



KARDIOLOGIE
SYMPOSIUM

HERZZENTRUM
HIRSLANDEN
ZENTRALSCHWEIZ

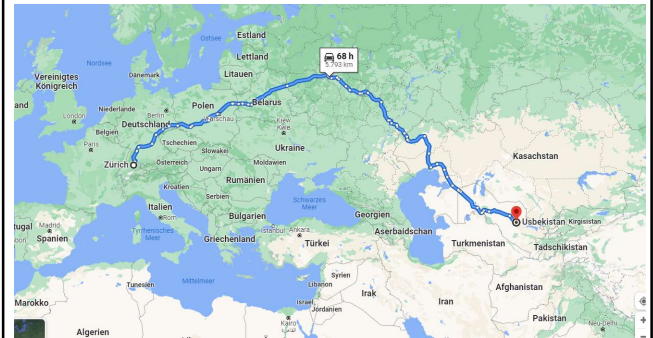
Neues zum Vorhofflimmern – Was in der Praxis wichtig ist !

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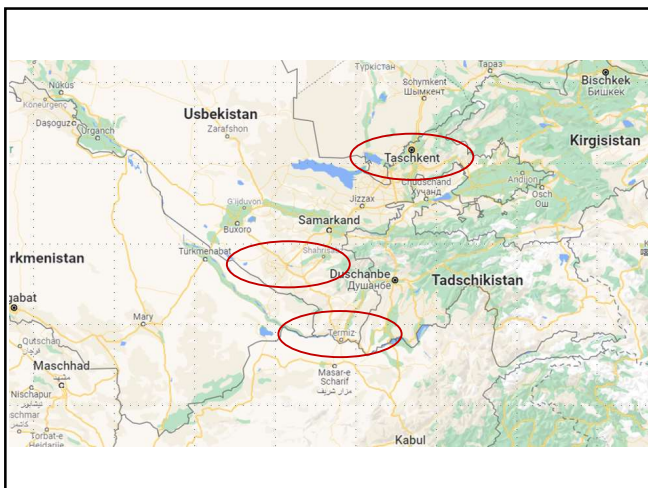
USZ Universitäts
Spital Zürich



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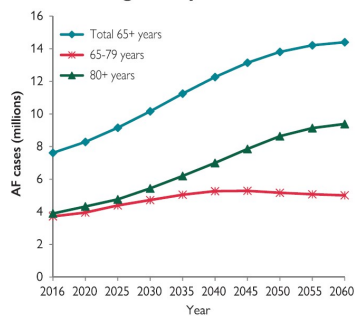
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Demographie des Vorhofflimmerns

6

Zunehmende Prävalenz des Vorhofflimmerns

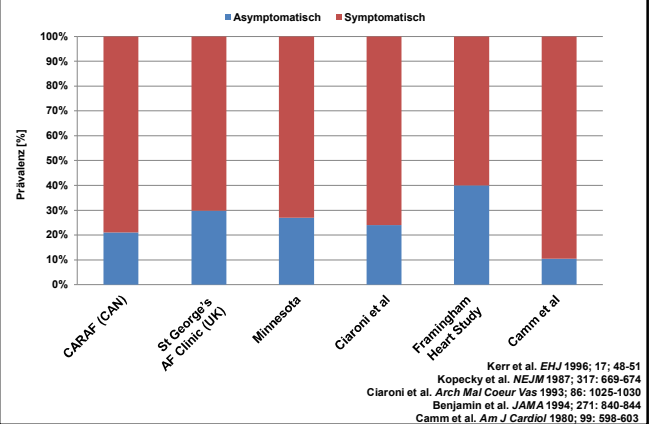
Projected increase in AF prevalence among elderly in EU 2016-2060



