USZ Universitäts Spital Zürich

Universität Zürich

POL 2024

Donnerstag, 12. Dezember 2024

Plötzlicher Leistungsabfall im Alter

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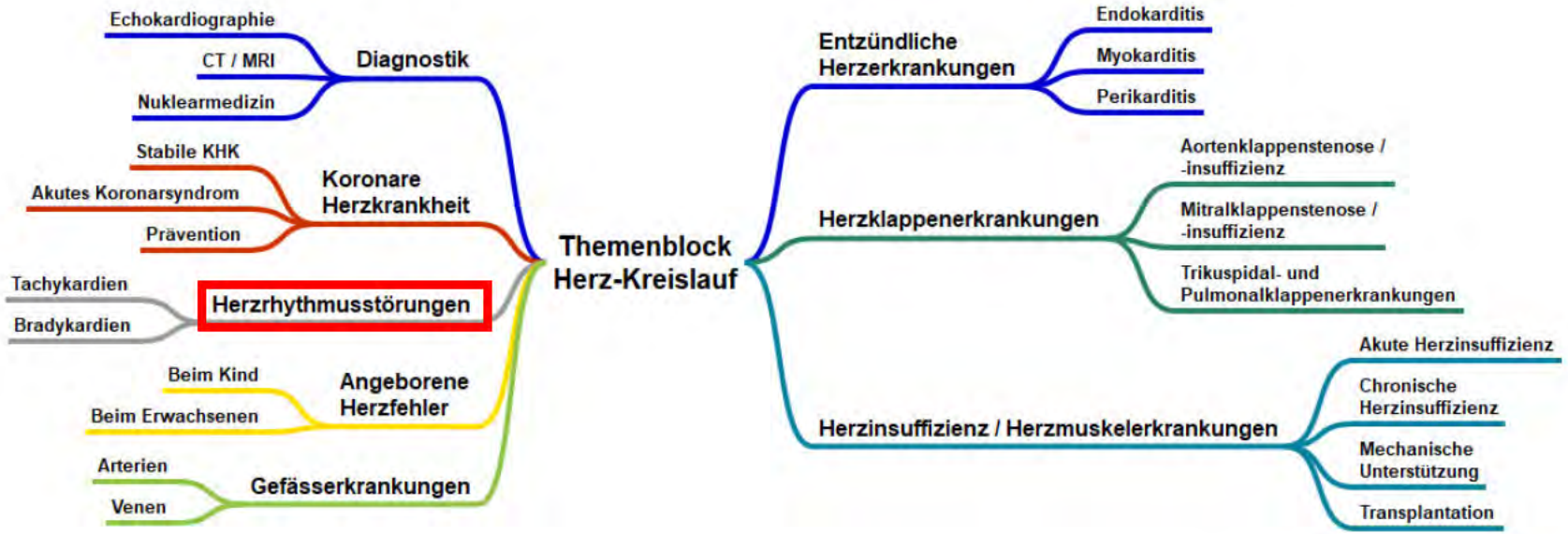
Mindmap



Lernziele

1. Sie kennen die typischen Symptome und Präsentation eines Patienten mit Vorhofflimmern

2. Sie können die Pathophysiologie und Stadien des Vorhofflimmerns erklären

3. Sie können die akuten und Langzeittherapiekonzepte (ohne Details) beim Vorhofflimmern erklären

Anamnese

- 68 jähriger Patient
- Erstkonsultation
- Vorgeschichte
  - Arterielle Hypertonie seit 10 Jahren
  - Therapie mit Lisinopril/Hydrochlorothiazid 5/12.5 mg 1-0-0
- Vater mit 53J Herzinfarkt

Jetziges Leiden

- In den letzten Wochen
  - rasche Ermüdbarkeit
  - Belastungsdyspnoe NYHA III
  - Palpitationen

Klinischer Status

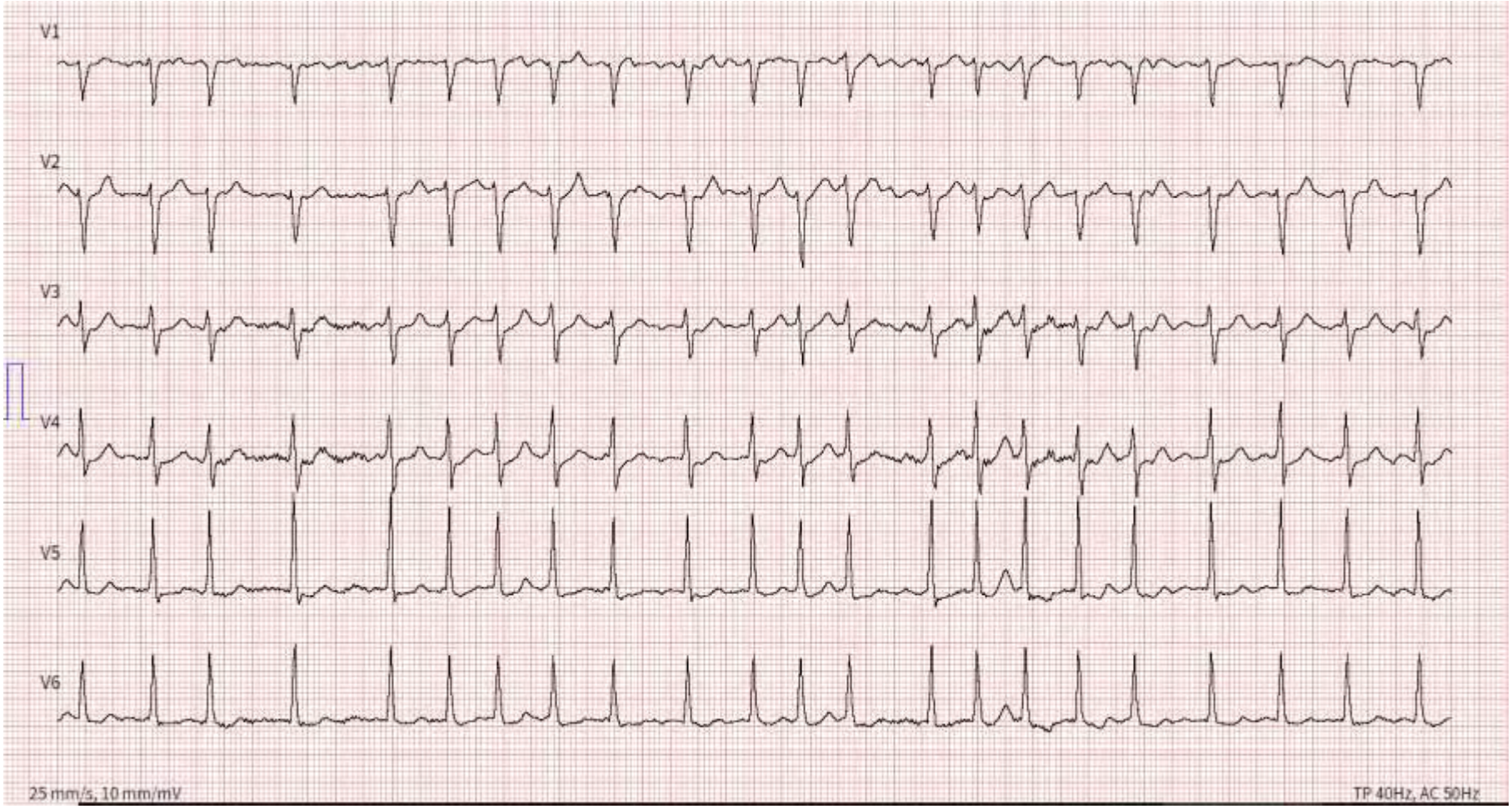
- 68-jähriger Patient in gutem AZ
- BMI 31 kg/m²
- BD 151/83 mmHg, Puls 120 /min, unregelmässig, afebril, allseits orientiert, GCS 15
- Unauffällige Herztöne, unregelmässig, peripheres Pulsdefizit
- diskrete Halsvenenstauung, HJR positiv
- Diskrete periphere Ödeme
- Eupnoe, Vesikuläratmen über allen Lungenfeldern
- Übriger Status unauffällig

