Ritmestoornissen en geschiktheid in arbeidsgeneeskunde – cardiale medicatie en werk

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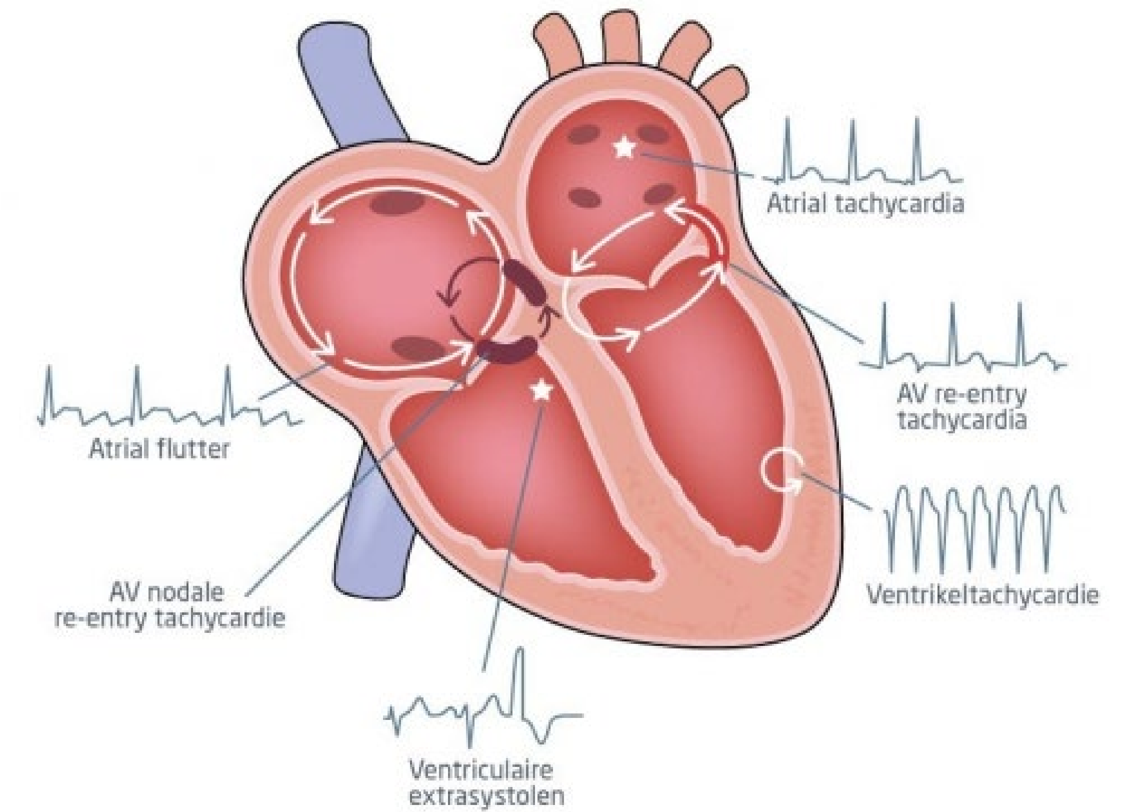
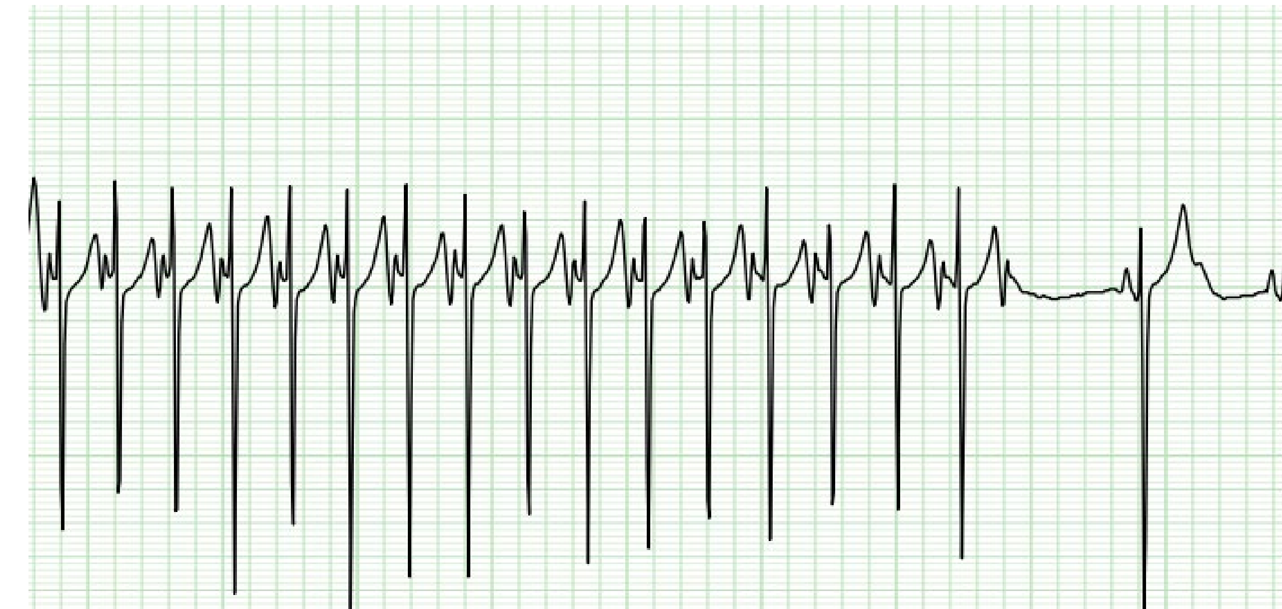
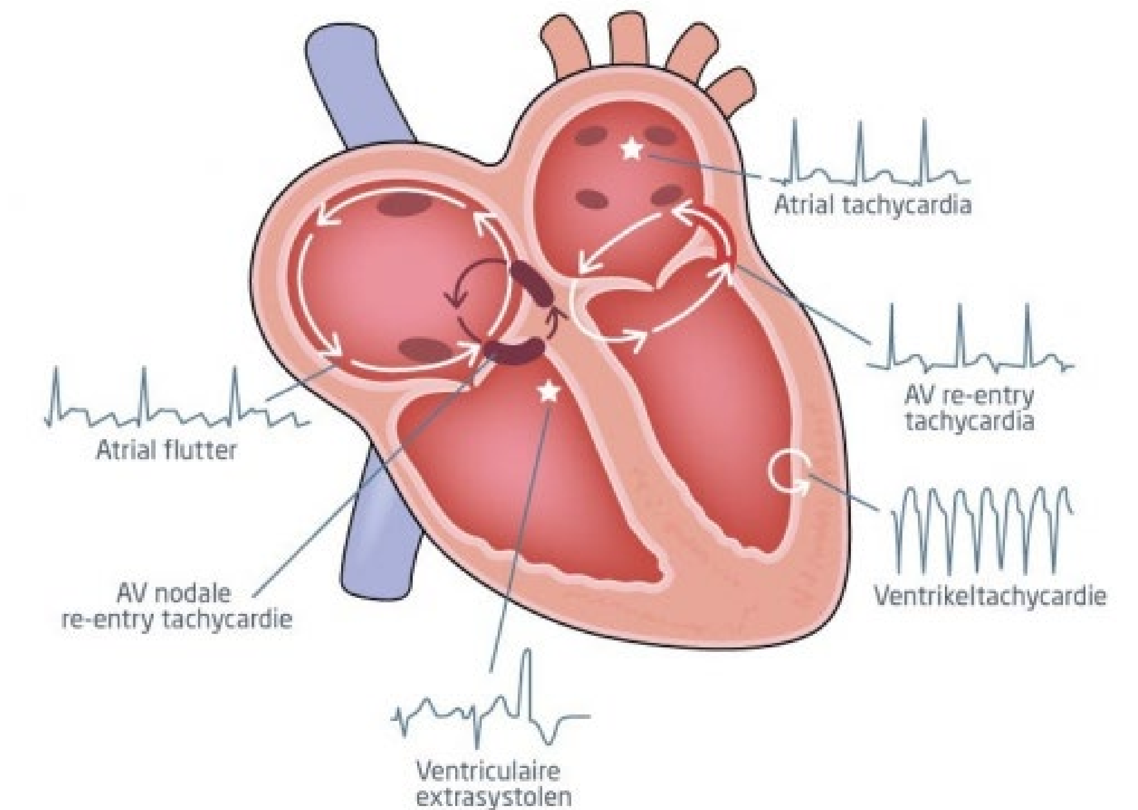
24/11/2023





Overzicht

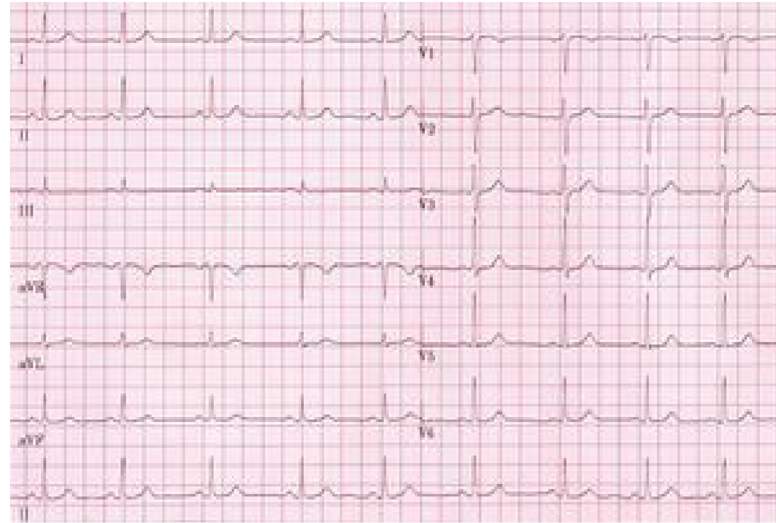
- Tachy-aritmieën
  - Supraventriculaire aritmie
  - Ventriculaire aritmie
  - Kliniek – diagnose
  - Behandeling
    - Invasief
    - Medicamenteus
  - Invloed op arbeid
- Brady-aritmieën (Pacemaker – ICD)