Collins et al. *Am J Cardiol* 2013; 112: 1142-1147

7

Prävalenz des stillen Vorhofflimmerns

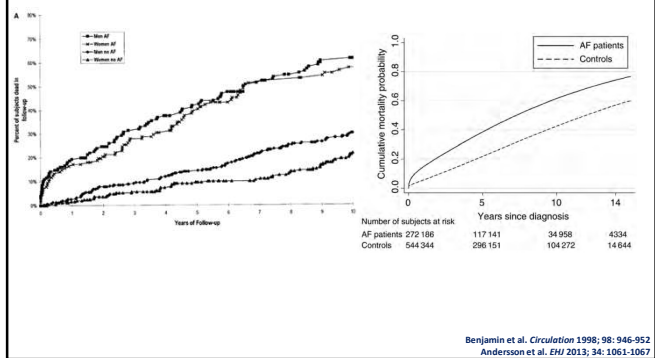


8

Klinische Bedeutung des Vorhofflimmerns

9

Vorhofflimmern ist assoziiert mit höherer Mortalität



10

Vorhofflimmern ist assoziiert mit höherer Morbidität

Clinical Presentation	AF-related OUTCOMES		
	AF-Related Outcome	Frequency in AF	Mechanism(s)
Asymptomatic or Silent (!)	Death	1.5 - 3.5 fold increase	Excess mortality related to: • HF, comorbidities • Stroke
Symptomatic	Stroke	20-30% of all ischemic strokes, 10% of cryptogenic strokes	• Cardioembolic, or • Related to complex vascular atheroma
Palpitations, dyspnoea, fatigue, Chest tightness, poor effort tolerance, dizziness, syncope, disturbed sleep, etc.	LV dysfunction / Heart failure	In 20-30% of AF patients	• Excessive ventricular rate • Irregular ventricular contractions • A primary underlying cause of AF
Haemodynamically unstable	Cognitive decline / Vascular dementia	HR 1.4 (1.1-1.8) (independent of stroke history)	• Brain white matter lesions, infarction, hypoperfusion, micro-embolism
• Sleep apnoea • Symptomatic hypertension • Atrial fibrillation • Chronic renal failure • Diabetes mellitus • Carotid artery disease	Depression	Depression in 14-20% (even suicidal ideation)	• Severe symptoms and decreased QoL • Drug side effects
Haemodynamically stable	Impaired quality of life	~40% of patients	• Related to AF burden, comorbidities, psychological functioning and medication • Disturbed personality type
	Hospitalizations	0-40% annual hospitalization rate	• AF management, related to HF, PE or AF related symptoms • Treatment-associated complications

Hindricks et al. *European Heart Journal* 2020; 00: 1-126

11

Definition des Vorhofflimmerns

12

Definition des Vorhofflimmerns

AF	Definition
	A supraventricular tachyarrhythmia with uncoordinated atrial electrical activation and consequently ineffective atrial contraction.
	Electrocardiographic characteristics of AF include:
	- Irregularly irregular R-R intervals (when atrioventricular conduction is not impaired). - Absence of distinct repeating P waves, and - Irregular atrial activations.

Hindricks et al. European Heart Journal 2020; 00: 1-126

13

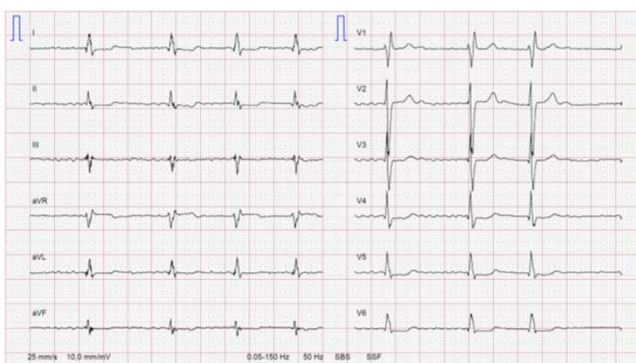
Wie diagnostizieren wir Vorhofflimmern ?