Labor

Hämatologie	Unauffällig	
PTZ (Quick)	100 %	16 - 33
INR	1.0	3.5 - 2.0
Natrium	136 mmol/l	132 - 146
Kalium	3.6 mmol/l	3.6 - 4.5
Kreatinin	78 µmol/l	44 - 80
GFR nach MDRD	60 ml/min	
Bilirubin,total	16 µmol/l	< 17
LDH	439 U/l	150 - 420
ALT(GPT)	33 U/l	10 – 35
AST	47 U/l	10 – 50
GGT	79 U/l	8 - 61
Alk. Phosphatase	134 U/l	< 129
CRP (C-reakt.Prot.)	<5 mg/l	< 5
CK total	65 U/l	< 167
Myoglobin	42 µg/l	28 - 72
Troponin T	0.03 µg/l	< 0.10
NT-proBNP	481 ng/l	< 227
Glucose, Hep.Plasma	6.0 mmol/l	3.9 - 6.1

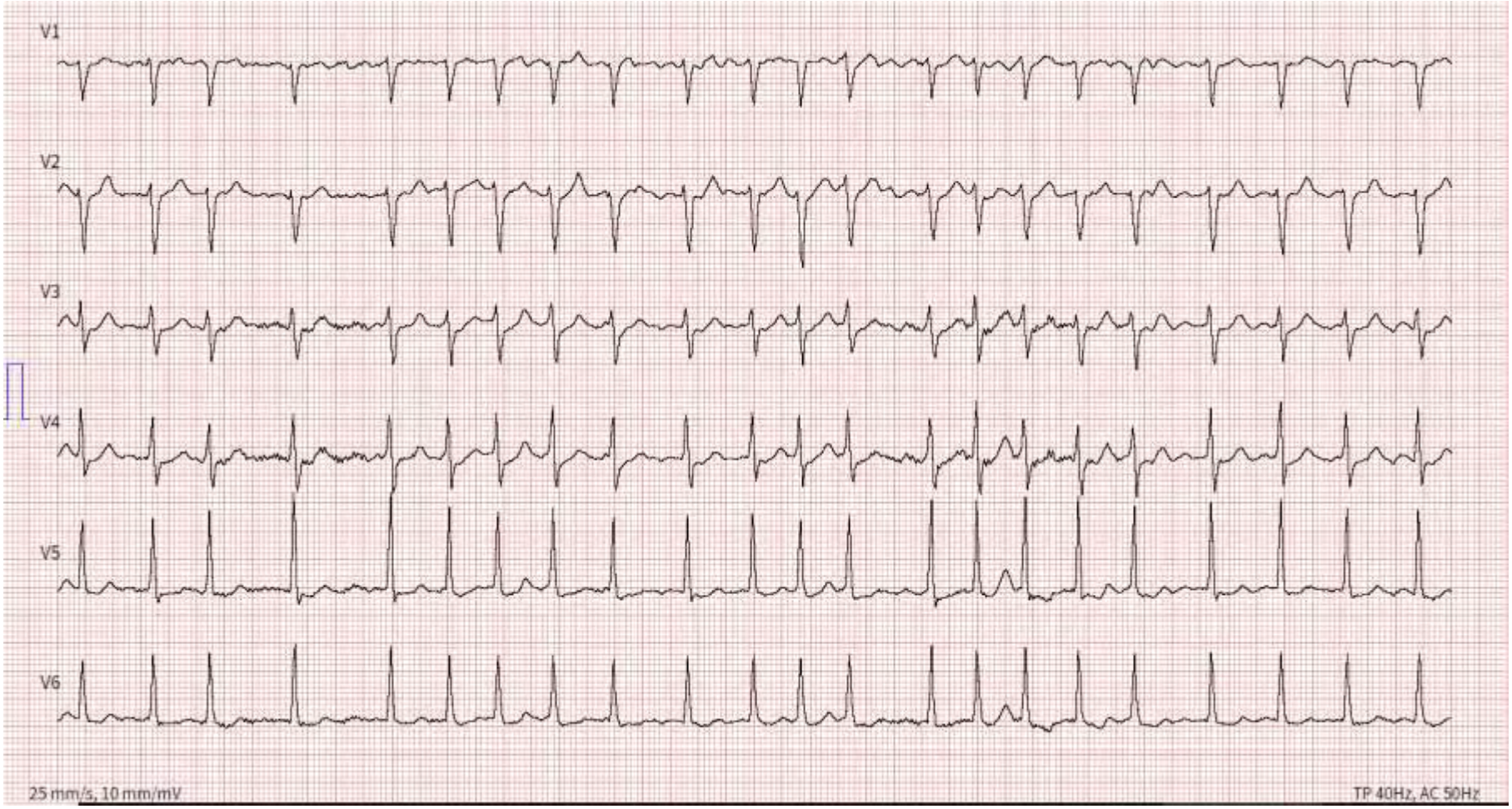
12- Kanal EKG

135/min.



12- Kanal EKG – tc Vorhofflimmern

135/min.



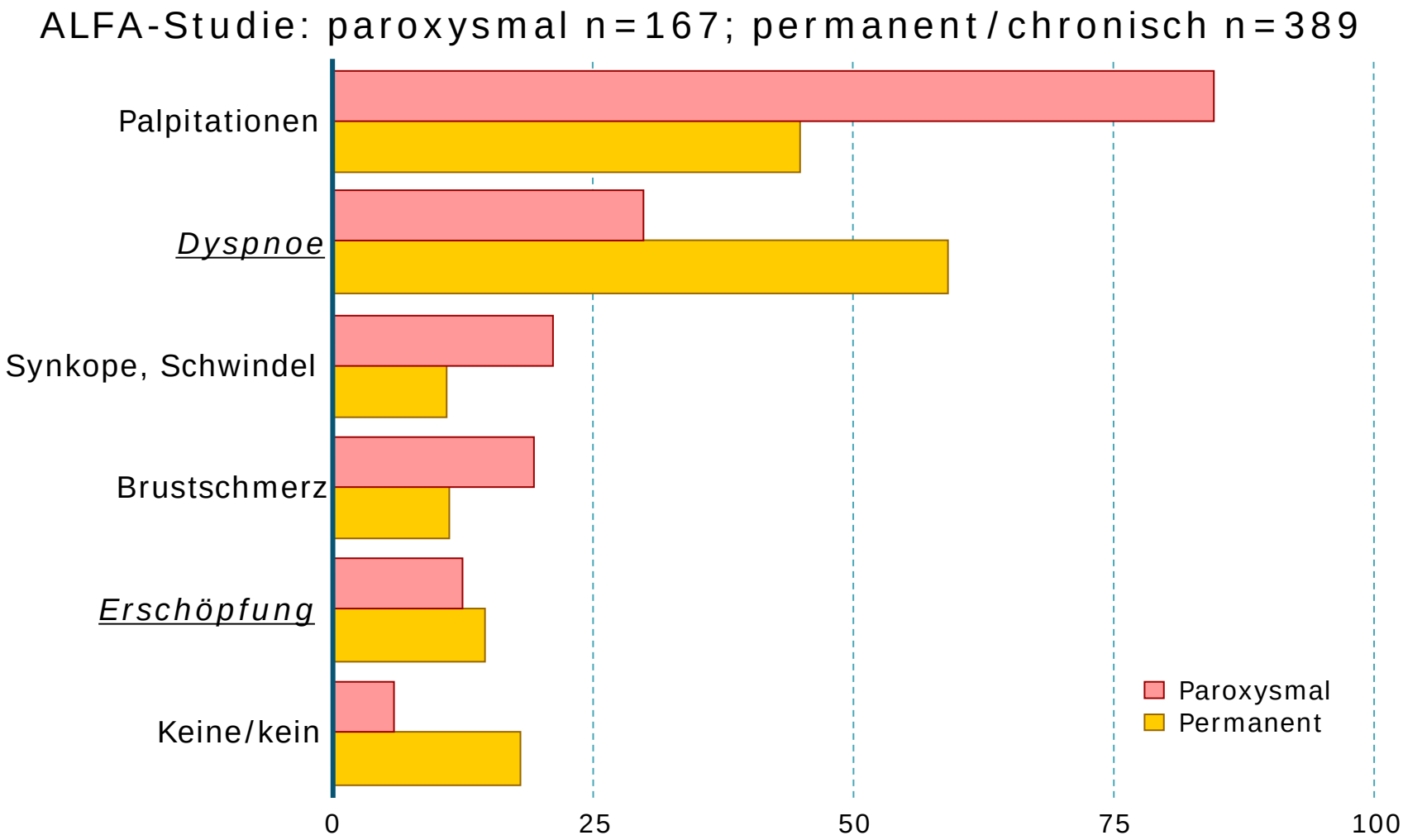
Transthorakale Echokardiographie

- Normal grosser linker Ventrikel, schwergradig reduzierte systolische Auswurffraktion (LVEF 25 % bei diffuser Hypokinesie)
- Leicht dilatierter linker Vorhof (LAVI 43ml/m^2)