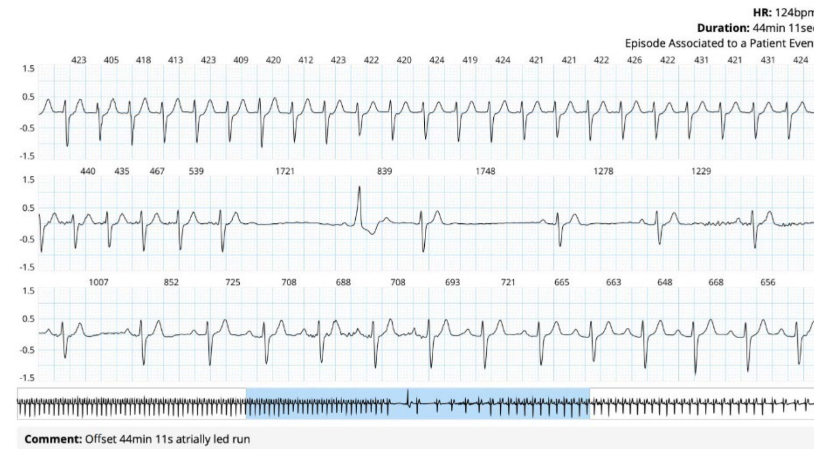
Introductie

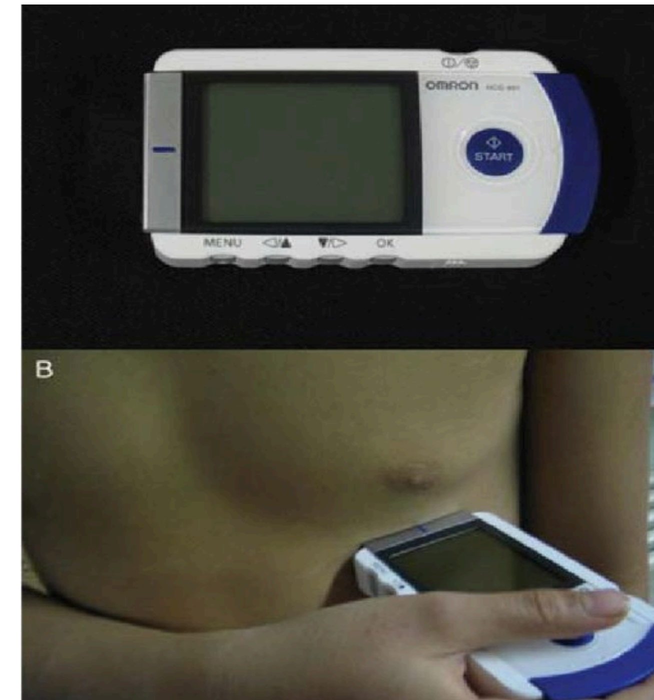
Diagnostisch armamentarium

ECG

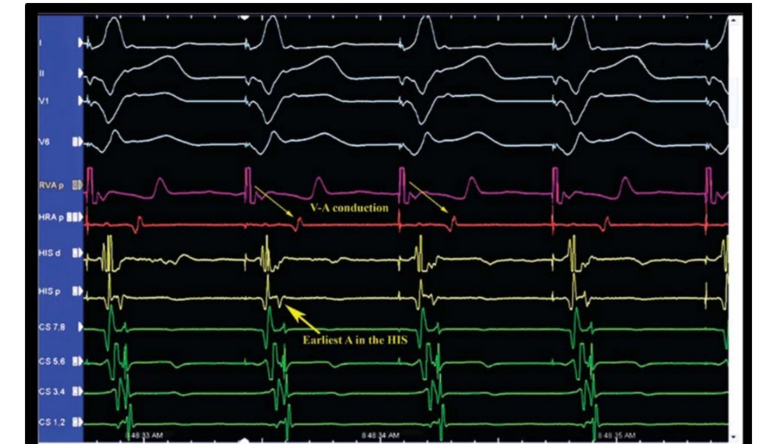


24-uurs Holter





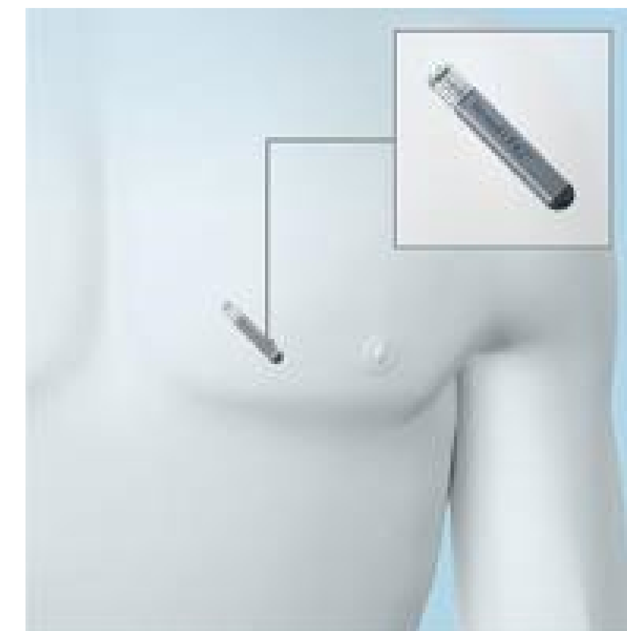
EFO

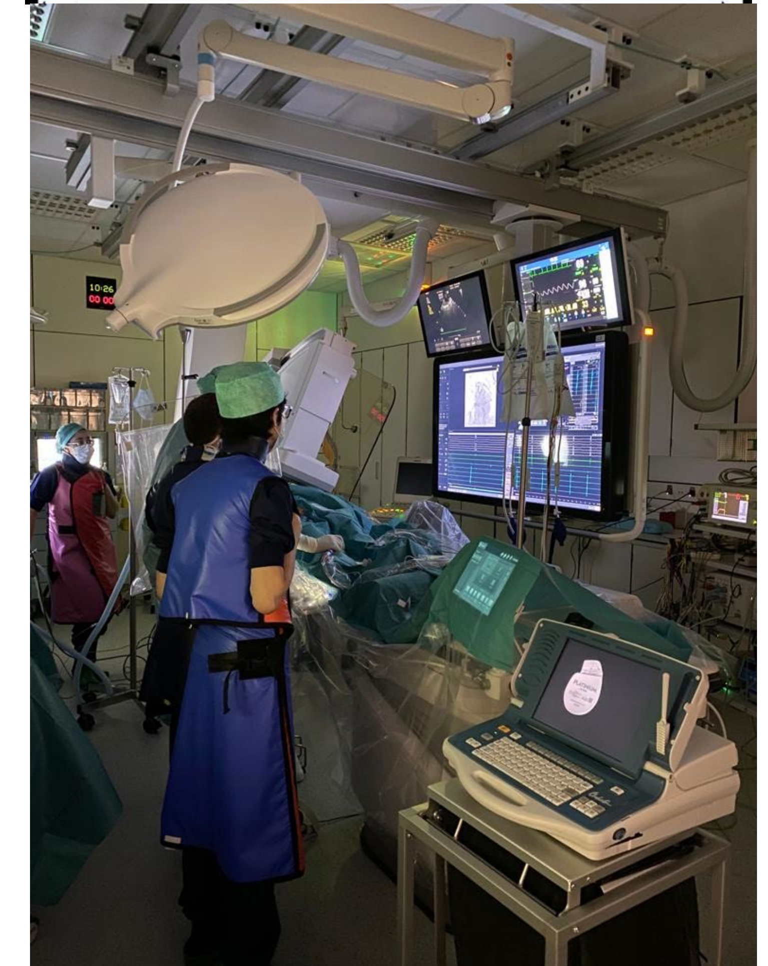


Langdurig Holter 7d

Inspanningsproef

ILR

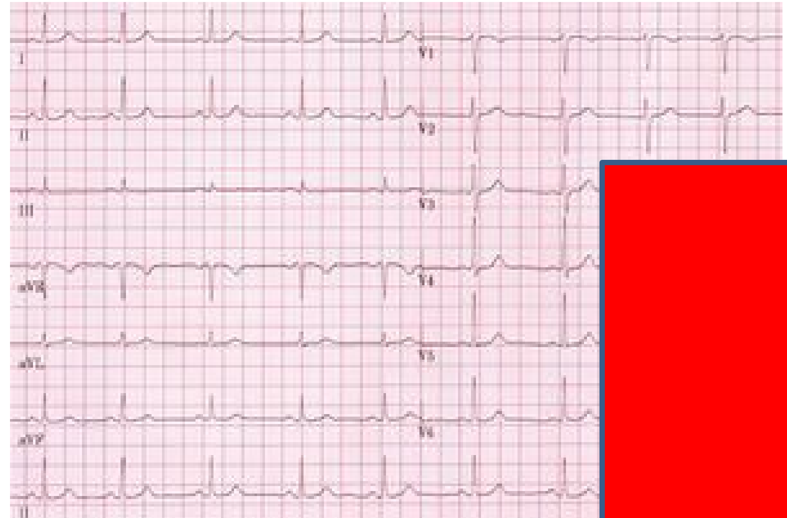




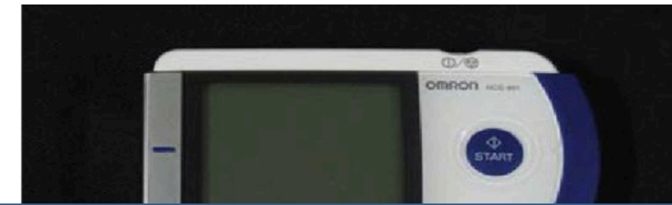