Recommendations	Class ^a	Level ^b
ECG documentation is required to establish the diagnosis of AF.		
A standard 12-lead ECG recording or a single-lead ECG tracing of ≥ 30 s showing heart rhythm with no discernible repeating P waves and irregular RR intervals (when atrioventricular conduction is not impaired) is diagnostic of clinical AF.⁶	I	B

Hindricks et al. European Heart Journal 2020; 00: 1-126

14

Typisches EKG mit Vorhofflimmern



15

Aber Vorhofflimmern kann auch anders gefunden werden



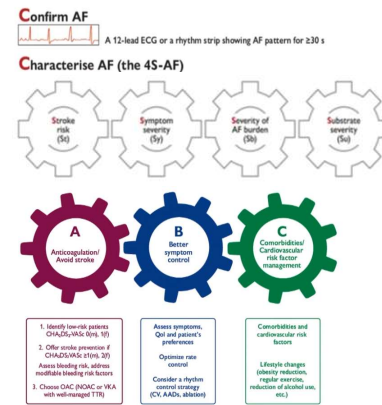
Hindricks et al. European Heart Journal 2020; 00: 1-126

16

Diagnostische Schritte

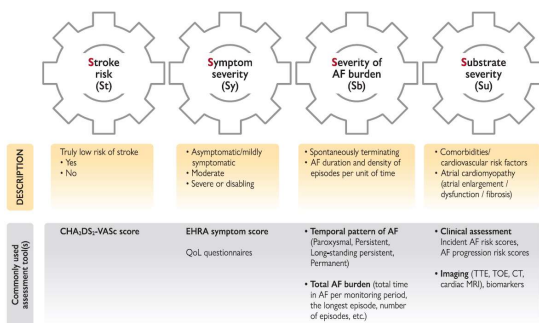
17

Der «CC To ABC» Pathway



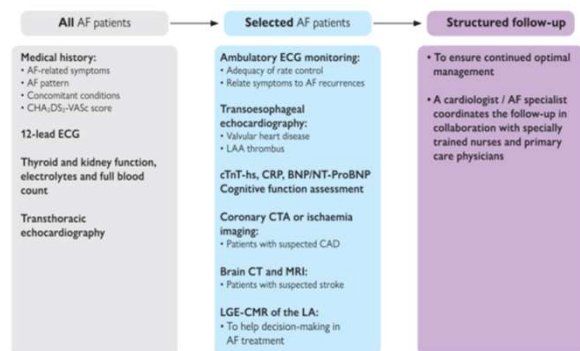
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Charakterisierung des Vorhofflimmerns



19

Charakterisierung des Vorhofflimmerns



20

Therapeutische Schritte

21

Wie behandeln wir Vorhofflimmern ?

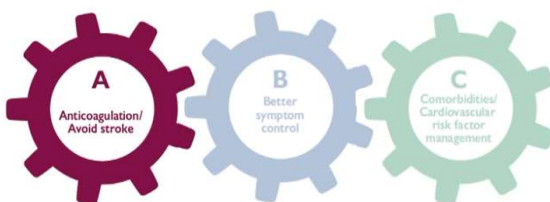


1. Identify low-risk patients
CHA₂DS₂-VASc 0(m), 1(f)
2. Offer stroke prevention if
CHA₂DS₂-VASc ≥1(m), 2(f)
Assess bleeding risk, address
modifiable bleeding risk factors
3. Choose OAC (NOAC or VKA
with well-managed TTR)

Hindricks et al. European Heart Journal 2020; 00: 1-126

22

Schutz vor dem Hirnschlag



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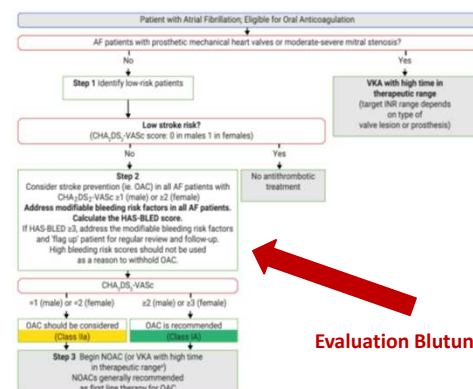
Assess symptoms,
QoL and patient's
preferences
Optimize rate control
Consider a rhythm
control strategy (CV, AADs, ablation)

Comorbidities and
cardiovascular risk
factors
Lifestyle changes
(obesity reduction,
regular exercise,
reduction of alcohol use,
etc.)