Diagnosen

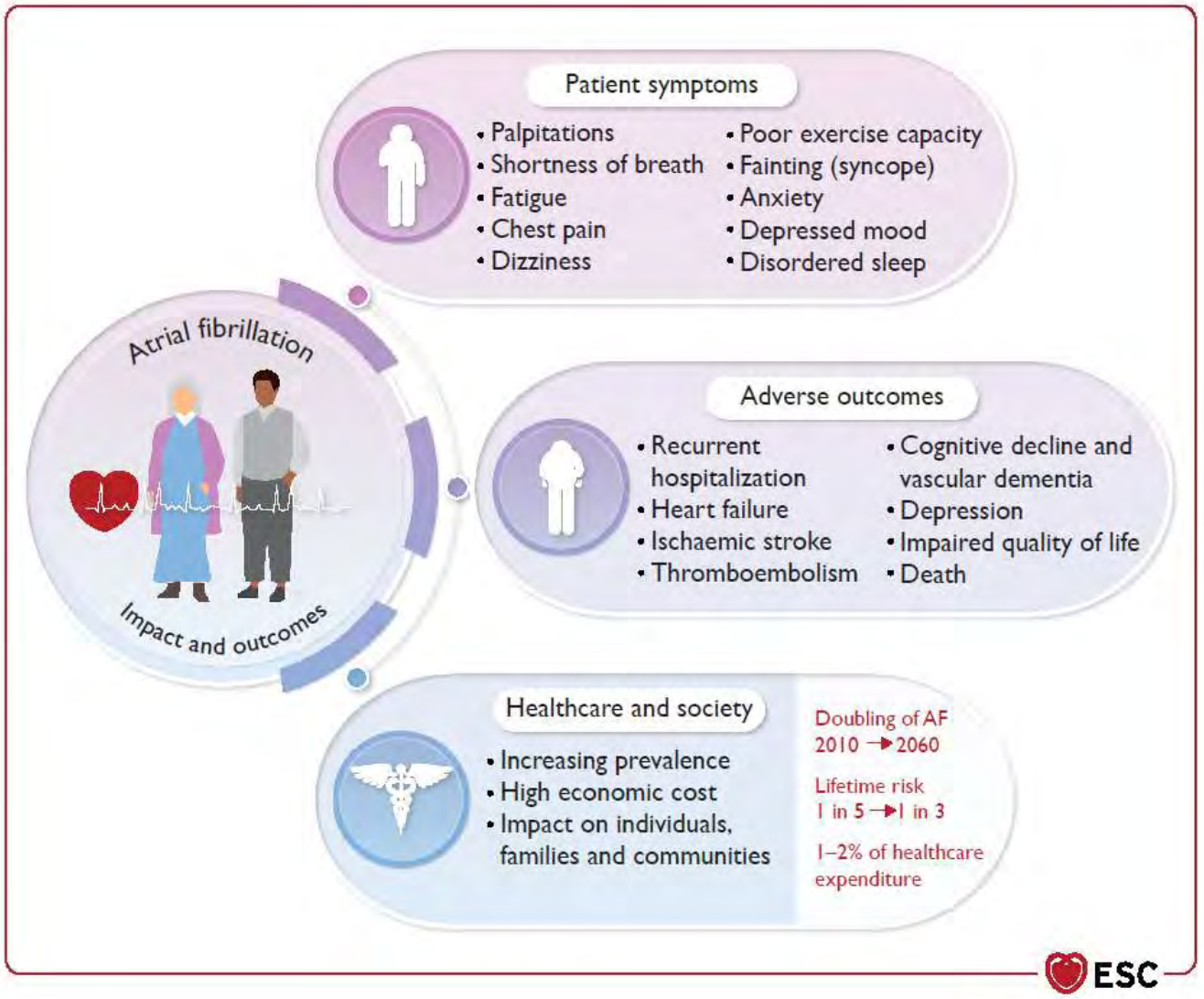
1. **Hypertensive und rhythmogene Kardiopathie**
   Neu: persistierendes symptomatisches Vorhofflimmern (EHRA III) mit Herzinsuffizienz (HFrEF)
2. **Arterielle Hypertonie**

Symptome des Vorhofflimmerns



Levy S, et al. *Circulation* (1999) 99: 3028

Folgen des Vorhofflimmerns



Symptomklassifikation des AF

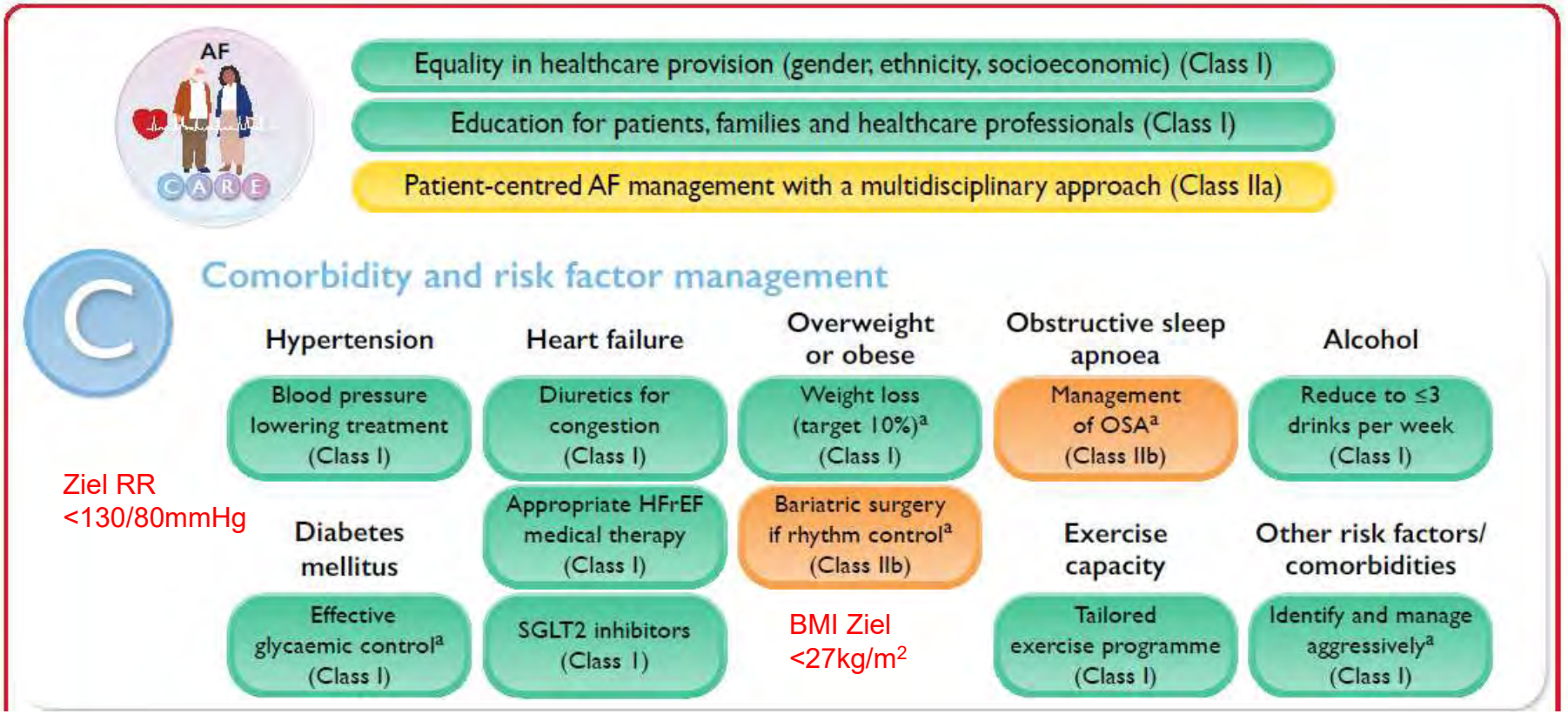
Score	Symptoms	Description
1	None	AF does not cause any symptoms
2a	Mild	Normal daily activity not affected by symptoms related to AF
2b	Moderate	Normal daily activity not affected by symptoms related to AF, but patient troubled by symptoms
3	Severe	Normal daily activity affected by symptoms related to AF
4	Disabling	Normal daily activity discontinued

