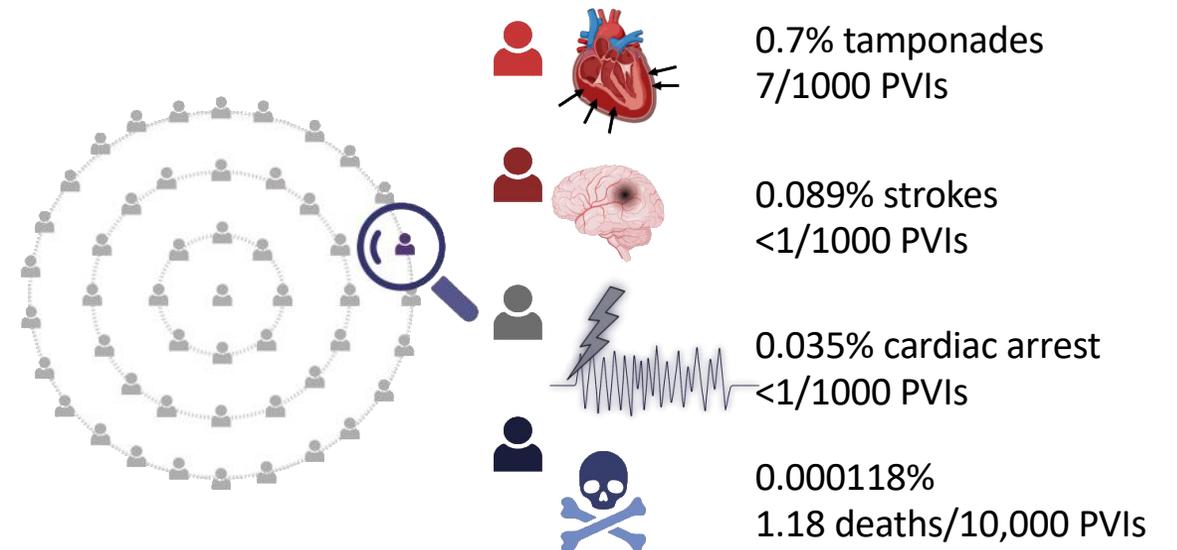
PVI

Sehr niedrige Komplikationsraten in erfahrenen Zentren

PVI collaboration network



Low complication rate



Pulmonalvenenisolation reduziert das Auftreten von Demenz bei älteren VHF Patienten (HR 0.52; 95%CI 0.45-0.61)

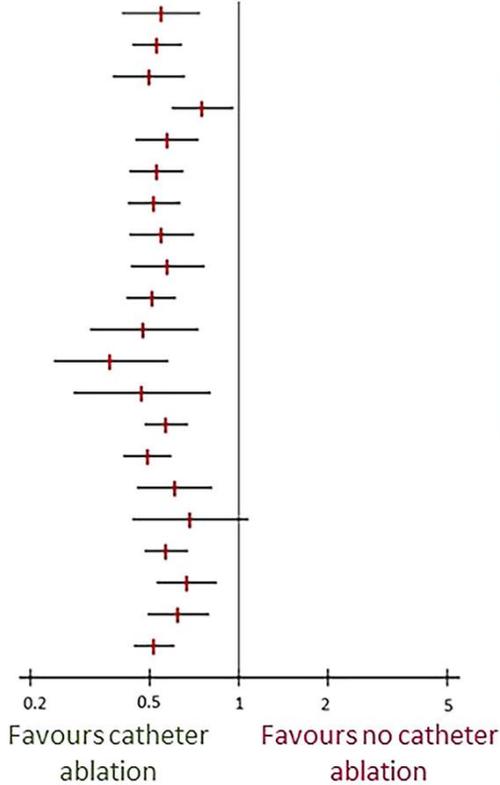
catheter ablation was associated with a lower risk of dementia and the association remained significant in sub-group analyses

>40,000 individuals with atrial fibrillation, propensity-score matched for age, sex, co-morbidities and cardiovascular medication use

Population



- Age 65-79 years
- Age ≥80 years
- Paroxysmal AF
- Non-paroxysmal AF
- No CKD
- CKD
- No diabetes
- Diabetes
- No heart failure
- Heart failure
- HFpEF
- HFrEF
- No hypertension
- Hypertension
- No ischaemic stroke
- Ischaemic stroke
- No OACs during follow-up
- OACs during follow-up
- Female
- Male
- Total cohort age ≥65 years



Consideration of the potential benefits of catheter ablation and lower risk of dementia could be considered as part of an individualised approach to care