Hindricks et al. European Heart Journal 2020; 00: 1-126

23

Schutz vor dem Hirnschlag



Evaluation Blutungsrisiko

Hindricks et al. European Heart Journal 2020; 00: 1-126

24

Schutz vor dem Hirnschlag

CHA ₂ DS ₂ -VASc score Risk factors and definitions		Points awarded
C	Congestive heart failure Clinical HF, or objective evidence of moderate to severe LV dysfunction, or HCFM	1
H	Hypertension on antihypertensive therapy	1
A	Age 75 years or older	2
D	Diabetes mellitus Treatment with oral hypoglycaemic drug and/or insulin or fasting blood glucose ≥ 125 mg/dL (7 mmol/L)	1
S	Stroke/thrombotic stroke, TIA, or thromboembolism	2
V	Vascular disease Ischaemically significant CAD, previous myocardial infarction, PAD, or aortic disease	1
A	Age 65 – 74 years	1
Sc	Sex category (female)	1
Maximum score		9

Risk factors and definitions		Points awarded
H	Uncontrolled hypertension SBP ≥ 160 mmHg	1
A	Abnormal renal and/or hepatic function CrCl ₃₀ , BUN, serum creatinine ≥ 2.0 mg/dL, bilirubin > 2 upper limit of normal, AST/ALT/ALP $> 3 \times$ upper limit of normal	1 point for each
S	Stroke Previous ischaemic or haemorrhagic stroke	1
B	Bleeding history or predisposition Previous major haemorrhage or anaemia or severe thrombocytopenia	1
L	Labile INR TTR $< 60\%$ in patient receiving VKA	1
E	Elderly Age ≥ 75 years or extreme frailty	1
D	Drugs or excessive alcohol drinking Concomitant use of antiplatelets or NSAIDs, and/or excessive alcohol per week	1 point for each
Maximum score		9

HAS-BLED Score: Beurteilung des Blutungsrisikos, aber nicht um eine OAK zu verhindern

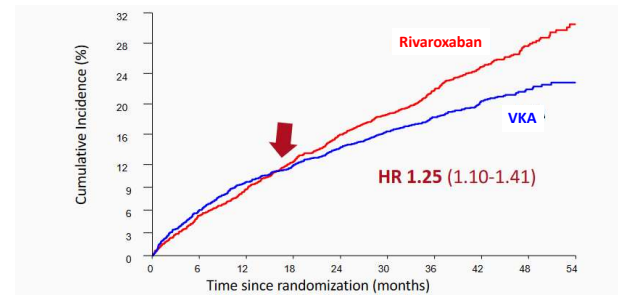
HAS-BLED Score: Beurteilung des Blutungsrisikos, aber nicht um eine OAK zu verhindern

Hindricks et al. European Heart Journal 2020; 00: 1-126

25

Resultate der INVICTUS Studie

Patienten mit Mitralklappenstenose und Vorhofflimmern
4'531 Patienten, durchschnittliches Follow-Up 3.1 Jahre

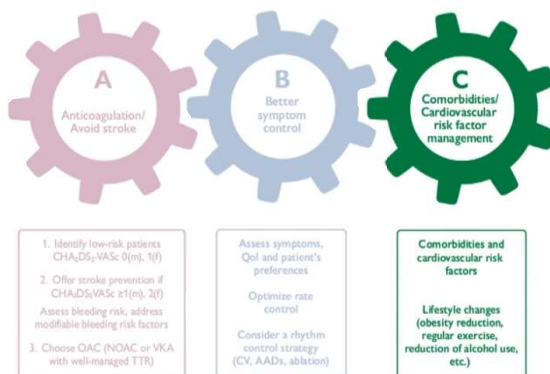


Primärer Endpunkt
 (Hirnschlag, systemisch Embolie, MI, Tod)