Definition von Vorhofflimmern

Vorhofflimmern ist definiert als:

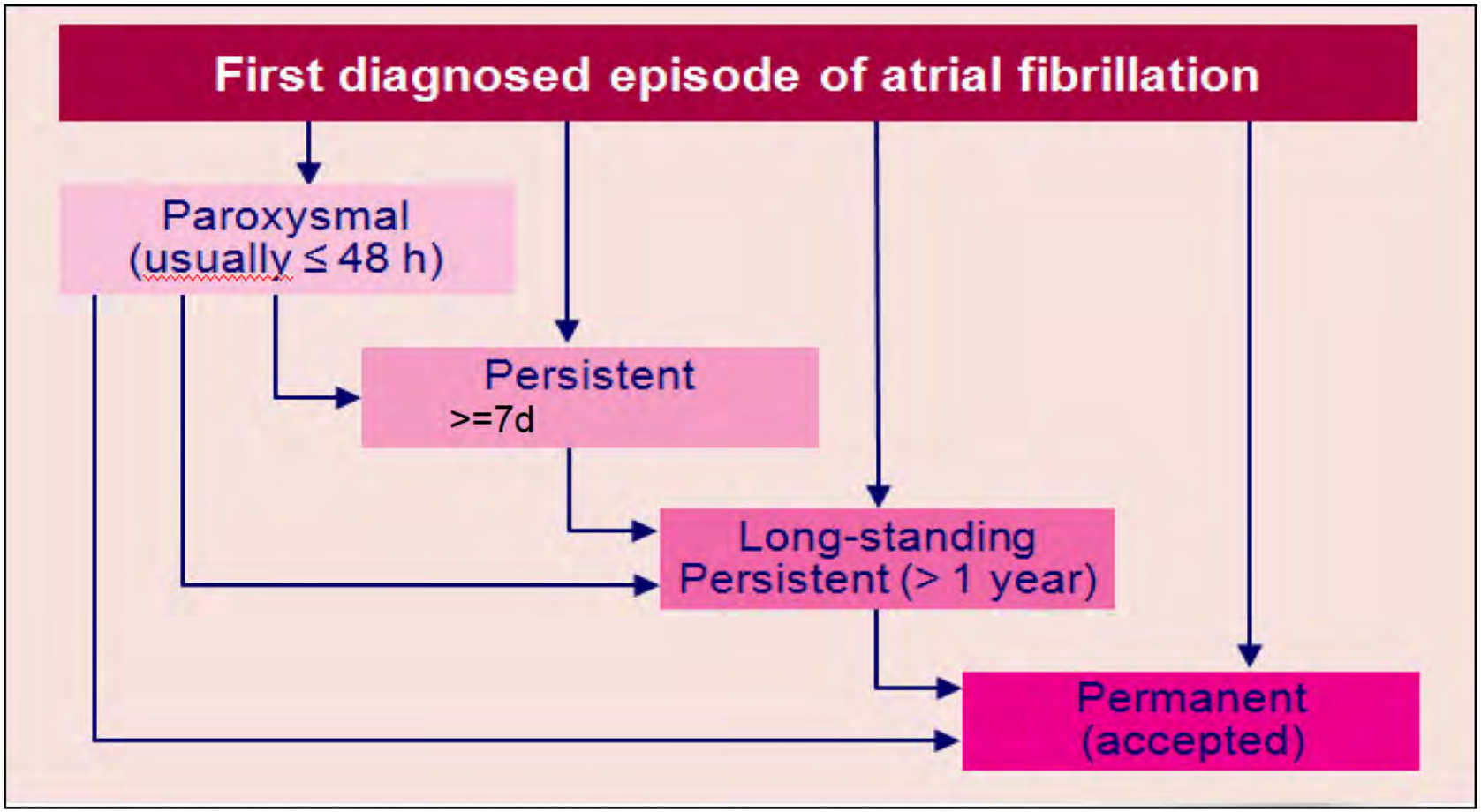
- **die häufigste anhaltende Arrhythmie**
- **supraventrikuläre Arrhythmie**
- **absolut arrhythmisch**
- **chaotische atriale Aktivierung mit**
- **dadurch bedingter Verschlechterung der mechanischen Vorhoffunktion**
- **Häufig tachykard und daher zusätzliche Symptome**

Prädisponierende Faktoren



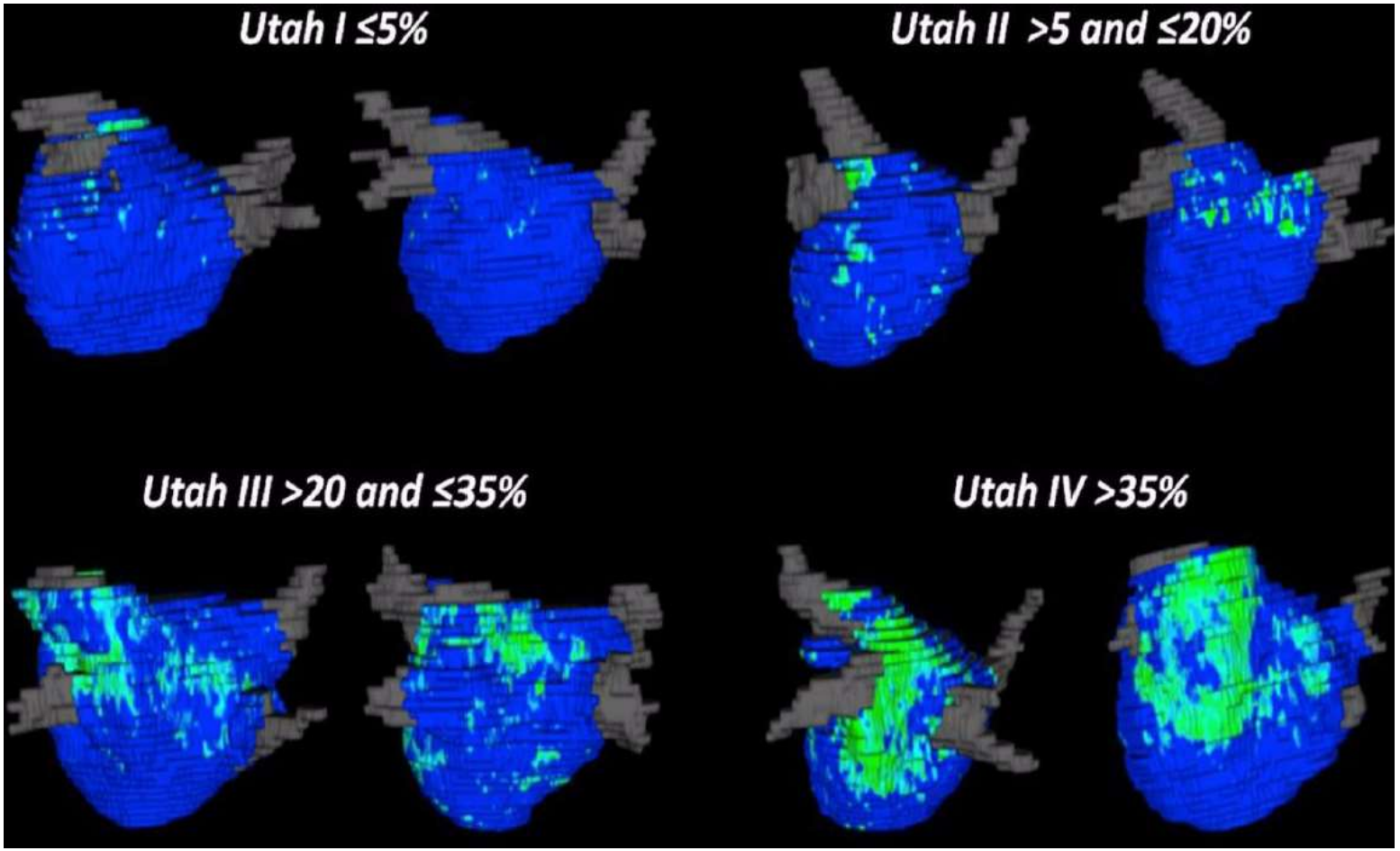
2024 ESC Leitlinien

Stadien des Vorhoffflimmerns



2016 ESC Leitlinien

Krankheitsprogression (AF begets AF)…



Merz-MRI vom linken Vorhof
Blau: gesundes Myokard
Grün: Fibrose
Utah-Stadien: Ausmass der LA Fibrose