Introductie

Diagnostisch armamentarium

ECG

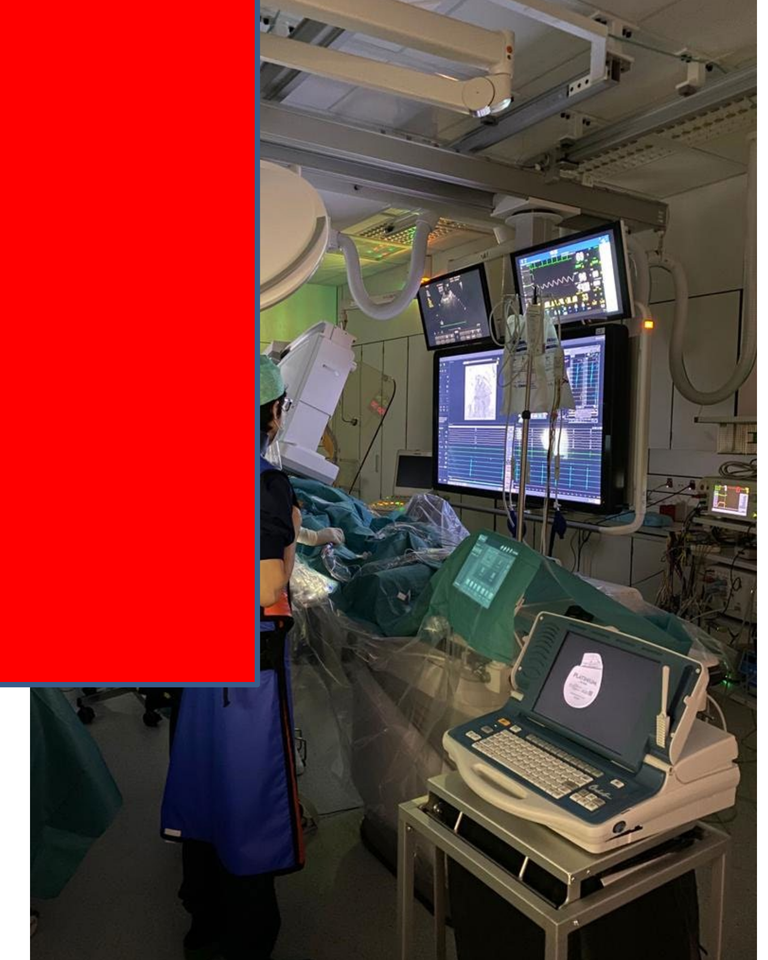


24-uurs Holter



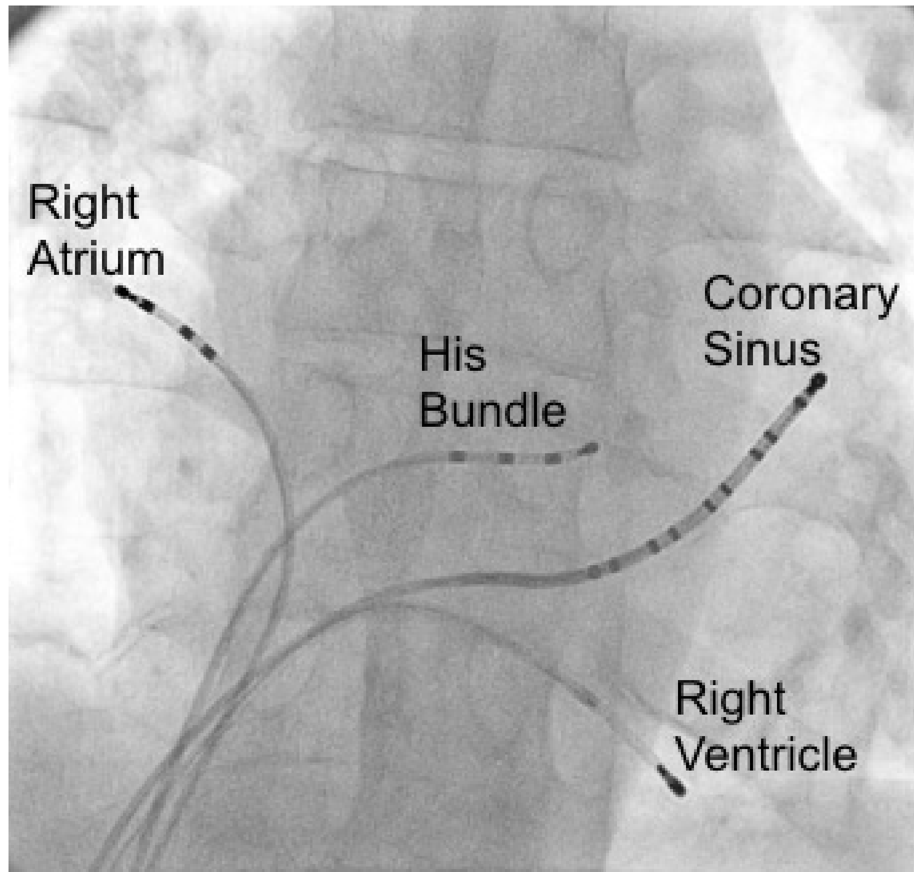
EFO

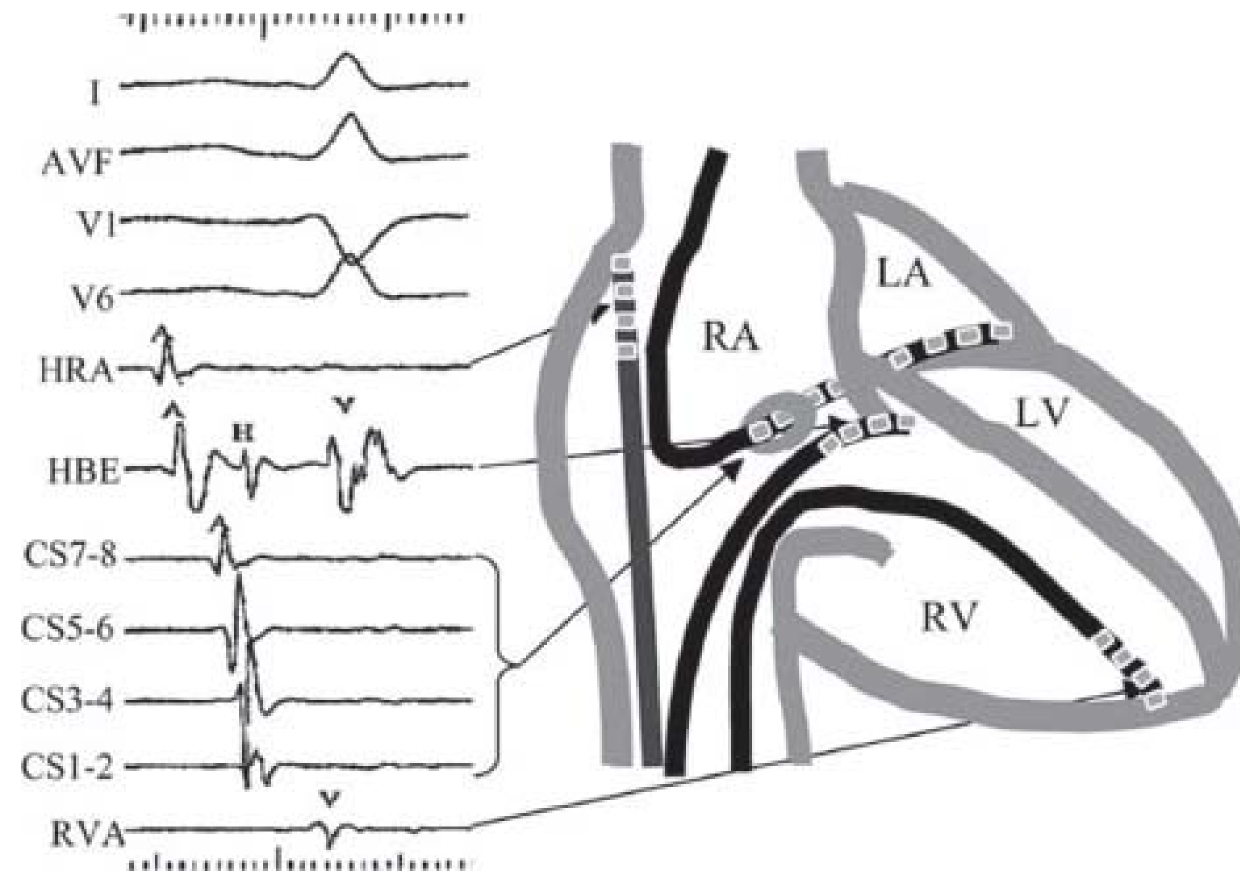
Inspanningspro

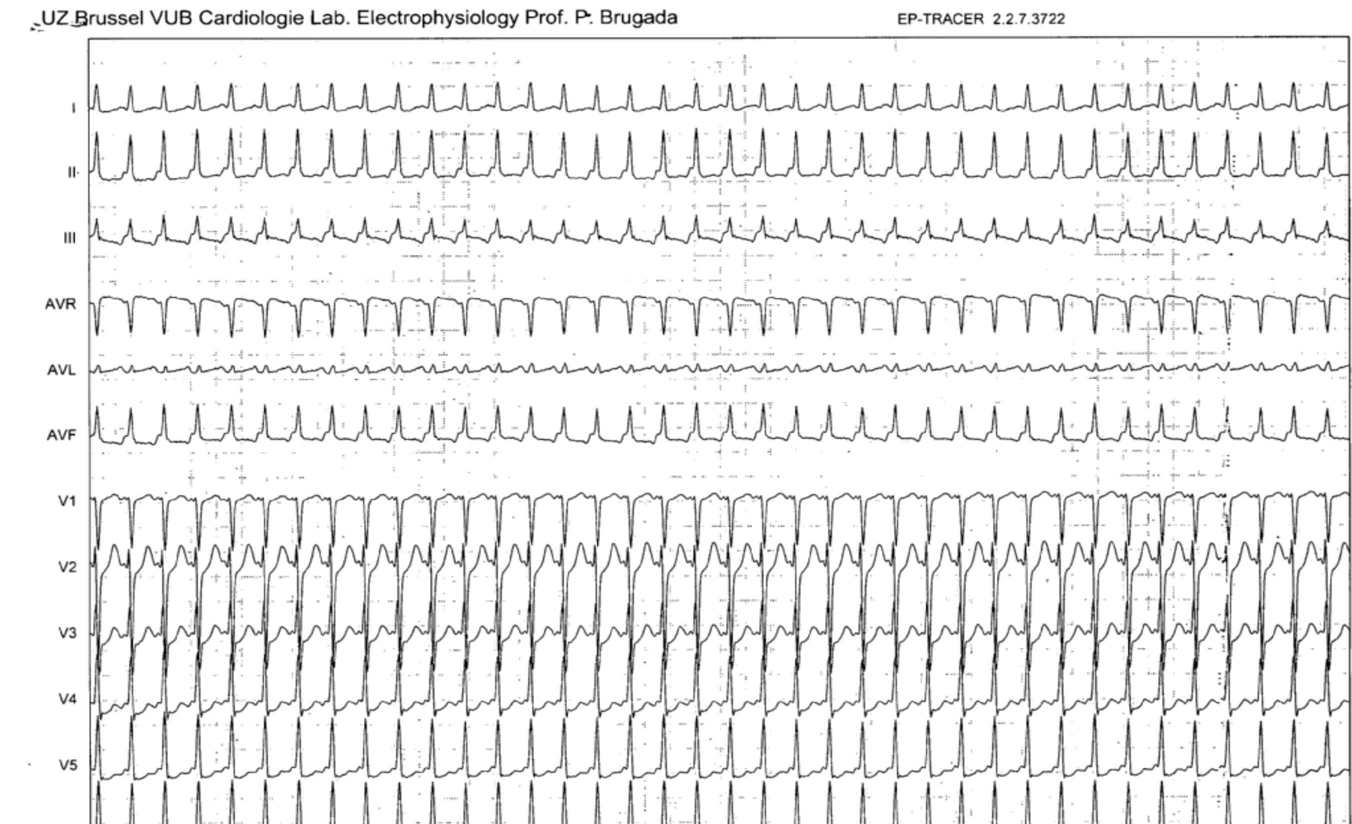


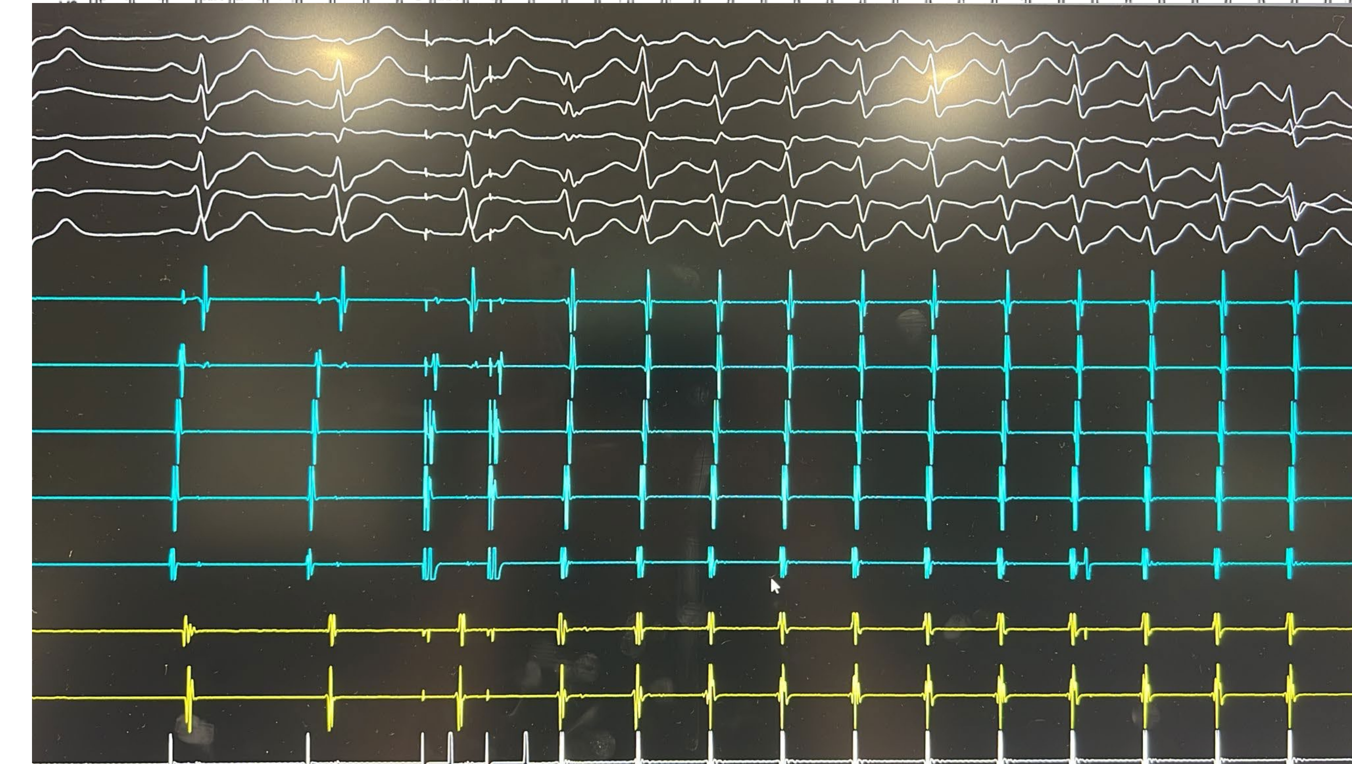
Anamnese

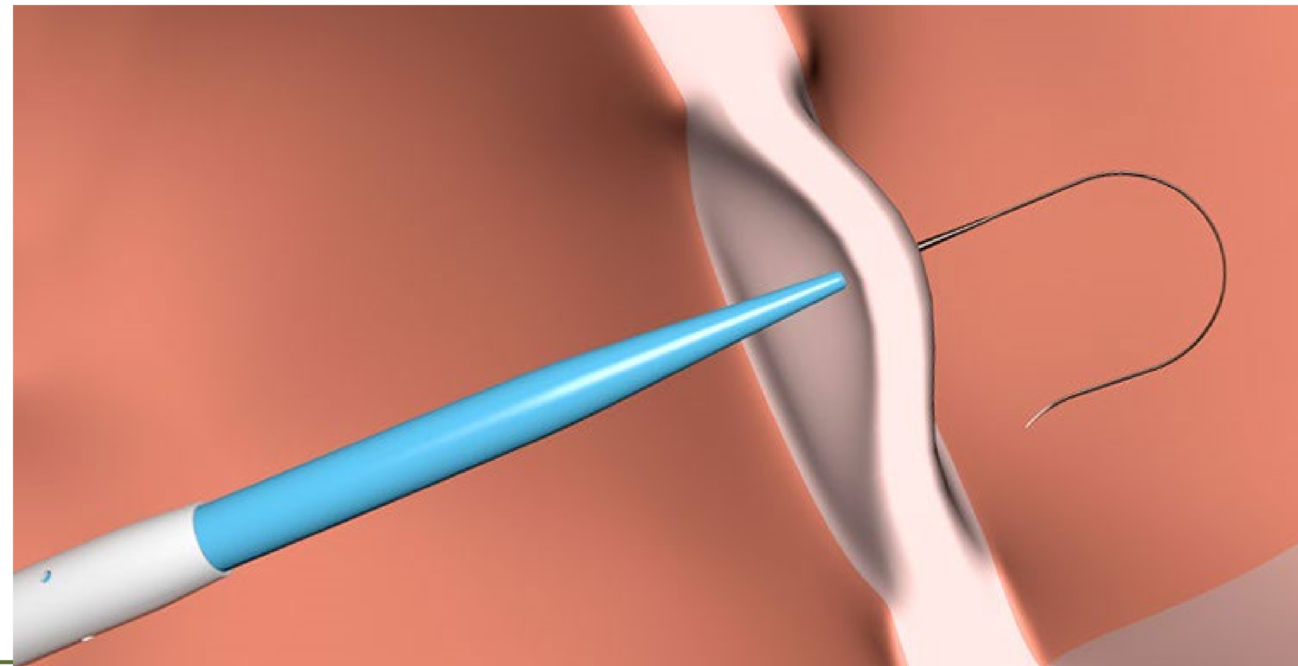
Elektrofysiologisch onderzoek (EFO)