Connolly et al. N Engl J Med 2022

26

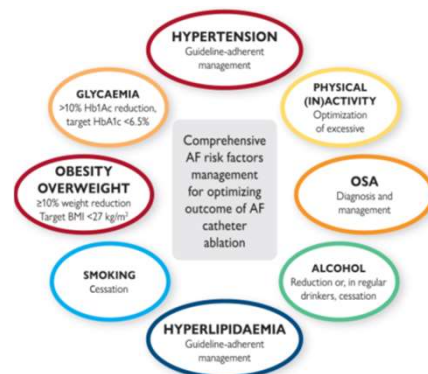
Therapie der Komorbiditäten



Hindricks et al. European Heart Journal 2020; 00: 1-126

27

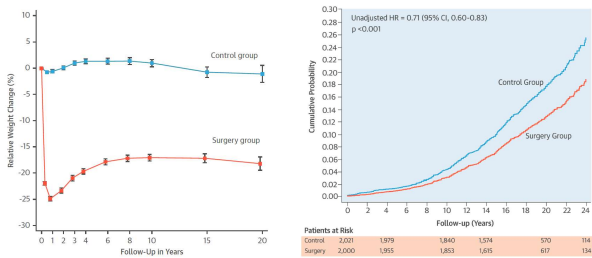
Therapie der Komorbiditäten



Hindricks et al. European Heart Journal 2020; 00: 1-126

28

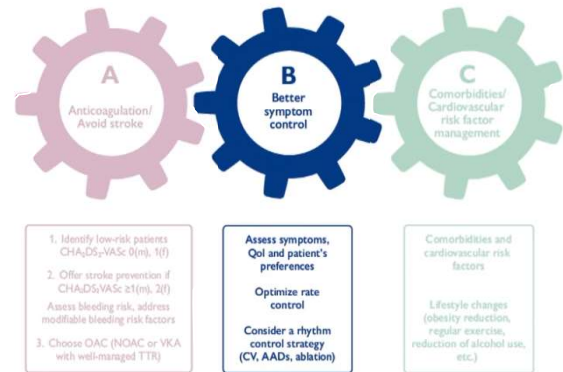
Gewichtsreduktion reduziert Vorhofflimmern



Jamaly et al. J Am Coll Cardiol 2016; 58: 2497-2504

29

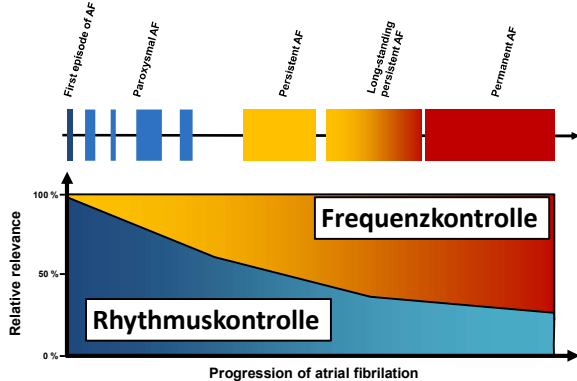
Wie behandeln wir Vorhofflimmern ?



Hindricks et al. European Heart Journal 2020; 00: 1-126

30

Die 2 Konzepte der Vorhofflimmern-Therapie



Breitenstein/Steffel. Praxis 2017; 106: 757-765

31

Frequenzkontrolle beim Vorhofflimmern

Recommendations	Class	Level
Beta-blockers, diltiazem, or verapamil are recommended as first-choice drugs to control heart rate in AF patients with LVEF ≥40%.	I	B
Beta-blockers and/or digoxin are recommended to control heart rate in AF patients with LVEF <40%.	I	B
Combination therapy comprising different rate controlling drugs ^a should be considered if a single drug does not achieve the target heart rate.	IIa	B
A resting heart rate of <110 bpm (i.e. lenient rate control) should be considered as the initial heart rate target for rate control therapy.	IIa	B

^aCombining beta-blocker with verapamil or diltiazem should be performed with careful monitoring of heart rate by 24-h ECG to check for bradycardia.