Weitere Schritte bei unserem Patienten

- **Tachykardes symptomatisches Vorhofflimmern**
- **HFrEF -> Koronarographie** → **KEINE** signifikanten Stenosen
- **Ziel: Rhythmuskontrolle (Sinusrhythmus)**

Vorteile der frühen Rhythmuskontrolle

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 OCTOBER 1, 2020 VOL. 383 NO. 14

Early Rhythm-Control Therapy in Patients with Atrial Fibrillation

P. Kirchhof, A.J. Camm, A. Goette, A. Brandes, L. Eckardt, A. Elvan, T. Fetsch, I.C. van Gelder, D. Haase, L.M. Haegeli, F. Hamann, H. Heidbüchel, G. Hindricks, J. Kautzner, K.-H. Kuck, L. Mont, G.A. Ng, J. Rekosz, N. Schoen, U. Schotten, A. Suling, J. Taggeselle, S. Themistoclakis, E. Vettorazzi, P. Vardas, K. Wegscheider, S. Willems, H.J.G.M. Crijns, and G. Breithardt, for the EAST-AFNET 4 Trial Investigators*

BACKGROUND

Despite improvements in the management of atrial fibrillation, patients with this condition remain at increased risk for cardiovascular complications. It is unclear whether early rhythm-control therapy can reduce this risk.

METHODS

In this international, investigator-initiated, parallel-group, open, blinded-outcome-assessment trial, we randomly assigned patients who had early atrial fibrillation (diagnosed ≤1 year before enrollment) and cardiovascular conditions to receive either early rhythm control or usual care. Early rhythm control included treatment with antiarrhythmic drugs or atrial fibrillation ablation after randomization. Usual care limited rhythm control to the management of atrial fibrillation–related symptoms. The first primary outcome was a composite of death from cardiovascular causes, stroke, or hospitalization with worsening of heart failure or acute coronary syndrome; the second primary outcome was the number of nights spent in the hospital per year. The primary safety outcome was a composite of death, stroke, or serious adverse events related to rhythm-control therapy. Secondary outcomes, including symptoms and left ventricular function, were also evaluated.

RESULTS

In 135 centers, 2789 patients with early atrial fibrillation (median time since diagnosis, 36 days) underwent randomization. The trial was stopped for efficacy at the third interim analysis after a median of 5.1 years of follow-up per patient. A first-primary-outcome event occurred in 249 of the patients assigned to early rhythm control (3.9 per 100 person-years) and in 316 patients assigned to usual care (5.0 per 100 person-years) (hazard ratio, 0.79; 96% confidence interval, 0.66 to 0.94; P=0.005). The mean (±SD) number of nights spent in the hospital did not differ significantly between the groups (5.8±21.9 and 5.1±15.5 days per year, respectively; P=0.23). The percentage of patients with a primary safety outcome event did not differ significantly between the groups; serious adverse events related to rhythm-control therapy occurred in 4.9% of the patients assigned to early rhythm control and 1.4% of the patients assigned to usual care. Symptoms and left ventricular function at 2 years did not differ significantly between the groups.

CONCLUSIONS

Early rhythm-control therapy was associated with a lower risk of adverse cardiovascular outcomes than usual care among patients with early atrial fibrillation and cardiovascular conditions. (Funded by the German Ministry of Education and Research and others; EAST-AFNET 4 ISRCTN number, ISRCTN04708680; ClinicalTrials.gov number, NCT01288352; EudraCT number, 2010-021258-20.)

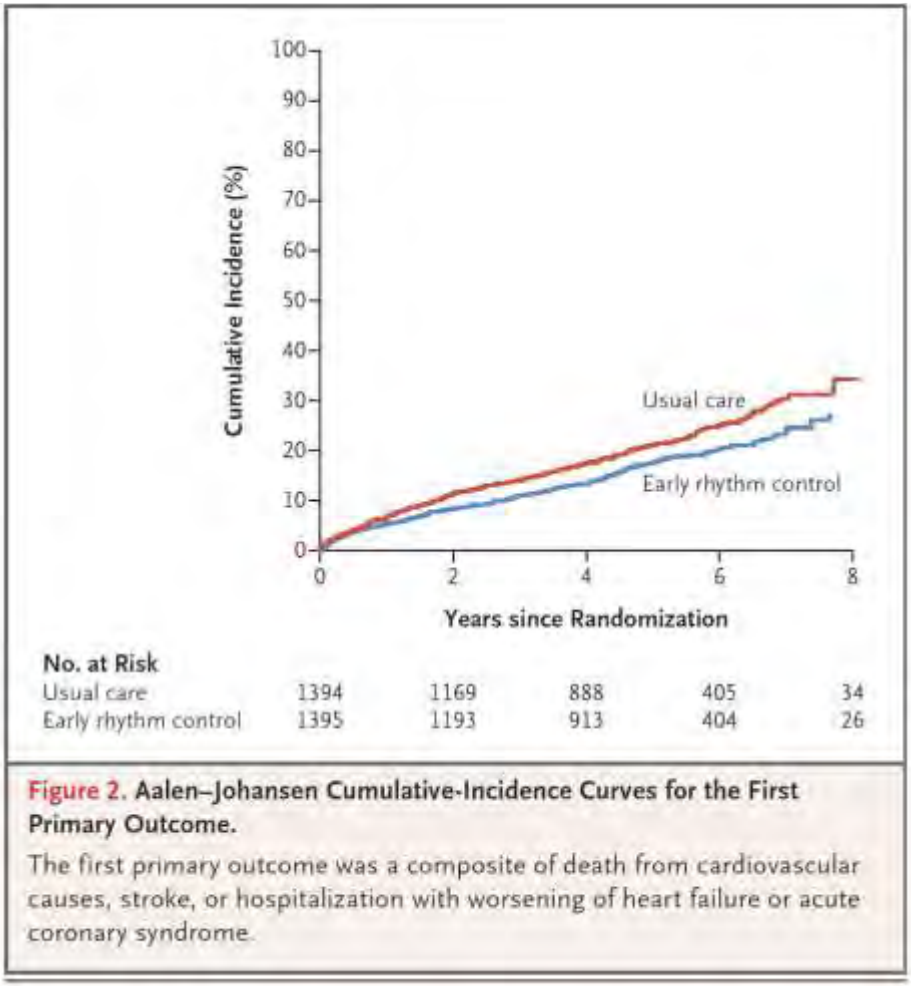


Figure 2. Aalen–Johansen Cumulative-Incidence Curves for the First Primary Outcome.

The first primary outcome was a composite of death from cardiovascular causes, stroke, or hospitalization with worsening of heart failure or acute coronary syndrome.