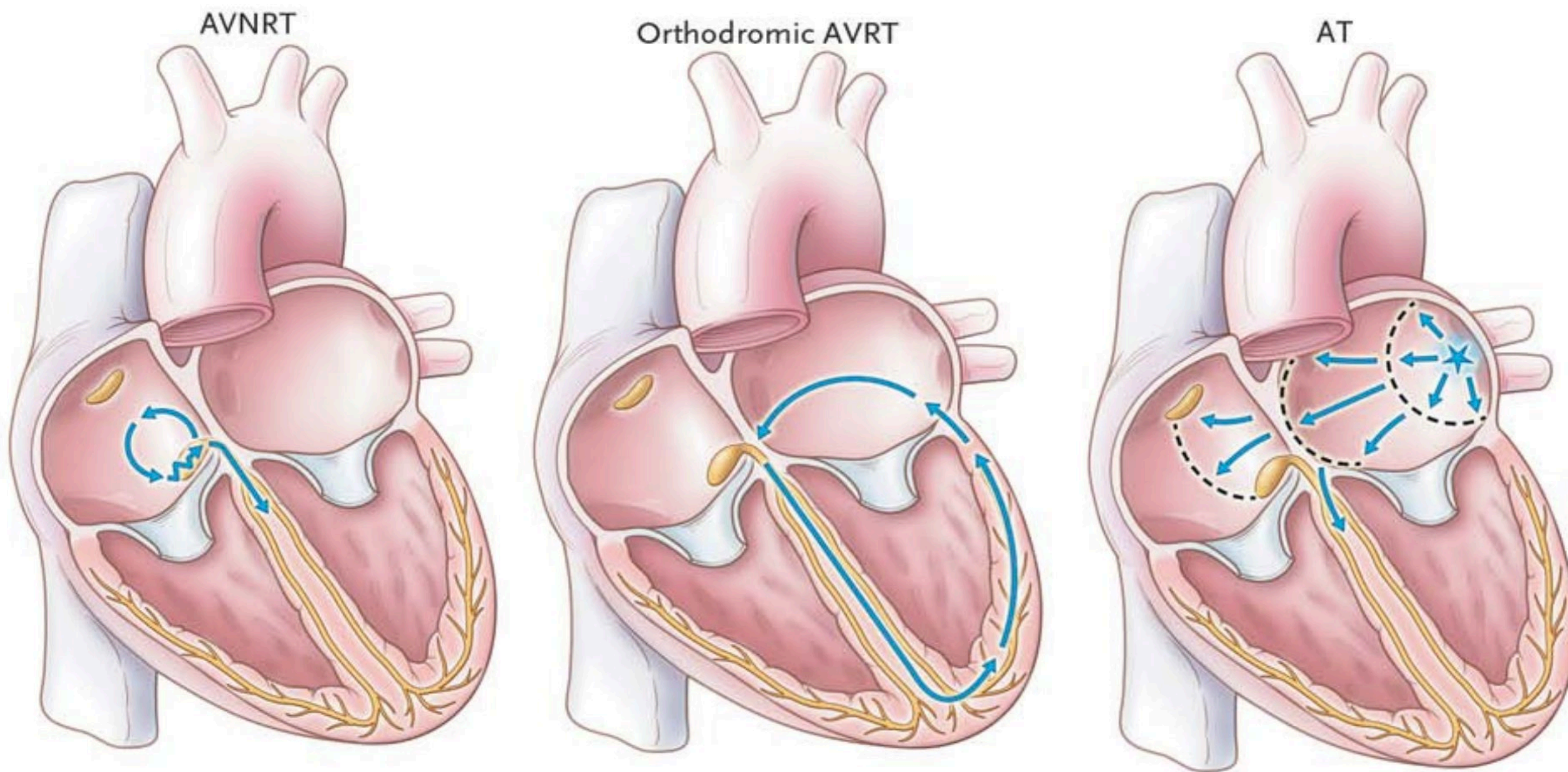


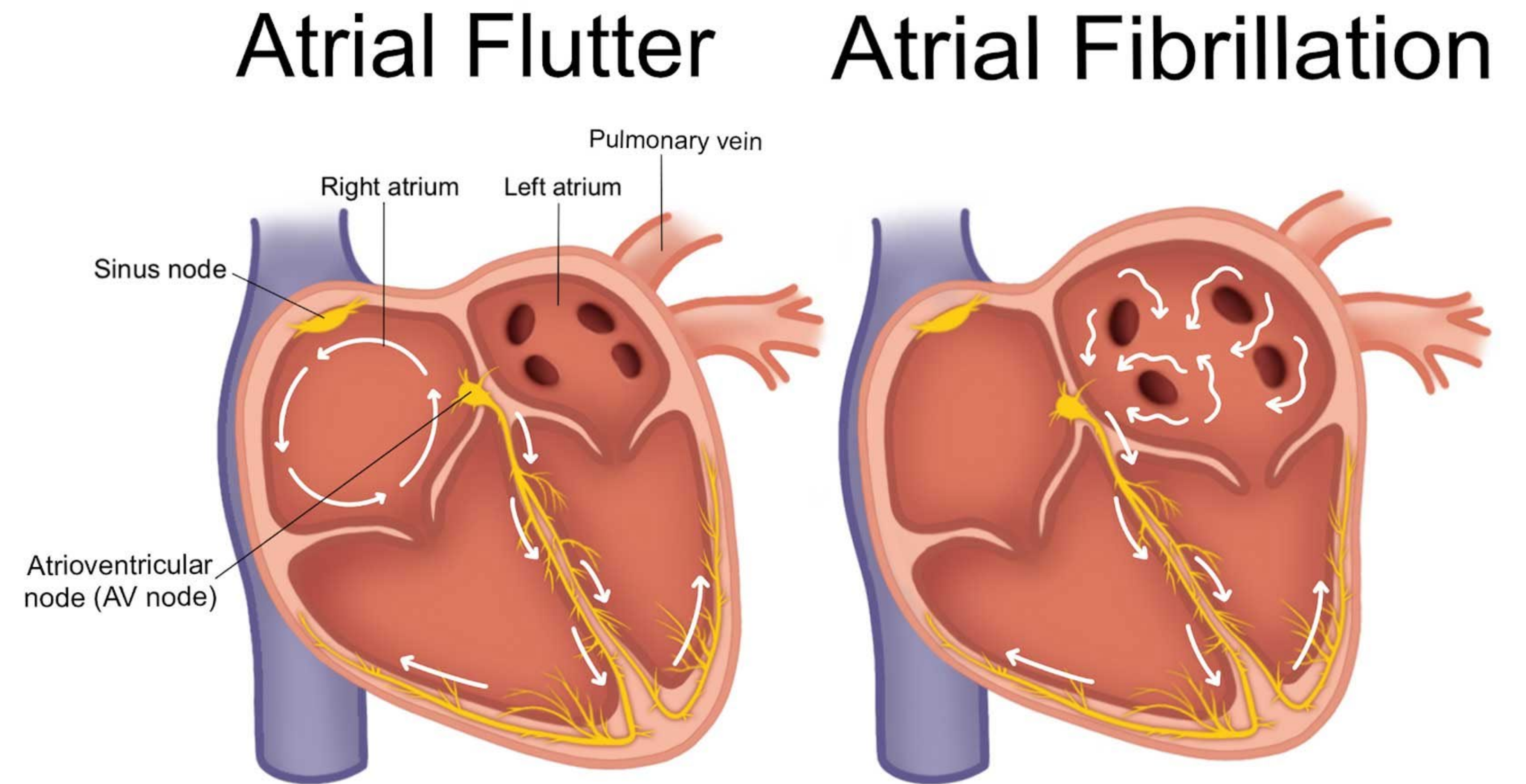






Atriale tachy-aritmieën

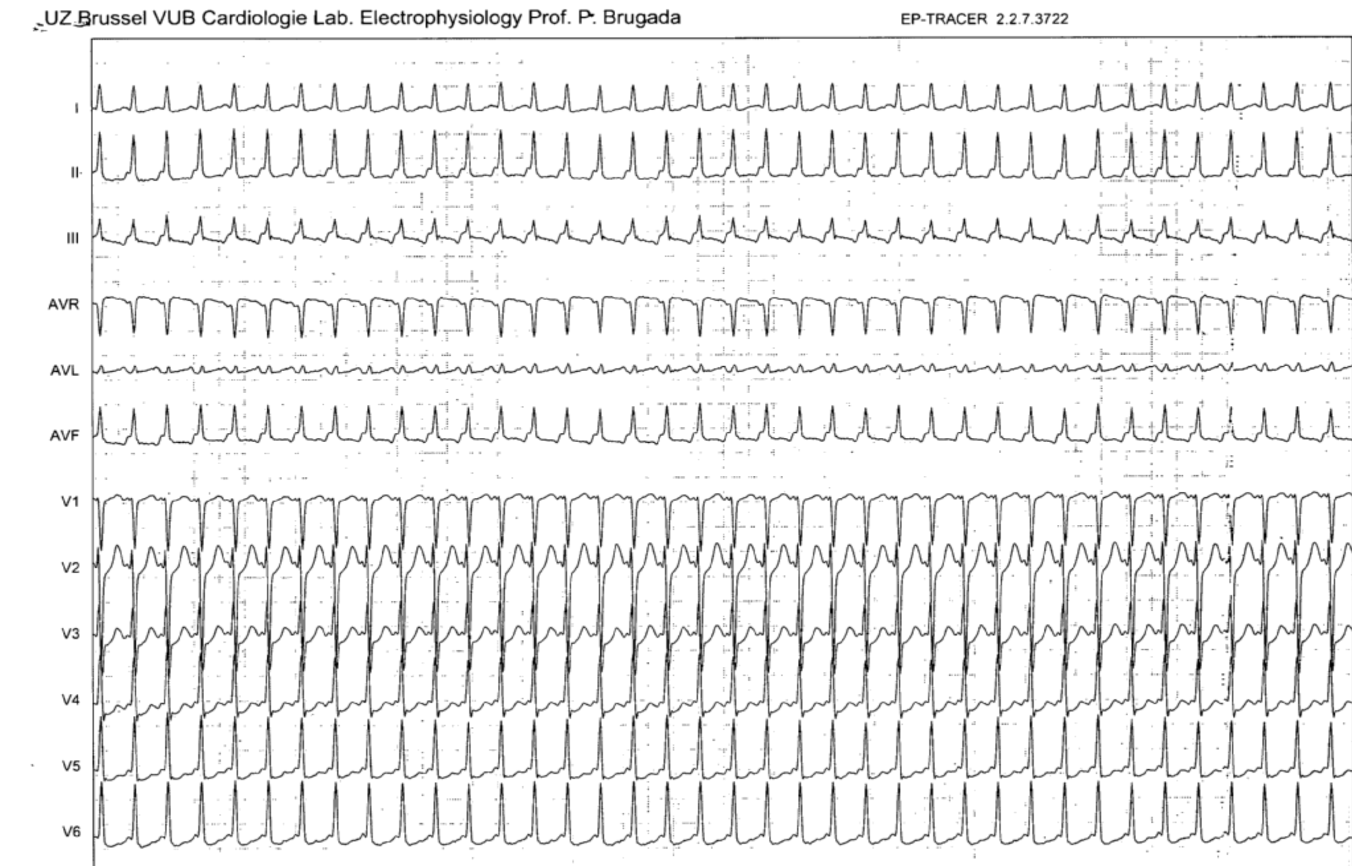




N Engl J Med 2012; 367:1438-1448

Atriale tachy-aritmieën

- Kliniek
  - Plotse hartkloppingen
  - Plotse dyspneu
  - Plotse thoracale pijn
  - Pre-syncope
- Diagnose
- Behandeling – specifiek aan tachy-aritmie



AVNRT

Beleid

ESC
European Society of Cardiology

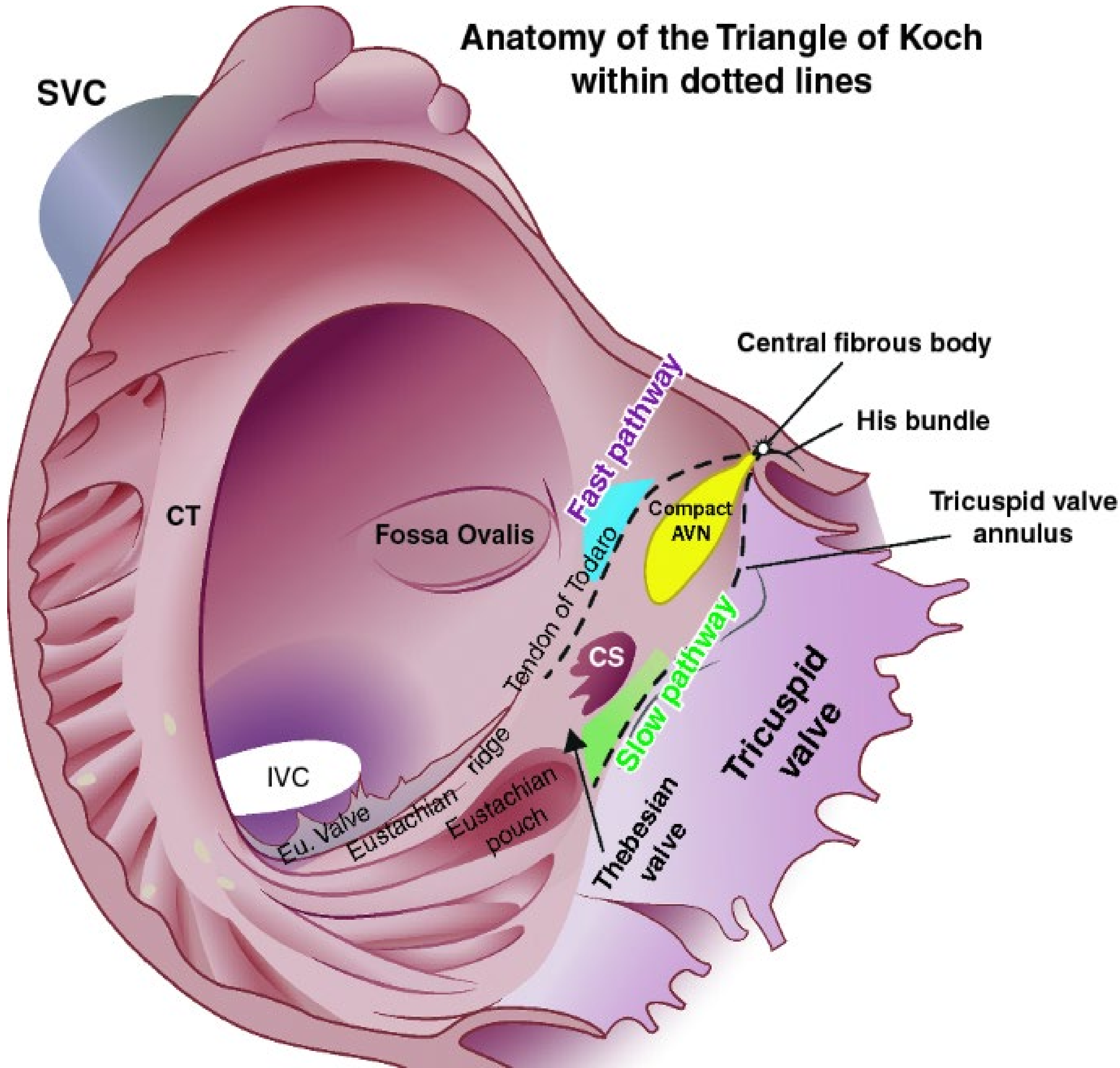
European Heart Journal (2020) **41**, 655–720
doi:10.1093/eurheartj/ehz467