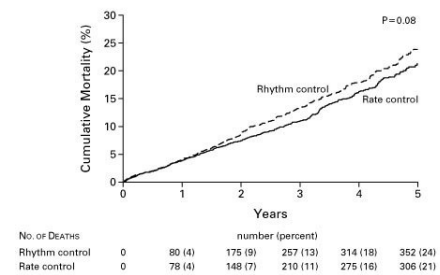
Hindricks et al. European Heart Journal 2020; 00: 1-126

32

Wieso Rhythmuskontrolle ?

33

Bisher Vorhofflimmern-Therapie kein prognostischer Benefit

AFFIRM Trial. *N Engl J Med* 2002; 347: 1825-1833

34

EAST-AFNET 4 Trial

The NEW ENGLAND JOURNAL of MEDICINE

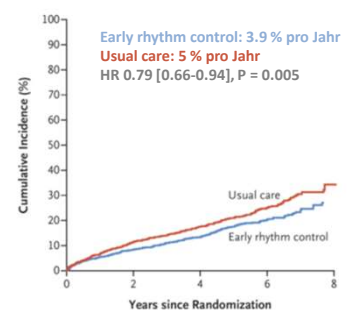
ORIGINAL ARTICLE

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*

35

EAST-AFNET 4 Trial – Primäres Outcome



No. at Risk

Usual care

Early rhythm control

1394

1395

1169

1193

888

913

405

404

34

26

*Kardiovaskulärer Tod, Stroke, Hospitalisierung wegen ACS oder Herzinsuffizienz

Kirchhof et al. EAST-AFNET 4 Trial. *N Engl J Med* 2020

36

EAST-AFNET 4 Trial – Primäres Outcome

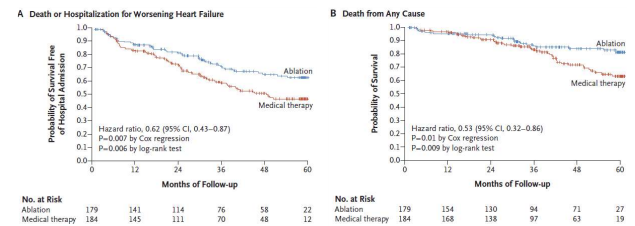
Table 2. Efficacy Outcomes.*

Outcome	Early Rhythm Control	Usual Care	Treatment Effect
First primary outcome — events/person-yr (incidence/100 person-yr)	249/6399 (3.9)	316/6332 (5.0)	0.79 (0.66 to 0.94)†
Components of first primary outcome — events/person-yr (incidence/100 person-yr)			
Death from cardiovascular causes	67/6915 (1.0)	94/6988 (1.3)	0.72 (0.52 to 0.98)‡
Stroke	40/6813 (0.6)	62/6856 (0.9)	0.65 (0.44 to 0.97)‡
Hospitalization with worsening of heart failure	139/6620 (2.1)	169/6558 (2.6)	0.81 (0.65 to 1.02)‡
Hospitalization with acute coronary syndrome	53/6762 (0.8)	65/6816 (1.0)	0.83 (0.58 to 1.19)‡

Kirchhof et al. EAST-AFNET 4 Trial. *N Engl J Med* 2020

37

CASTLE-AF – Katheterablation bei Herzinsuffizienz



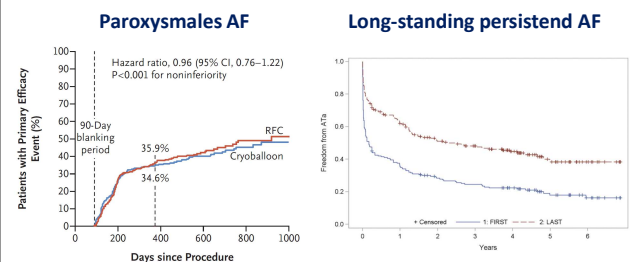
Marrouche et al. *N Engl J Med* 2018; 378: 417-427

38

Wann Rhythmuskontrolle ?