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Therapie des Vorhofflimmerns

Primäre Ziele

- Verminderung des Auftretens von thrombembolischen Ereignissen (Antikoagulation)
- Reduktion der Symptome (Rhythmuskontrolle oder Frequenzkontrolle)

Sekundäre Ziele

- Erhaltung des Sinusrhythmus (Rhythmuskontrolle)
- Verbesserung der Herzleistung
  - z.B. bei Tachykardiomyopathie-komponente
- Verbesserung des Überlebens?
  - CASTLE-AF NEJM 2018
  - EAST-AF Net4 NEJM 2020
  - CASTLE-HTX NEJM 2023
  - SELECT Trial NEJM 2023

Therapie-Optionen («Tools»)

Kardioversion

- **Medikamentös ←→ Elektrisch (EKV)**

Prävention eines erneuten Auftretens von AF (Rhythmuskontrolle)

- **Antiarrhythmika (z.B., Amiodaron, Flecainid, Sotalol)**
- **Katheter-Ablation (Pulmonalvenenisolation)**
- **Lifestylemassnahmen (v.a. Gewichtsreduktion, Blutdruckeinstellung, CPAP etc.)**

Kontrolle der ventrikulären Frequenz (Frequenzkontrolle)

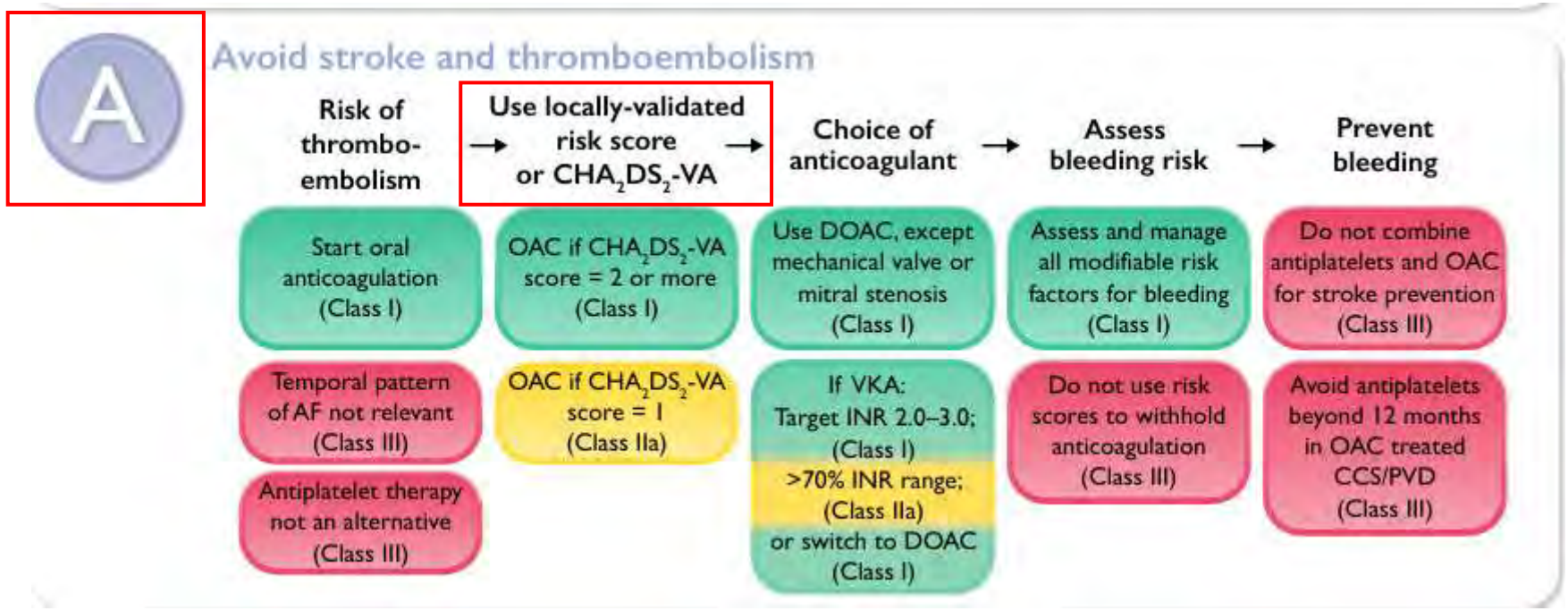
- **Medikamente (Betablocker, Calciumantagonisten, Digitalis)**
- **Last resort: Chirurgische Ablation oder Schrittmacher-Implantation und AV-Knoten-Ablation („Pace and Ablate“)**

Reduzierung des Thromboembolischen-Risikos

- **Orale Antikoagulantien**
- **Vorhofsohr-Verschluss nur bei absoluter Kontraindikation für NOAK**

2024 AF Guidelines – What‘s New?

Antikoagulation



Weibliches Geschlecht abgeschafft!

HAS-BLED abgeschafft!

Antikoagulation – CHA_2DS_2 VA Score

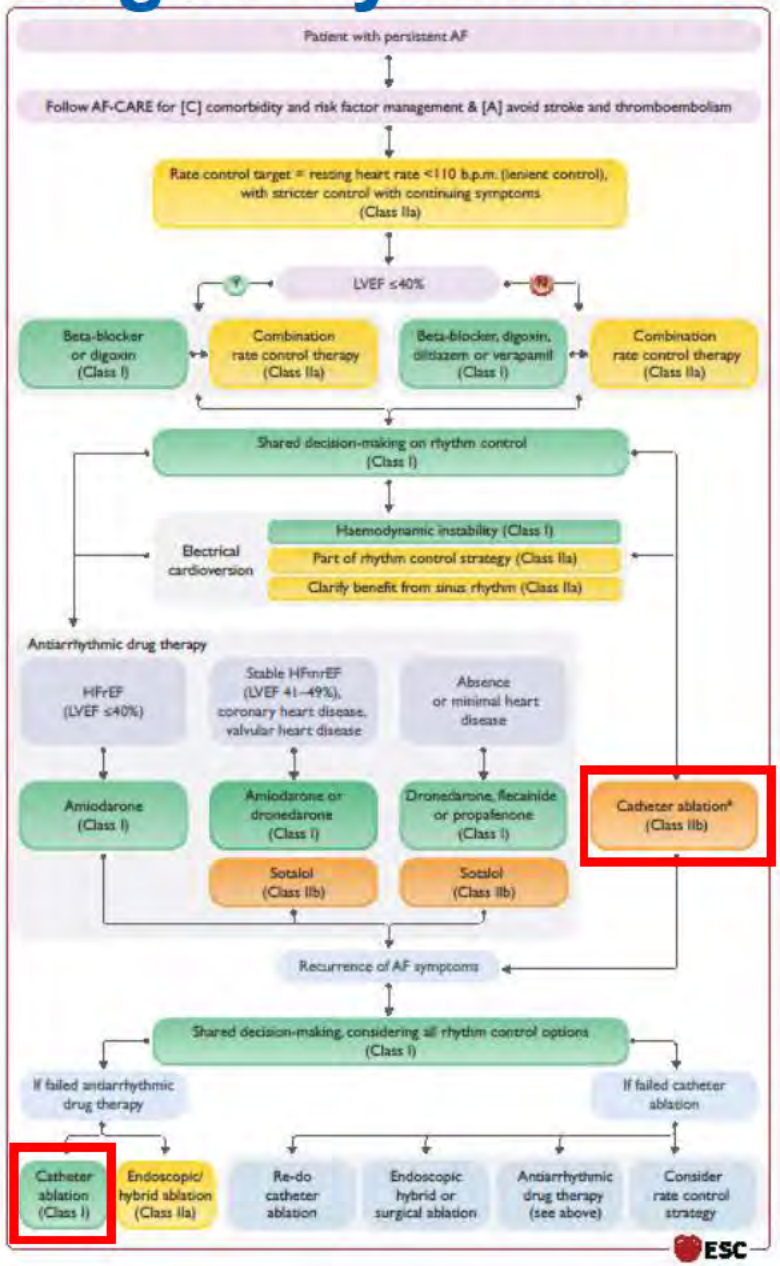
Table 10 **Updated definitions for the CHA_2DS_2-VA score**