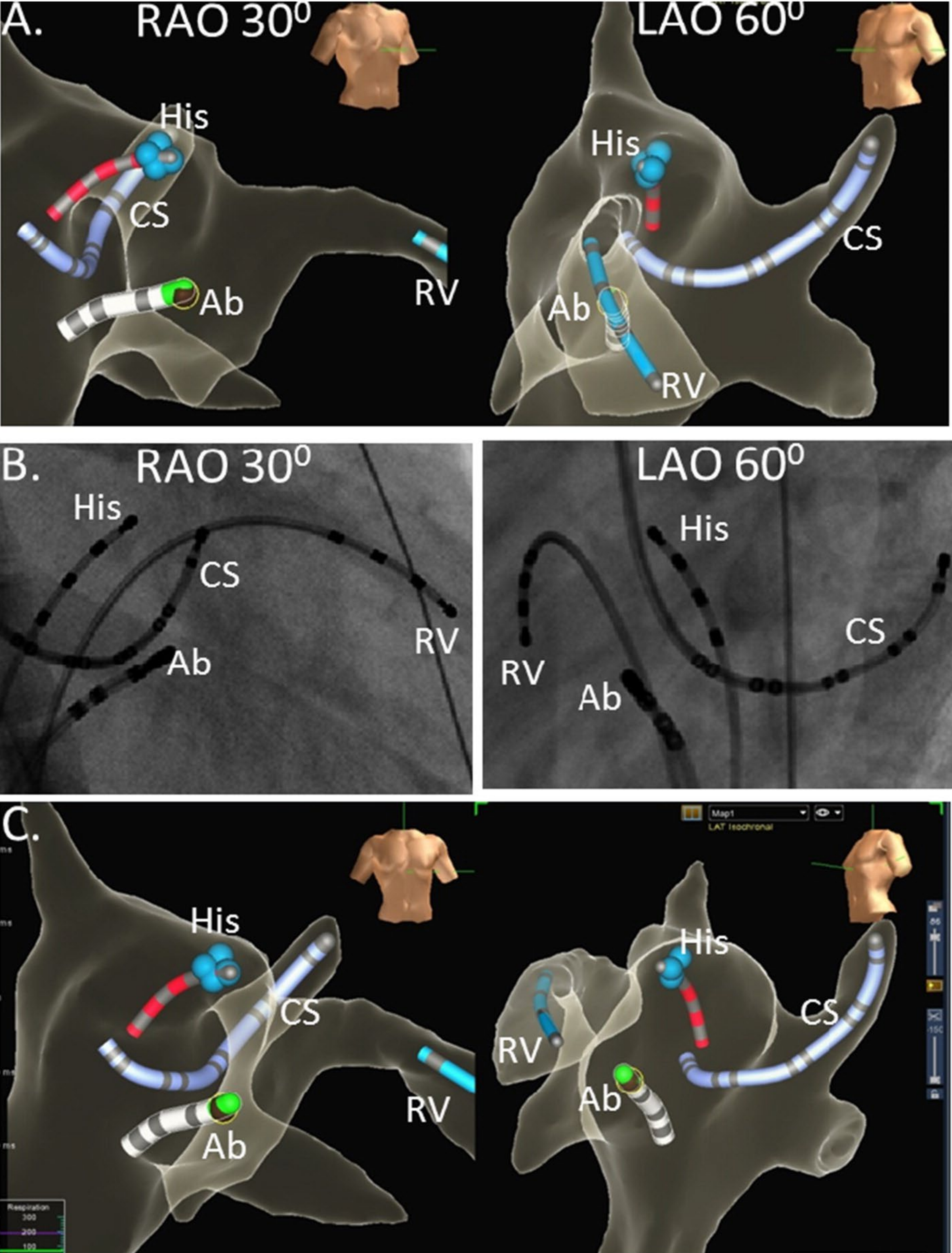
ESC GUIDELINES

2019 ESC Guidelines for the management of patients with supraventricular tachycardia

Chronic therapy		
Catheter ablation is recommended for symptomatic, recurrent AVNRT.[208,336–339]	I	B
Diltiazem or verapamil, in patients without HFrEF, or beta-blockers should be considered if ablation is not desirable or feasible.[340–342]	IIa	B
Abstinence from therapy should be considered for minimally symptomatic patients with very infrequent, short-lived episodes of tachycardia.[319]	IIa	C

Ablatie AVNRT





Succes ratio: 97%

Complicatie:
AV-blok <1%

AVRT - Beleid

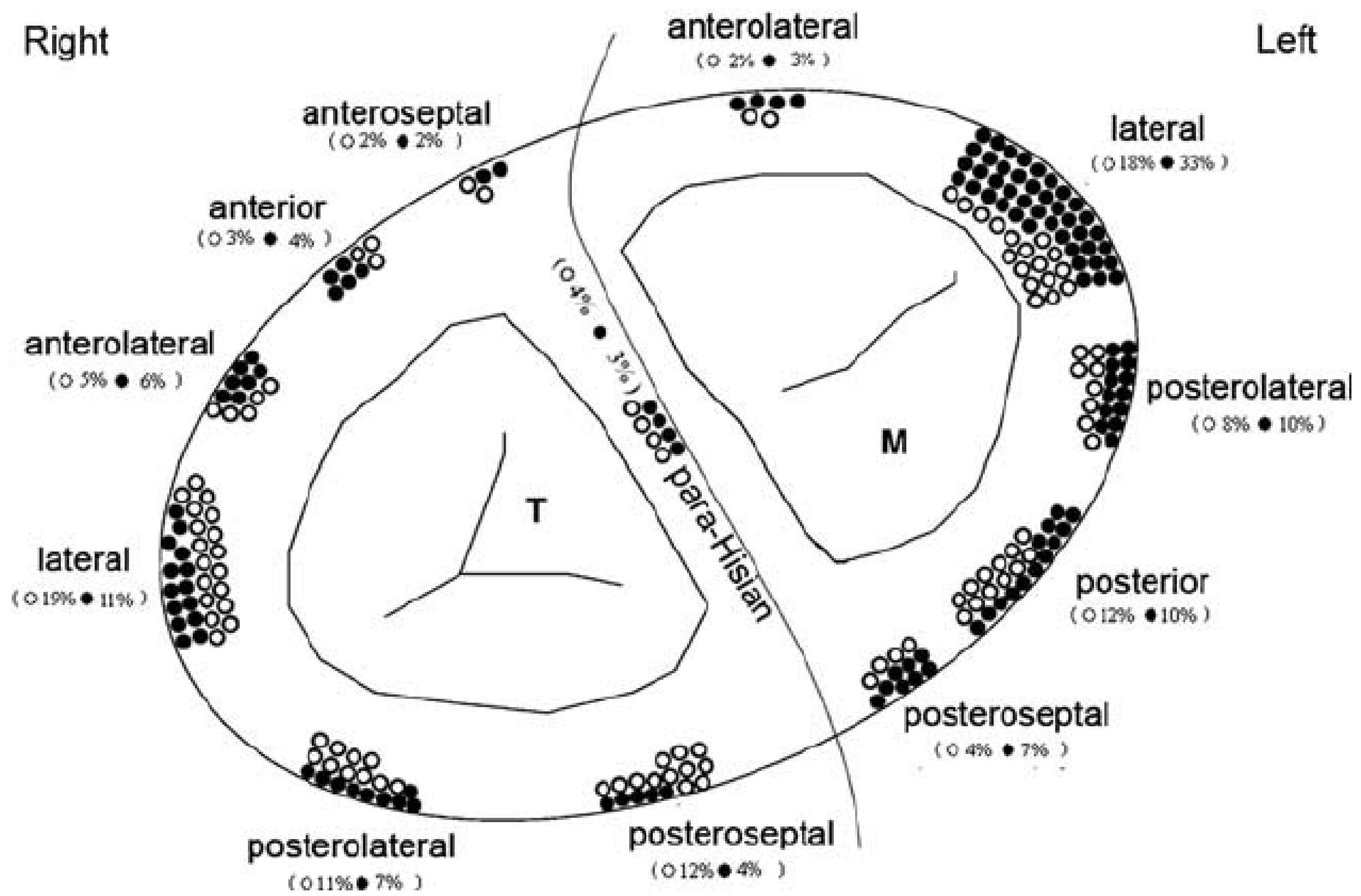
European Heart Journal (2020) **41**, 655–720
doi:10.1093/eurheartj/ehz467

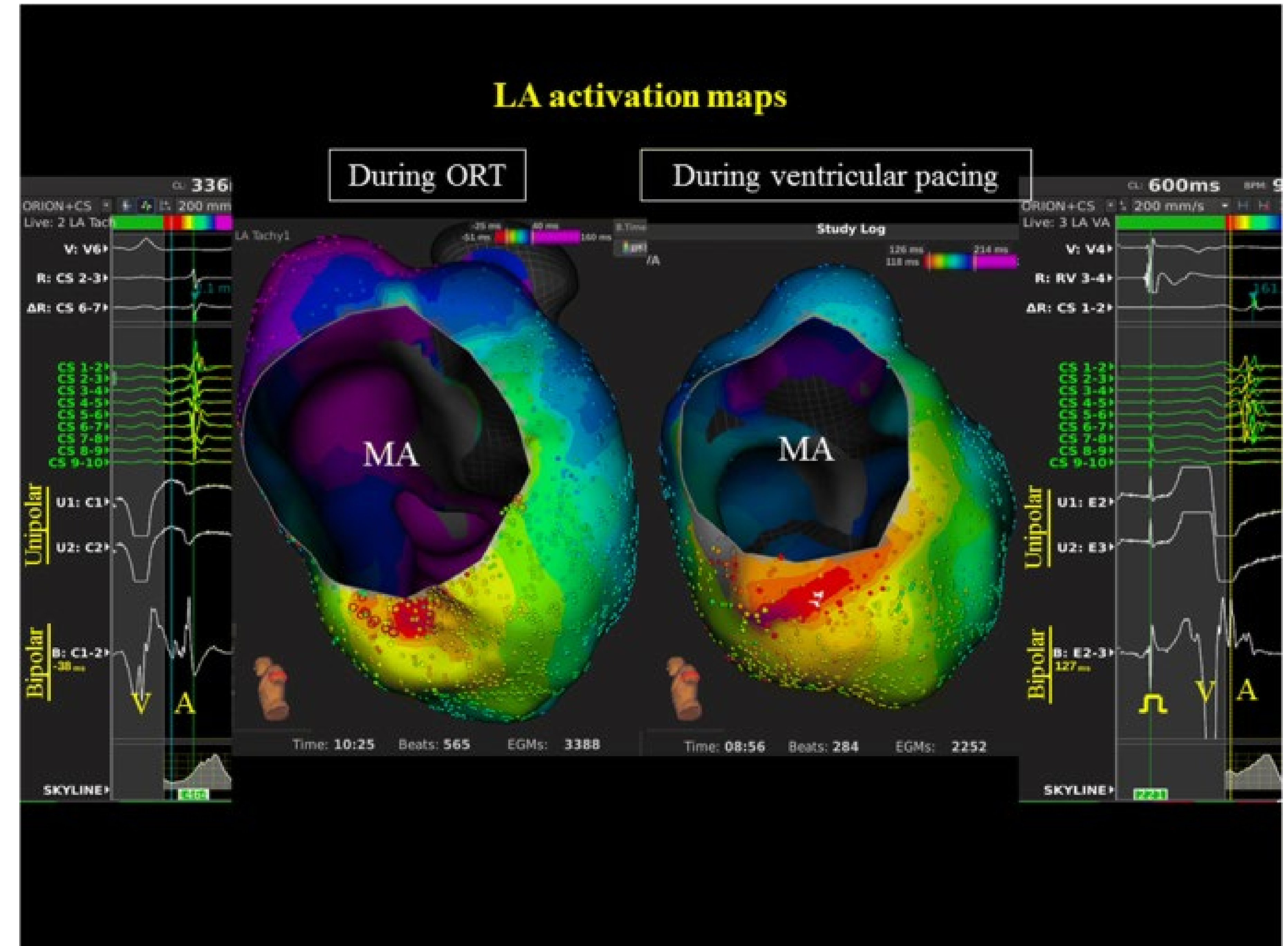
ESC GUIDELINES

2019 ESC Guidelines for the management of patients with supraventricular tachycardia

Chronic therapy		
Catheter ablation of AP(s) is recommended in patients with symptomatic, recurrent AVRT.[391–393,438–441]	I	B
Beta-blockers or non-dihydropyridine calcium-channel blockers (verapamil or diltiazem in the absence of HFrEF) should be considered if no signs of pre-excitation are present on resting ECG, if ablation is not desirable or feasible.[340,341,442,443]	IIa	B
Propafenone or flecainide may be considered in patients with AVRT and without ischaemic or structural heart disease, if ablation is not desirable or feasible.[429,444,445]	IIb	B

Ablatie AVRT





Cardiol Young 2013 Oct;23(5):682-91.

J Interv Card Electrophysiol **62**, 309–318 (2021).