Implications

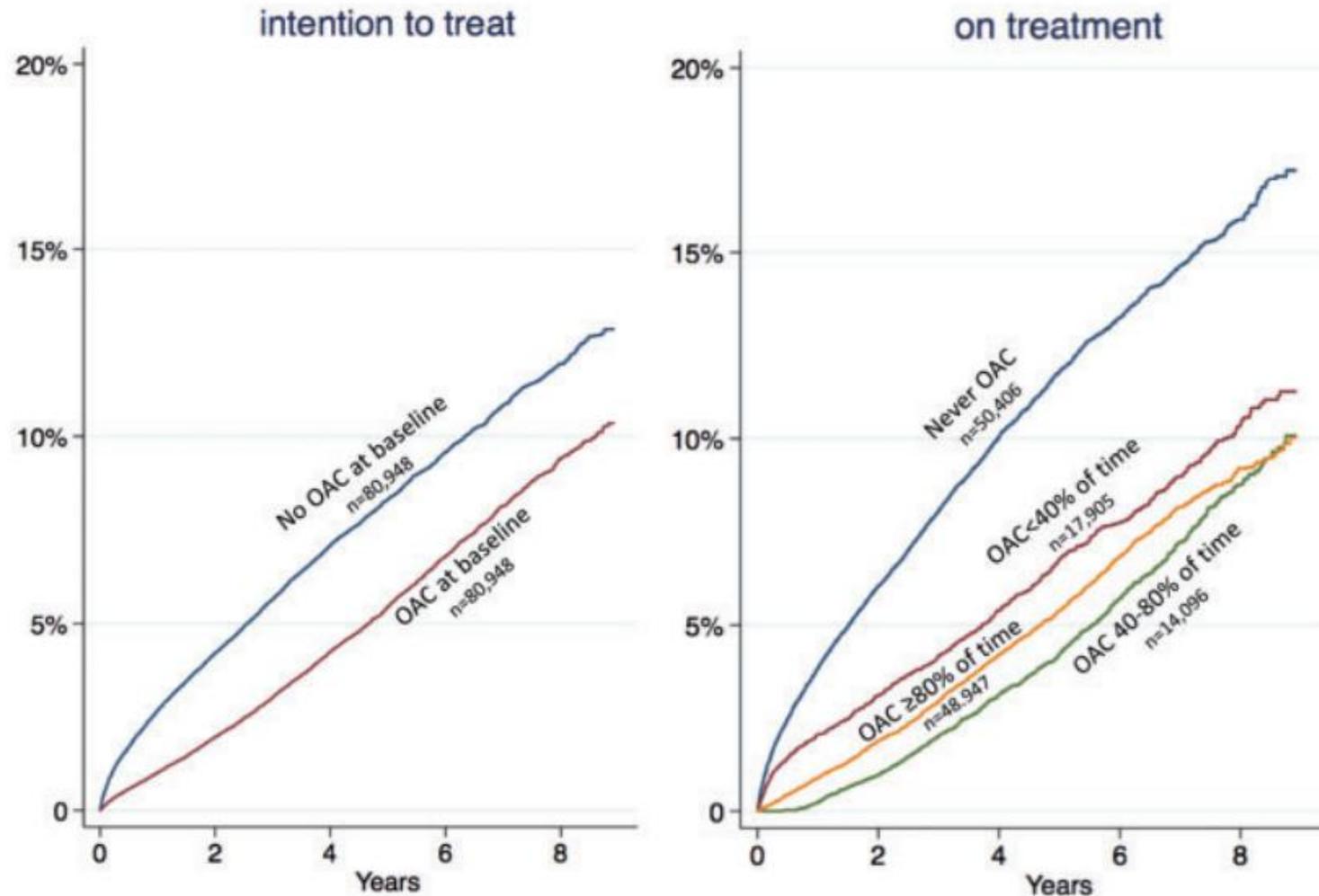


Kann man das Risiko der Entwicklung einer Demenz bei Patienten mit Vorhofflimmern verringern ?



OAK ?

Unadjusted incidence of dementia in 161896 pts with AF and no previous diagnosis of dementia



VHF und Demenz – offene Fragen

- Sollen wir bei Patienten mit Vorhofflimmern neurokognitiv testen ?
- Welcher Test wäre der beste ?
- Gibt es einen quantitativen Zusammenhang zwischen VHF und neurokognitiver Beeinträchtigung?
- Helfen uns Biomarker ?
- Was bringt MRI screening?



Zusammenfassung

- Vorhofflimmern und Demenz haben ähnliche Risikofaktoren
- Vorhofflimmern begünstigt nicht nur das Auftreten einer vaskulären Demenz sondern auch einer Alzheimer-Demenz
- Es scheint neben den zerebralen Läsionen auch einen direkten Effekt des Vorhofflimmerns zu geben (Hypoperfusion durch unregelmässigen Rhythmus?, Inflammation ?)
- Die orale Antikoagulation und die Pulmonalvenenisolation senken das Risiko für das Auftreten einer Demenz