CHA_2DS_2-VA component		Definition and comments	Points awarded[a]
C	Chronic heart failure	Symptoms and signs of heart failure (irrespective of LVEF, thus including HFpEF, HFmrEF, and HFrEF), or the presence of asymptomatic LVEF ≤40%.[261–263]	1
H	Hypertension	Resting blood pressure >140/90 mmHg on at least two occasions, or current antihypertensive treatment. The optimal BP target associated with lowest risk of major cardiovascular events is 120–129/70–79 mmHg (or keep as low as reasonably achievable).[162,264]	1
A	Age 75 years or above	Age is an independent determinant of ischaemic stroke risk.[265] Age-related risk is a continuum, but for reasons of practicality, two points are given for age ≥75 years.	2
D	Diabetes mellitus	Diabetes mellitus (type 1 or type 2), as defined by currently accepted criteria,[266] or treatment with glucose lowering therapy.	1
S	Prior stroke, TIA, or arterial thromboembolism	Previous thromboembolism is associated with highly elevated risk of recurrence and therefore weighted 2 points.	2
V	Vascular disease	Coronary artery disease, including prior myocardial infarction, angina, history of coronary revascularization (surgical or percutaneous), and significant CAD on angiography or cardiac imaging.[267] OR Peripheral vascular disease, including: intermittent claudication, previous revascularization for PVD, percutaneous or surgical intervention on the abdominal aorta, and complex aortic plaque on imaging (defined as features of mobility, ulceration, pedunculation, or thickness ≥4 mm).[268,269]	1
A	Age 65–74 years	1 point is given for age between 65 and 74 years.	1

Akute Rhythmuskontrolle bei unserem Patienten

- **Dauer des Vorhofflimmerns unklar-> TEE/CT: Ausschluss Thrombus**
- **Elektrokardioversion (EKV) in einen Sinusrhythmus**
- **Anschliessende Medikation:**
    - ACE-I ausbauen, neu Bisoprolol, SGLT2 Inhibitor und Mineralocorticoidantagonist (antihypertensive Behandlung, Herzinsuffizienz)
    - CHA_2DS_2-VA Score 2 Punkte (Alter, AHT): Apixaban 5mg 2xd

Langfristige Rhythmuskontrolle



Class I indication if tachycardiomyopathy is considered

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VHF mit HFrEF

Rhythmuskontrolle mittels Ablation ist AAD und Frequenzkontrolle überlegen

Table 6 *Continued*

	PABA-CHF[301]	MacDonald *et al.*[302]	ARC-HF[303]	CAMTAF[252]	AATAC[255]	CAMERA-MRI[250]	AMICA[304]	CASTLE-AF[256]	CABANA subanalysis[257]	RAFT-AF[253]	CASTLE HTx[260]
Main findings	Improved composite endpoint	No LVEF improvement	Significant increase in peak O_2 consumption	LVEF improvement	Reduction in AF recurrence, unplanned hospitalizations, and mortality	LVEF improvement	No LVEF improvement	Reduction in all-cause death or HF hospitalization	Reduction in the primary composite, reduction in all-cause mortality, and improvement in QoL	Similar primary outcome ($P = 0.066$) Increase in LVEF	Reduction in the primary composite endpoint

LVEF Verbesserung durch Ablation: 13-16%

Evt. Mortalitätsbenefit durch Ablation

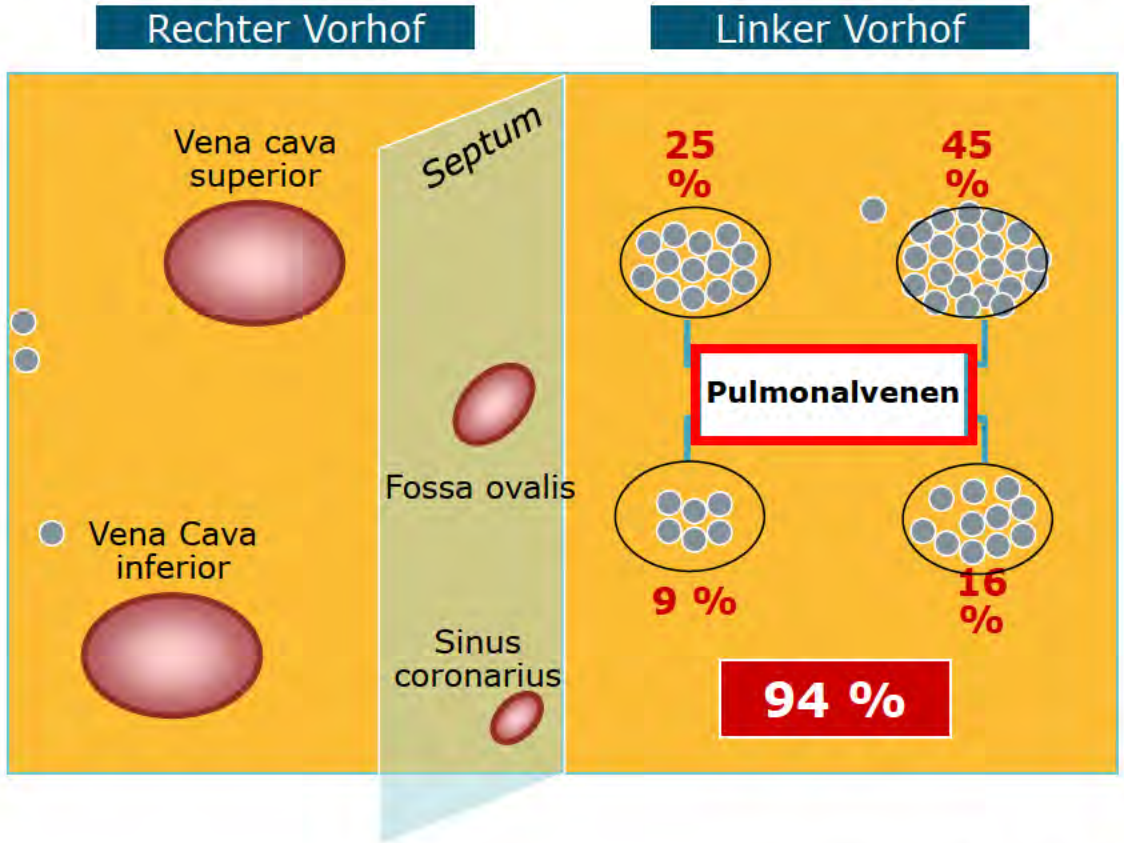
S Tzeis et al. EHRA/HRS/APHRS/LAHRS Consensus Document 2024. Europace

Tachycardiomyopathiekomponente –
Prädiktoren der LVEF Verbesserung nach Ablation

- VHF vor HF oder simultan
- Persistierendes (rasches) VHF
- Keine ischämische Cardiomyopathie
- Kein LGE im MRI (weder Ventrikel noch Vorhöfe)
- *"Antwerp Score" (*schlanker QRS, unbekannte Ursache der HFrEF, LAVI <50ml/m^2, persistierendes VHF)

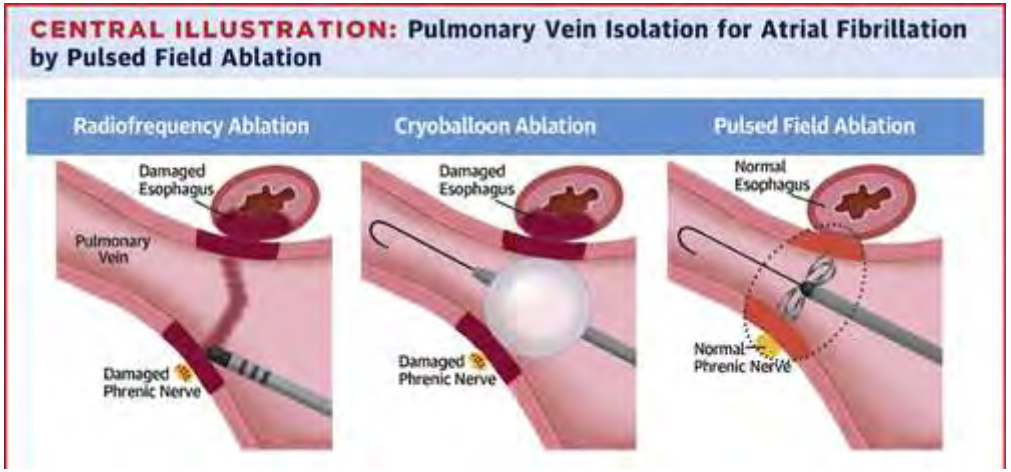
S Tzeis et al. EHRA/HRS/APHRS/LAHRS Consensus Document 2024. Europace
Bergonti M et al. the ANTWOORD Study. Int J Cardiol 2022;358:45–50