Focale atriale tachycardie

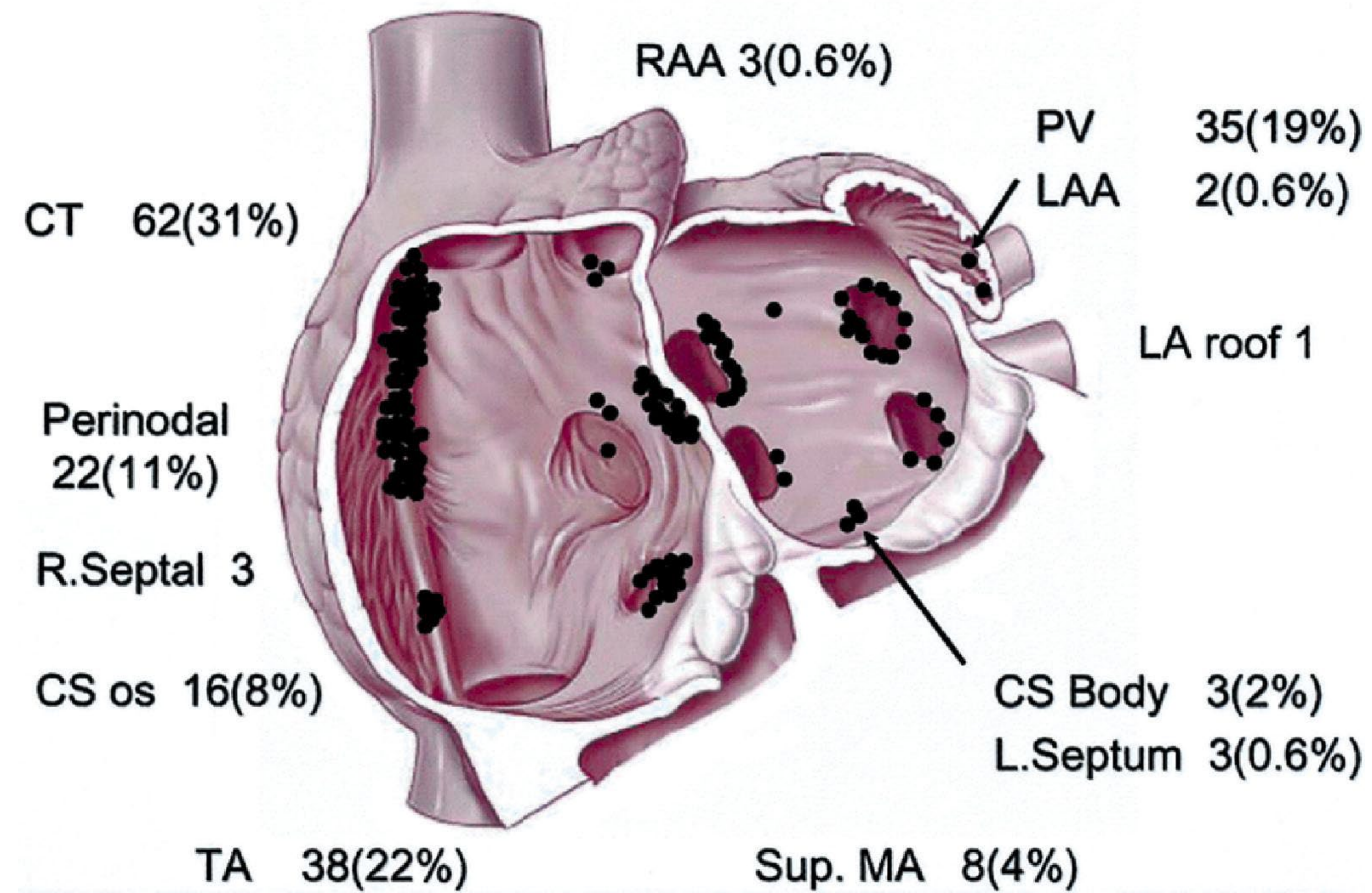
European Heart Journal (2020) **41**, 655–720
doi:10.1093/eurheartj/ehz467

ESC GUIDELINES

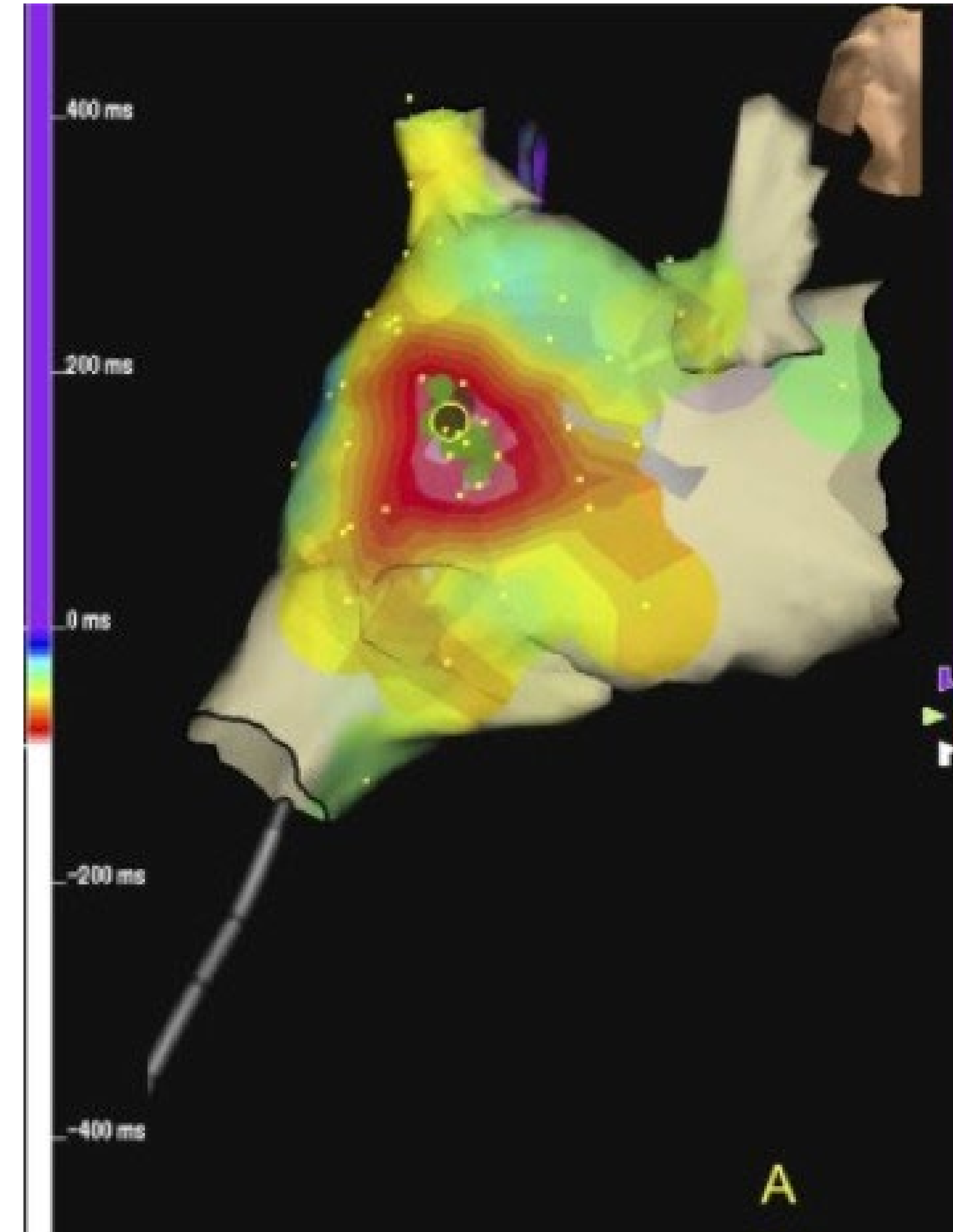
2019 ESC Guidelines for the management of patients with supraventricular tachycardia

Chronic therapy		
Catheter ablation is recommended for recurrent focal AT, especially if incessant or causing TCM.[184,187,194–197]	I	B
Beta-blockers or non-dihydropyridine calcium channel blockers (verapamil or diltiazem in the absence of HFrEF), or propafenone or flecainide in the absence of structural or ischaemic heart disease, should be considered if ablation is not desirable or feasible.[188–190,198]	IIa	C
Ivabradine with a beta-blocker may be considered if the above measures fail.[199,200]	IIb	C
Amiodarone may be considered if the above measures fail.[201,202]	IIb	C

Ablatie focale AT



J Am Coll Cardiol 2006 Sep 5;48(5):1010



Indian Pacing Electrophysiol J2014 Jan 1;14(1):26-31.

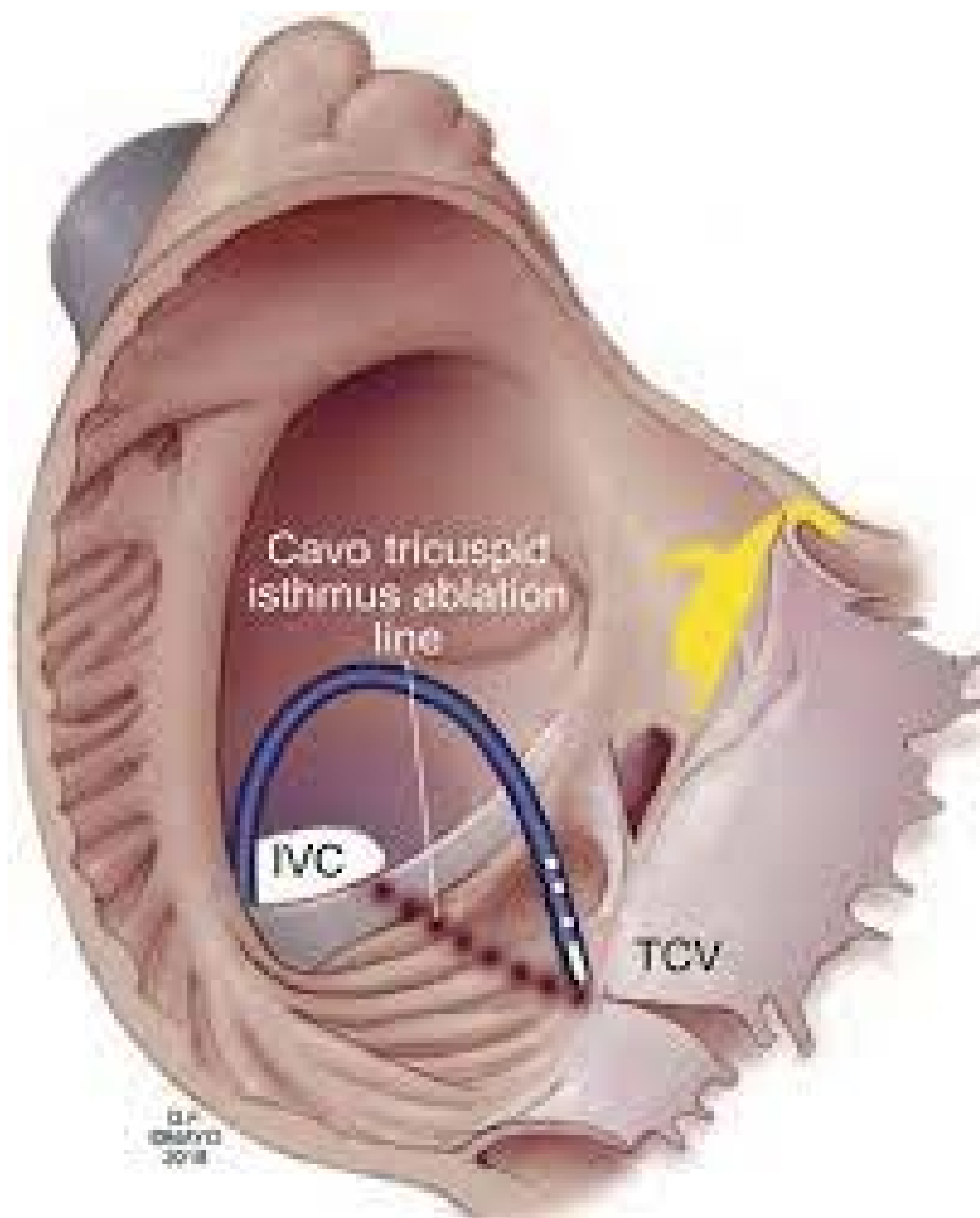
Voorkamerflutter

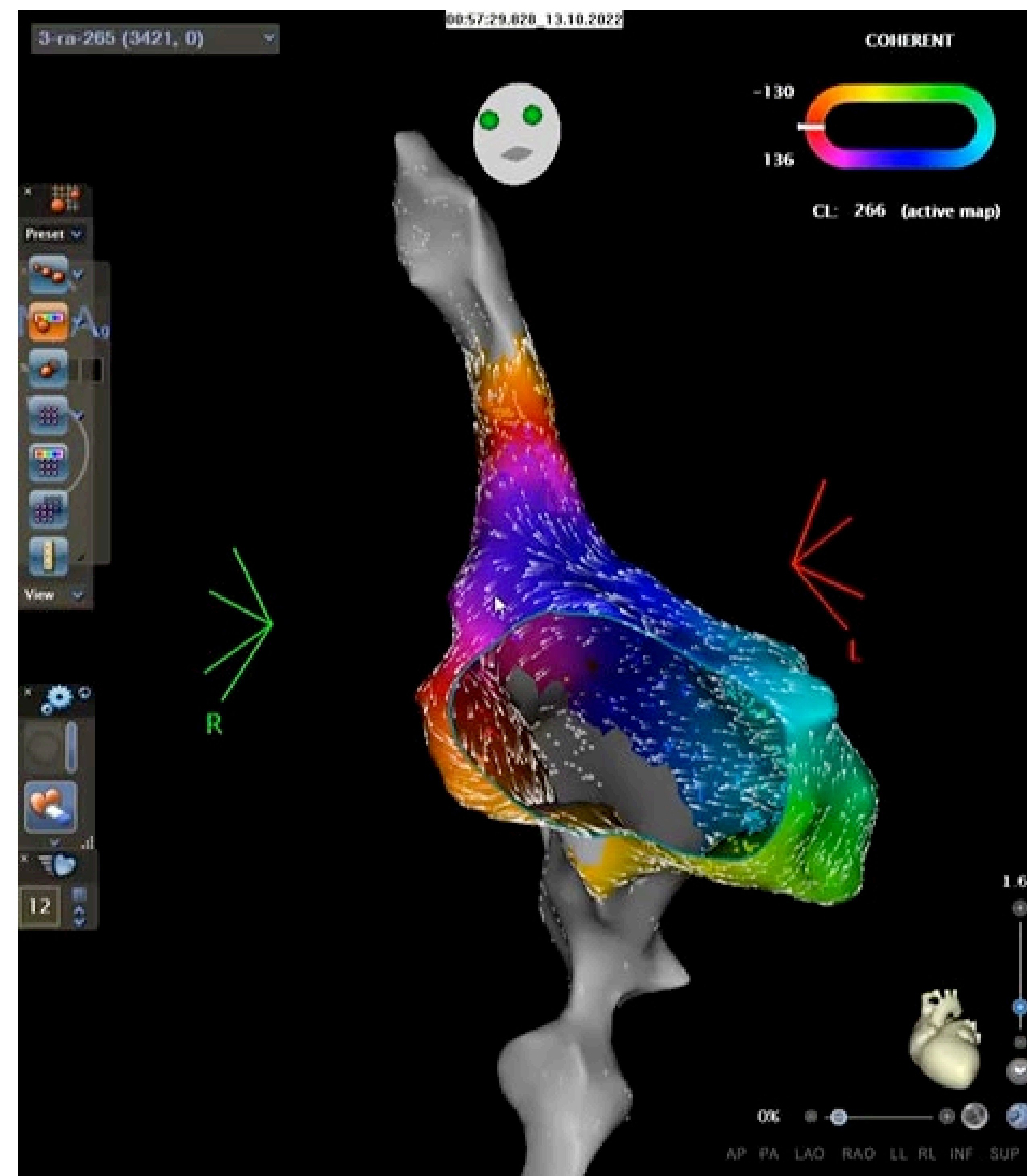
ESC European Society of Cardiology
European Heart Journal (2020) **41**, 655–720
doi:10.1093/eurheartj/ehz467
ESC GUIDELINES