39

Rhythmuskontrolle – Je früher umso besser !



Kuck et al. *N Engl J Med* 2016; 374: 2235-2245
Till et al. *J Am Coll Cardiol* 2012; 60: 1921-1929

40

Wie Rhythmuskontrolle ?

41

Rhythmuskontrolle beim Vorhofflimmern



Anfallstherapie («Pill-in-the-pocket»)

- Betablocker
- Stärkere Antiarrhythmika (z. Bsp. Tambocor®)

Präventive Therapie

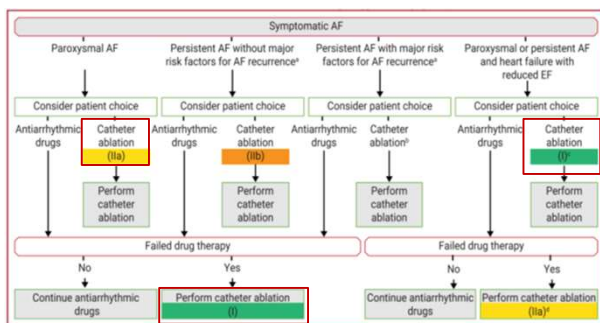
Medikamentöse Therapie

- Betablocker
- Stärkere Antiarrhythmika (z. Bsp. Tambocor®, Cordarone®)

Katheterintervention

42

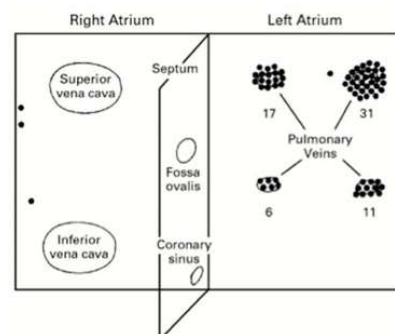
Rhythmuskontrolle beim Vorhofflimmern



Hindricks et al. European Heart Journal 2020; 00: 1-126

43

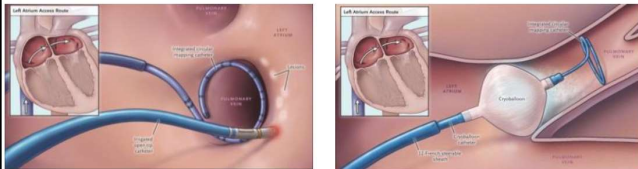
Katheterintervention beim Vorhofflimmern



Haissaguerre et al. New Engl J Med 1998; 339: 659-666

44

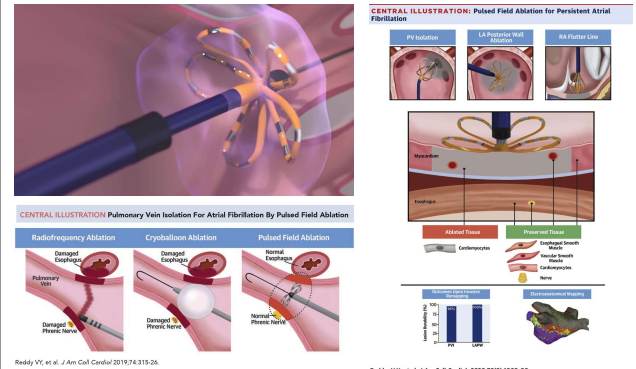
Pulmonalvenenisolation mittels Kälte oder Wärme



Kuck et al. *NEJM* 2016; 374: 2235-2245

45

Zukünftige Option der Pulmonalvenenisolation



46



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47