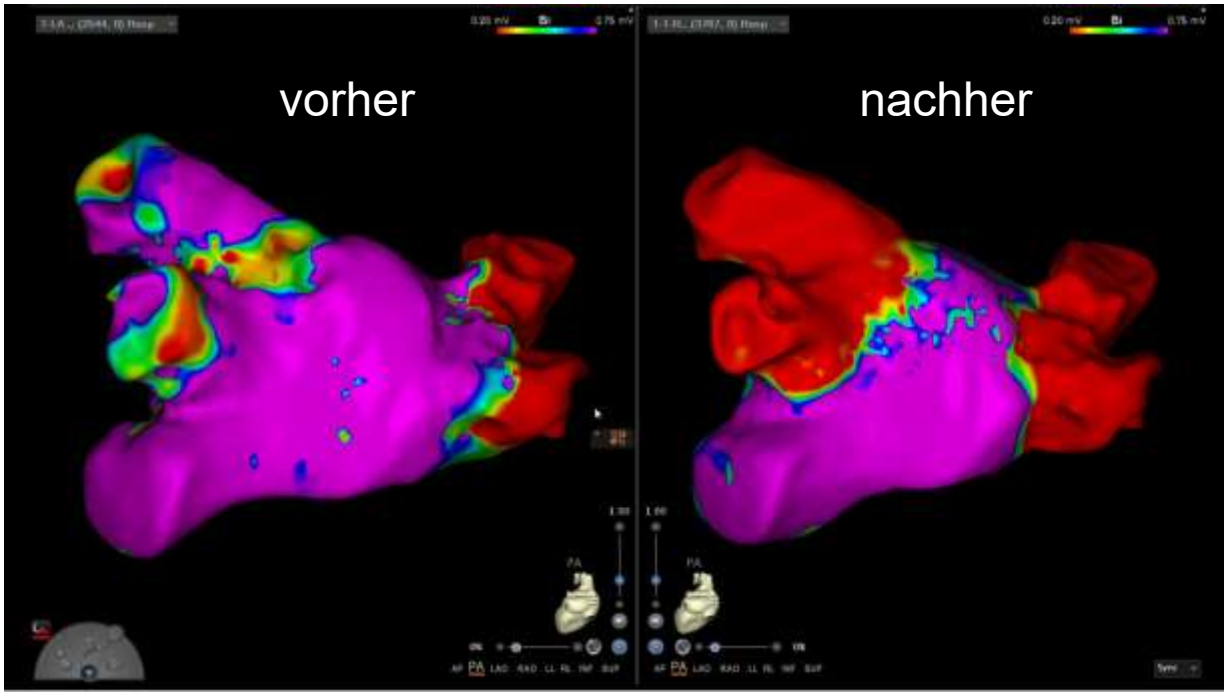
AF - auslösende ektope Trigger



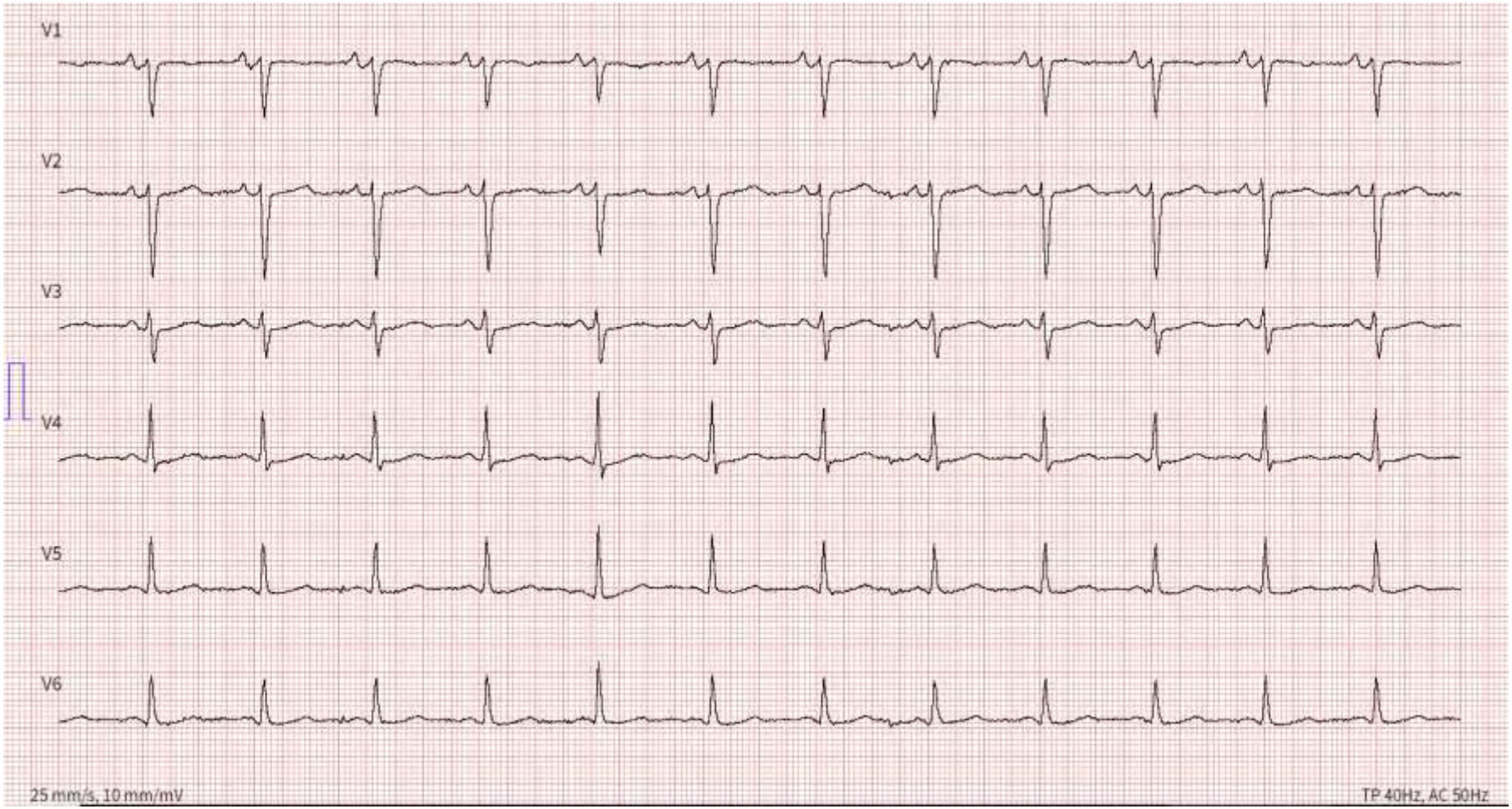
Haïssaguerre M, et al. *N Engl J Med* (1998) 339: 659

Pulmonalvenenisolation





12-Kanal EKG nach Ablation: Sinusrhythmus



Follow-Up unseres Patienten:

Erfolgreiche Pulmonalvenenisolation mit PFA

Nachkontrolle 12 Monate nach Ablation

Klinisch: kardiopulmonal kompensiert. BD 138/92mmHg, HF 62/min,. Regelmässig.

EKG und Holter: durchgehender Sinusrhythmus. Kein Vorhofflimmern.

Deutliche Besserung der Leistungsfähigkeit und Lebensqualität.

DOAK weiter bei erhöhtem CHADS-VA Score

TTE: Normalisierung der systolischen LV Funktion auf 50%, allerdings weiterhin diastolische Dysfunktion Grad I bei hypertensiver Kardiopathie

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Follow-Up unseres Patienten:

Prozedere:

- **Optimierung der Blutdruckeinstellung (Ziel <130/80mmHg; ACE-I ausbauen, SGLT2-Inhibitor bei HFpEF) und Gewichtsreduktion (Ziel BMI <27kg/m2)**
- **Regelmässige (jährliche) Kontrollen**