2019 ESC Guidelines for the management of patients with supraventricular tachycardia

Recommendation	Class	Level
Catheter ablation should be considered after the first episode of symptomatic typical atrial flutter.[262,263]	IIa	B
Catheter ablation is recommended for symptomatic, recurrent episodes of CTI-dependent flutter.[262–264]	I	A
Catheter ablation in experienced centres is recommended for symptomatic, recurrent episodes of non-CTI-dependent flutter.[224,265–269]	I	B
Catheter ablation is recommended in patients with persistent atrial flutter or in the presence of depressed LV systolic function due to TCM.[233,234]	I	B
Beta-blockers or non-dihydropyridine calcium channel blockers (verapamil or diltiazem, in the absence HFrEF) should be considered if ablation is not desirable or feasible.[237,270]	IIa	C
Amiodarone may be considered to maintain sinus rhythm if the above measures fail.[263]	IIb	C
AV nodal ablation with subsequent pacing ('ablate and pace'), either biventricular or His-bundle pacing, should be considered if all the above fail and the patient has symptomatic persistent macro-re-entrant atrial arrhythmias with fast ventricular rates.	IIa	C

CTI dependent AFL - Ablatie





Voorkamerfibrillatie - Beleid

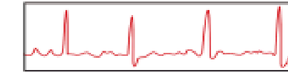
European Heart Journal (2020) 42, 373–498
doi:10.1093/eurheartj/ehaa612

ESC GUIDELINES

2020 ESC Guidelines for the diagnosis and management of atrial fibrillation developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS)

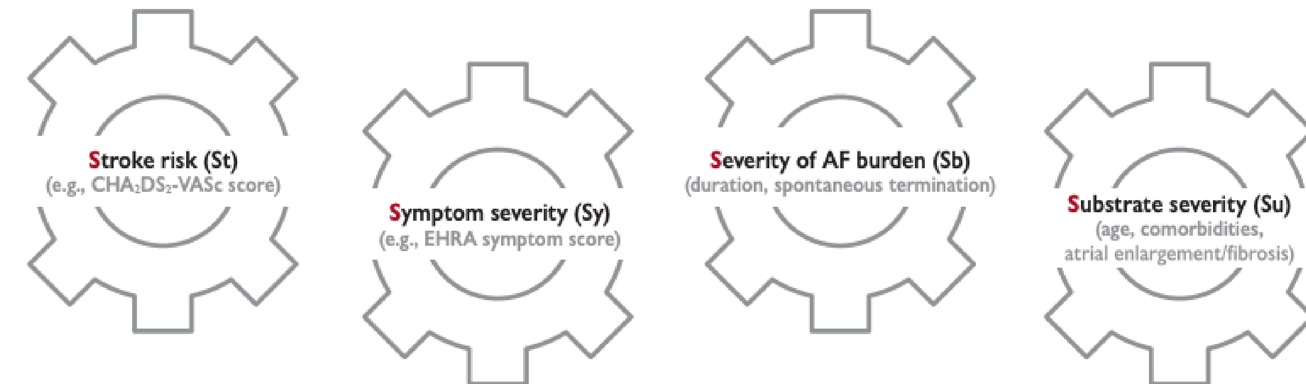
CC To ABC

Confirm AF

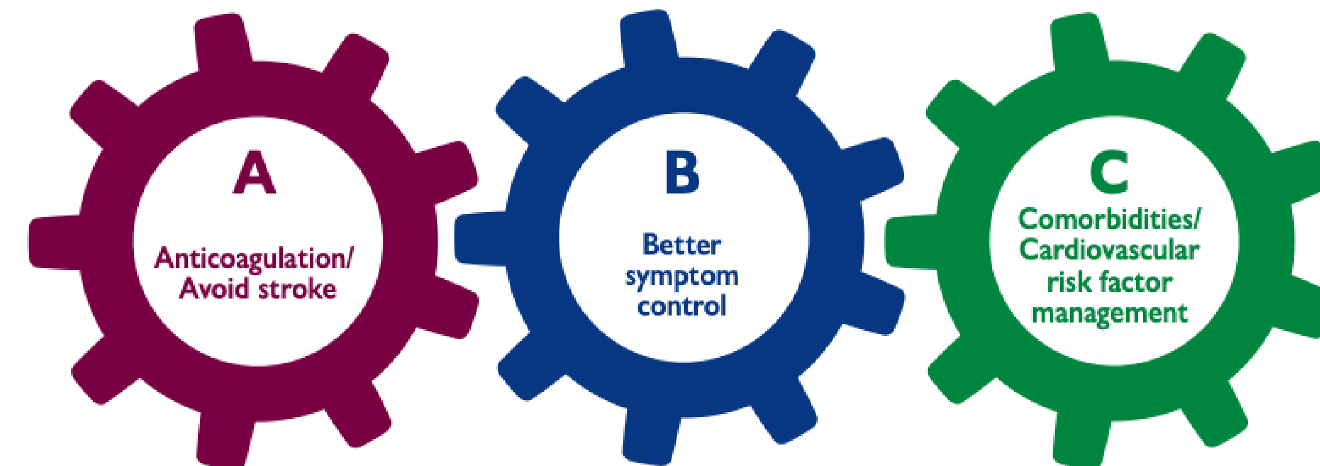


A 12-lead ECG or a rhythm strip showing AF pattern for ≥30 s

Characterise AF (the 4S-AF scheme)



Treat AF: The ABC pathway



1. Identify low-risk patients CHA_2DS_2-VASc 0(m), 1(f)
2. Offer stroke prevention if CHA_2DS_2VASc ≥1(m), 2(f)

Assess bleeding risk, address modifiable bleeding risk factors

3. Choose OAC (NOAC or VKA with well-managed TTR)

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.)

Universitair Ziekenhuis Brussel

Centrum voor Hart- en Vaatziekten

HRMC
Heart Rhythm Management Centre

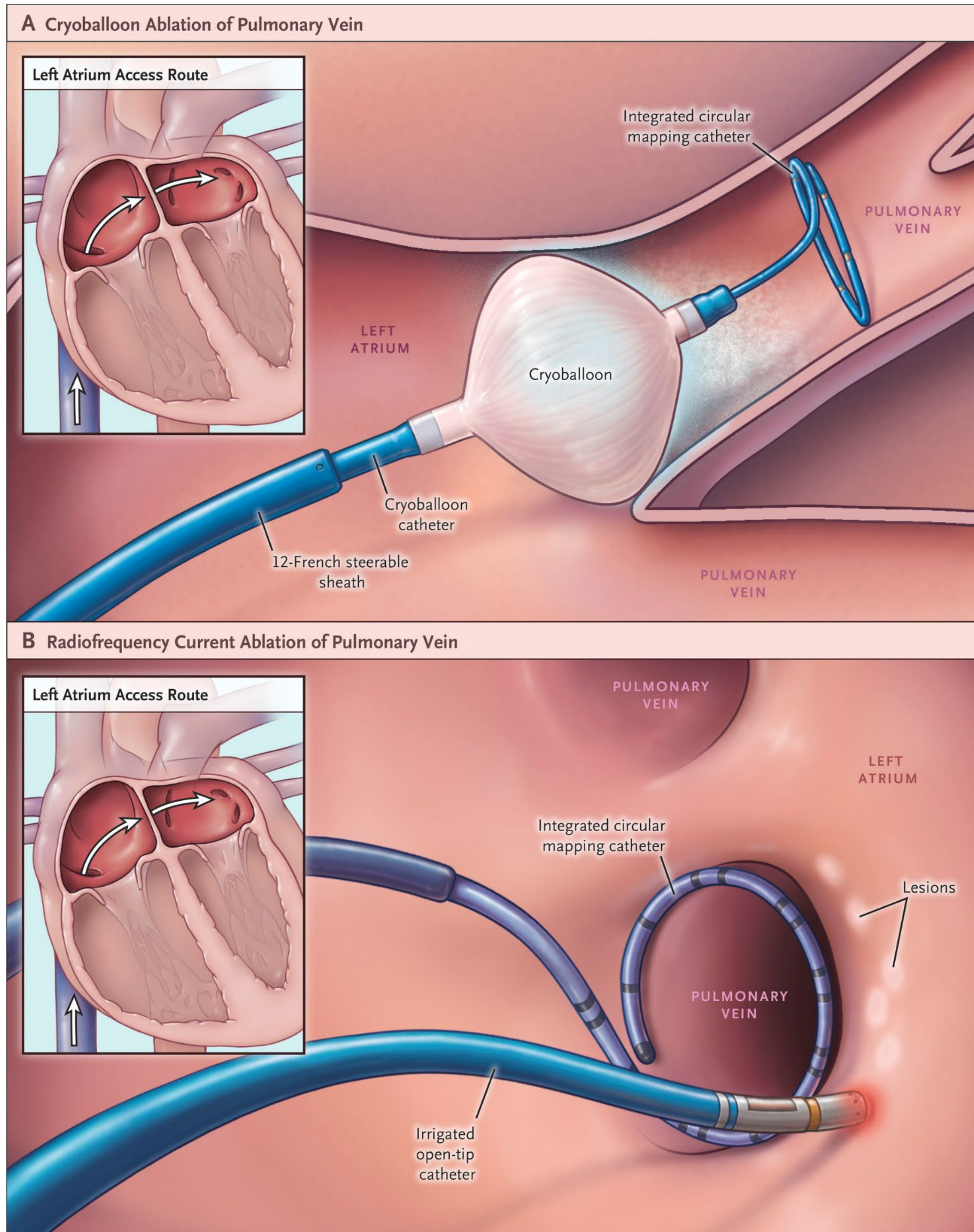
Voorkamerfibrillatie - Ablatie

ESC European Society of Cardiology
European Heart Journal (2020) 42, 373–498
doi:10.1093/eurheartj/ehaa612
ESC GUIDELINES

Changes in the recommendations

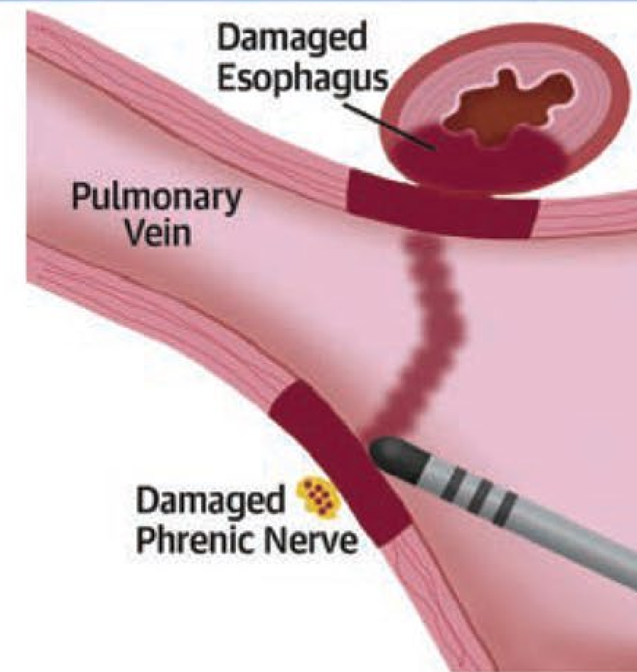
Recommendations about integrated AF management			
2020	**Class[a]**	**2016**	**Class[a]**
Recommendations for rhythm control/catheter ablation of AF			
AF catheter ablation after drug therapy failure			
AF catheter ablation for PVI is recommended for rhythm control after one failed or intolerant class I or III AAD, to improve symptoms of AF recurrences in patients with: • Paroxysmal AF, or • Persistent AF without major risk factors for AF recurrence, or • Persistent AF with major risk factors for AF recurrence.	I	Catheter or surgical ablation should be considered in patients with symptomatic persistent or long-standing persistent AF refractory to AAD therapy to improve symptoms, considering patient choice, benefit and risk, supported by an AF Heart Team.	IIa
First-line therapy			
AF catheter ablation: • Is recommended to reverse LV dysfunction in AF patients when tachycardia-induced cardiomyopathy is highly probable, independent of their symptom status.	I	AF ablation should be considered in symptomatic patients with AF and HFrEF to improve symptoms and cardiac function when tachycardiomyopathy is suspected.	IIa
• Should be considered in selected AF patients with HFrEF to improve survival and reduce HF hospitalization.	IIa		

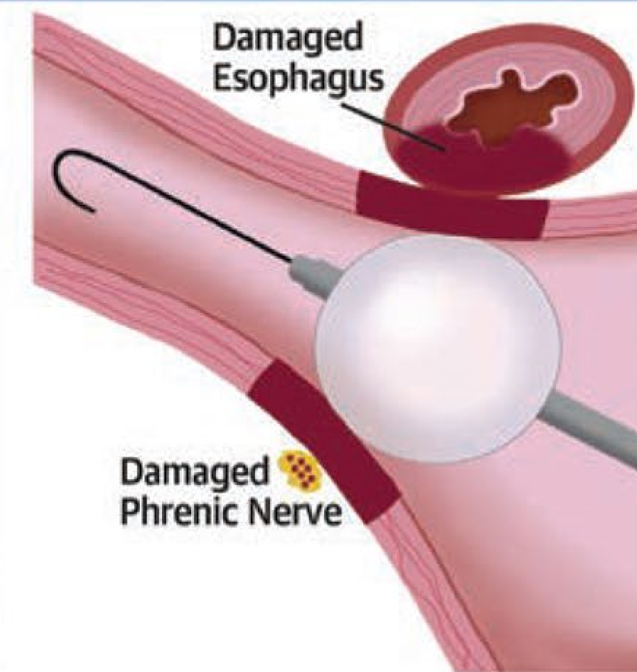
VKF ablatie - PVI

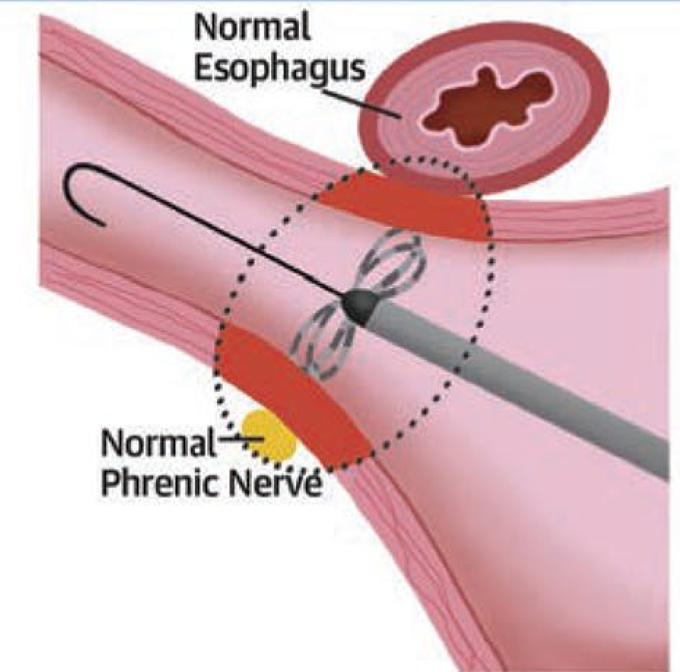


CENTRAL ILLUSTRATION Pulmonary Vein Isolation For Atrial Fibrillation By Pulsed Field Ablation

Radiofrequency Ablation	Cryoballoon Ablation	Pulsed Field Ablation





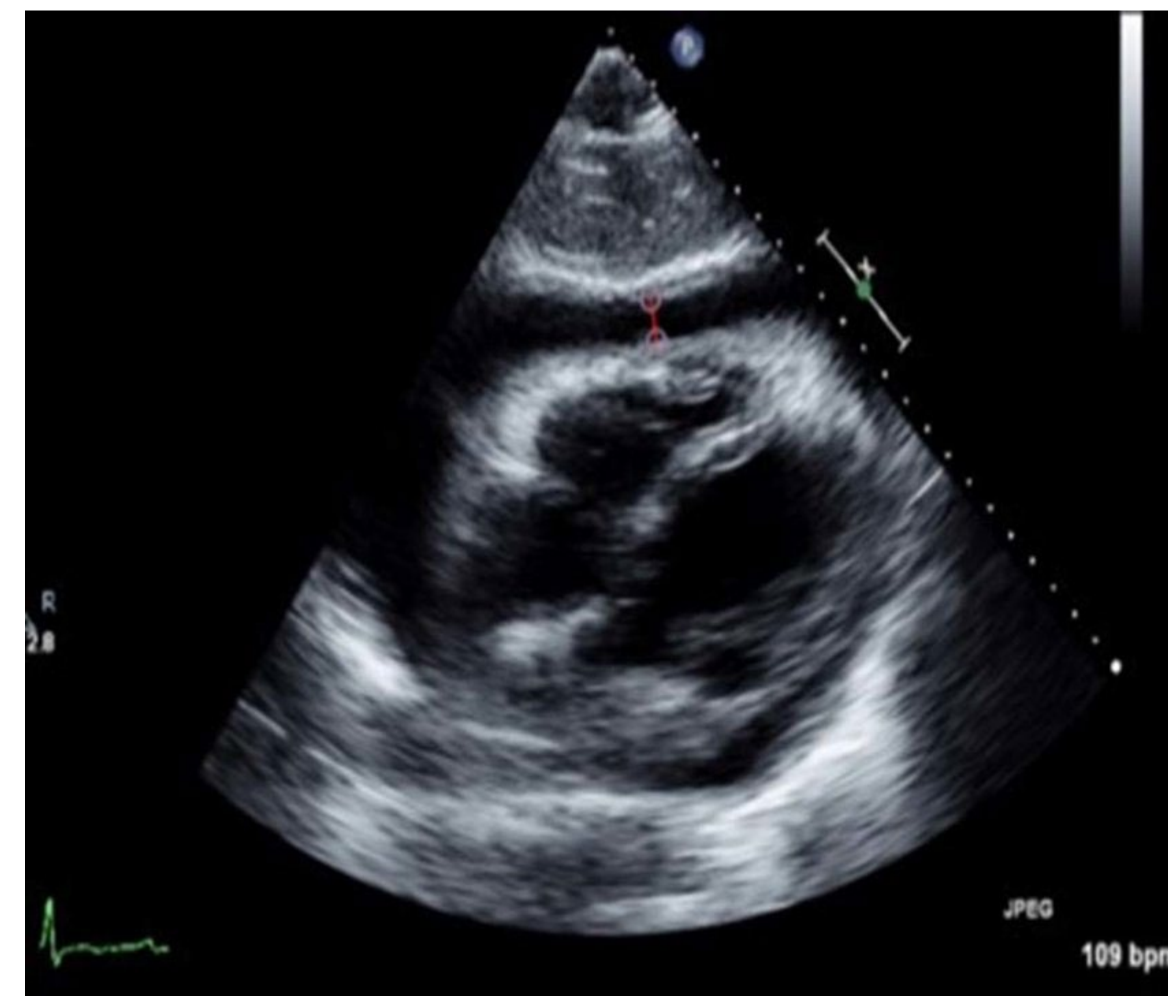


Reddy VY, et al. *J Am Coll Cardiol* 2019;74:315-26.

N Engl J Med 2016; 374:2235-2245

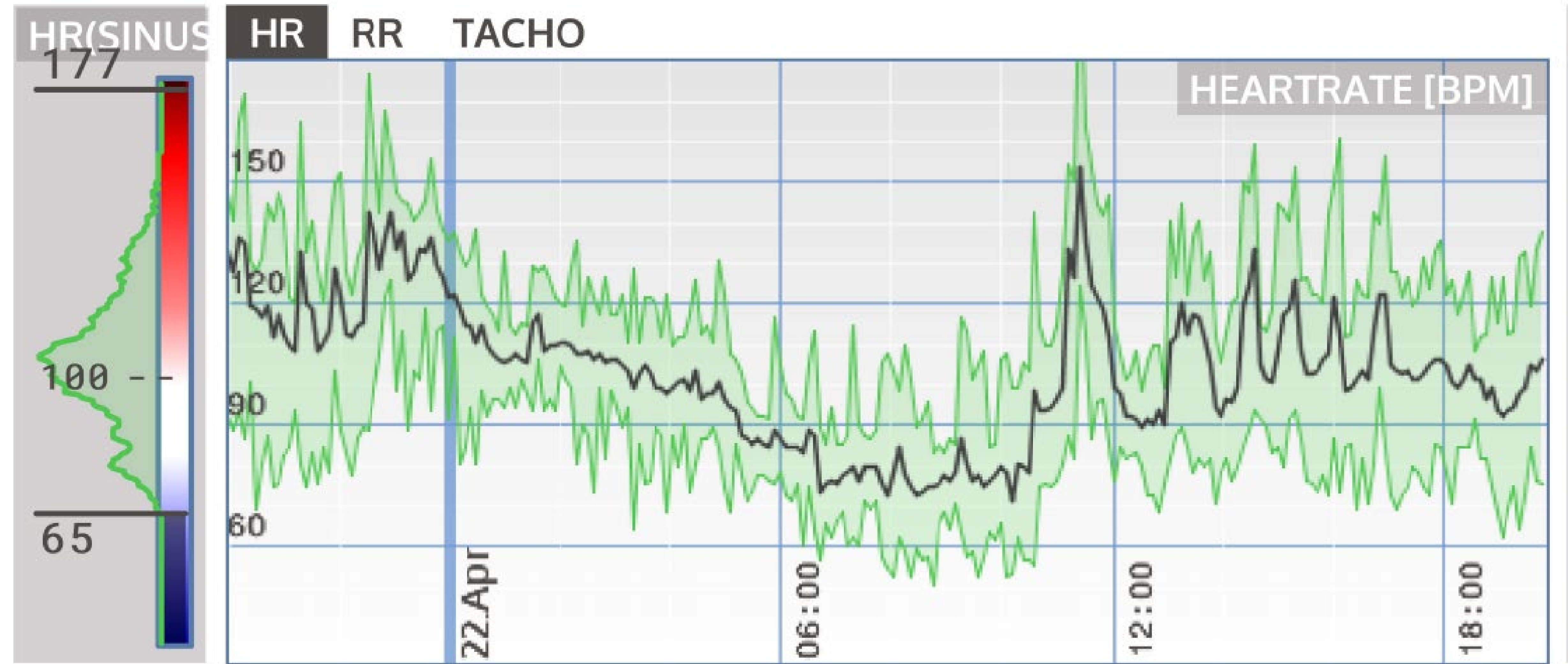
Complicaties ablatie

- Vasculair access
  - Hematoom
  - Pseudoaneurysma
  - Trombose
- Pericardiale prikkeling
  - Pericarditis - pericardvochtuitstorting
- Trombus embolisatie
- N. phrenicus parese/paralyse
- AV-blok



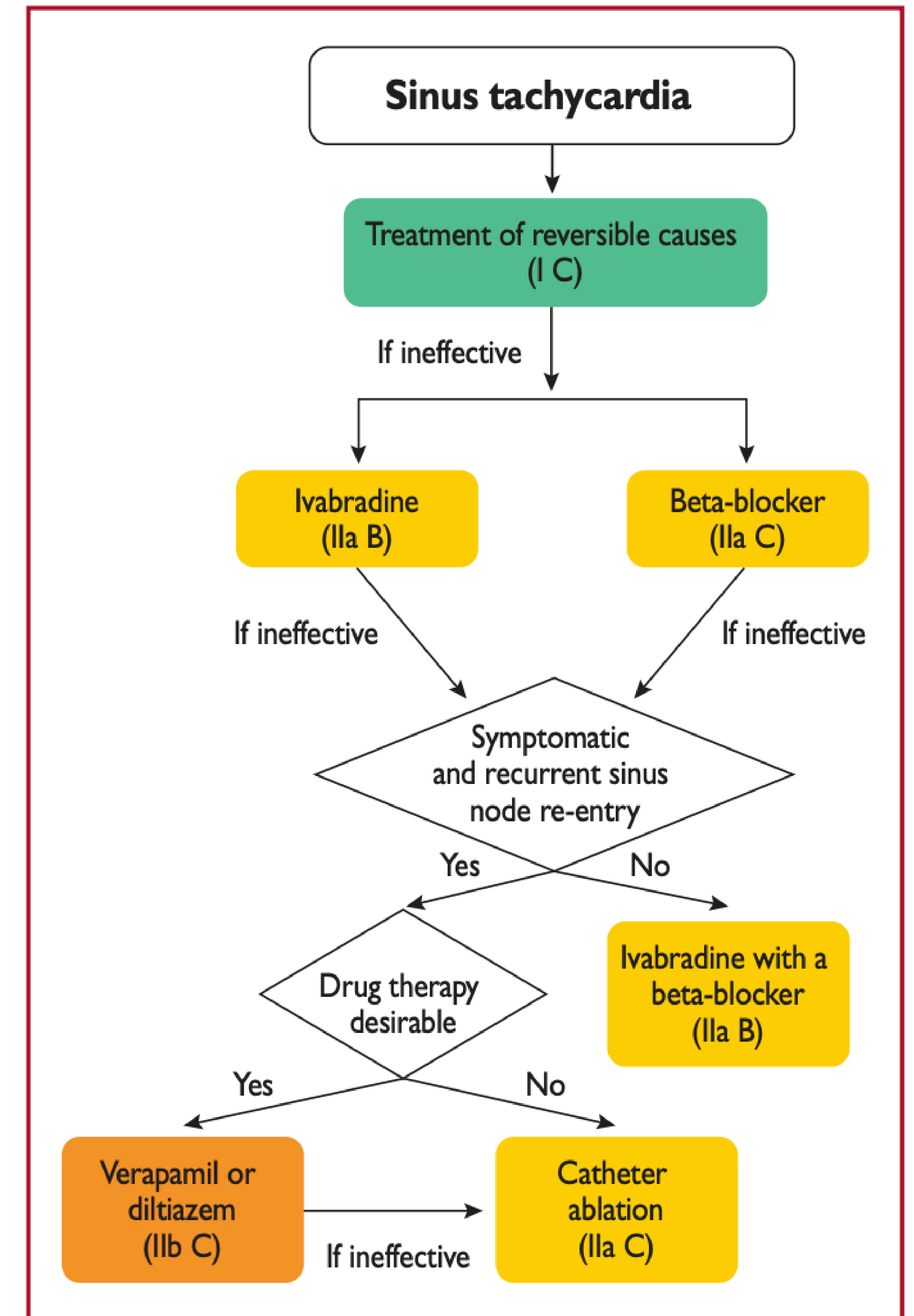
Sinus tachycardie - beleid

- 24-uurs Holter
- Geruststelling
- Intensief sporten



Inappropriate sinus tachycardie

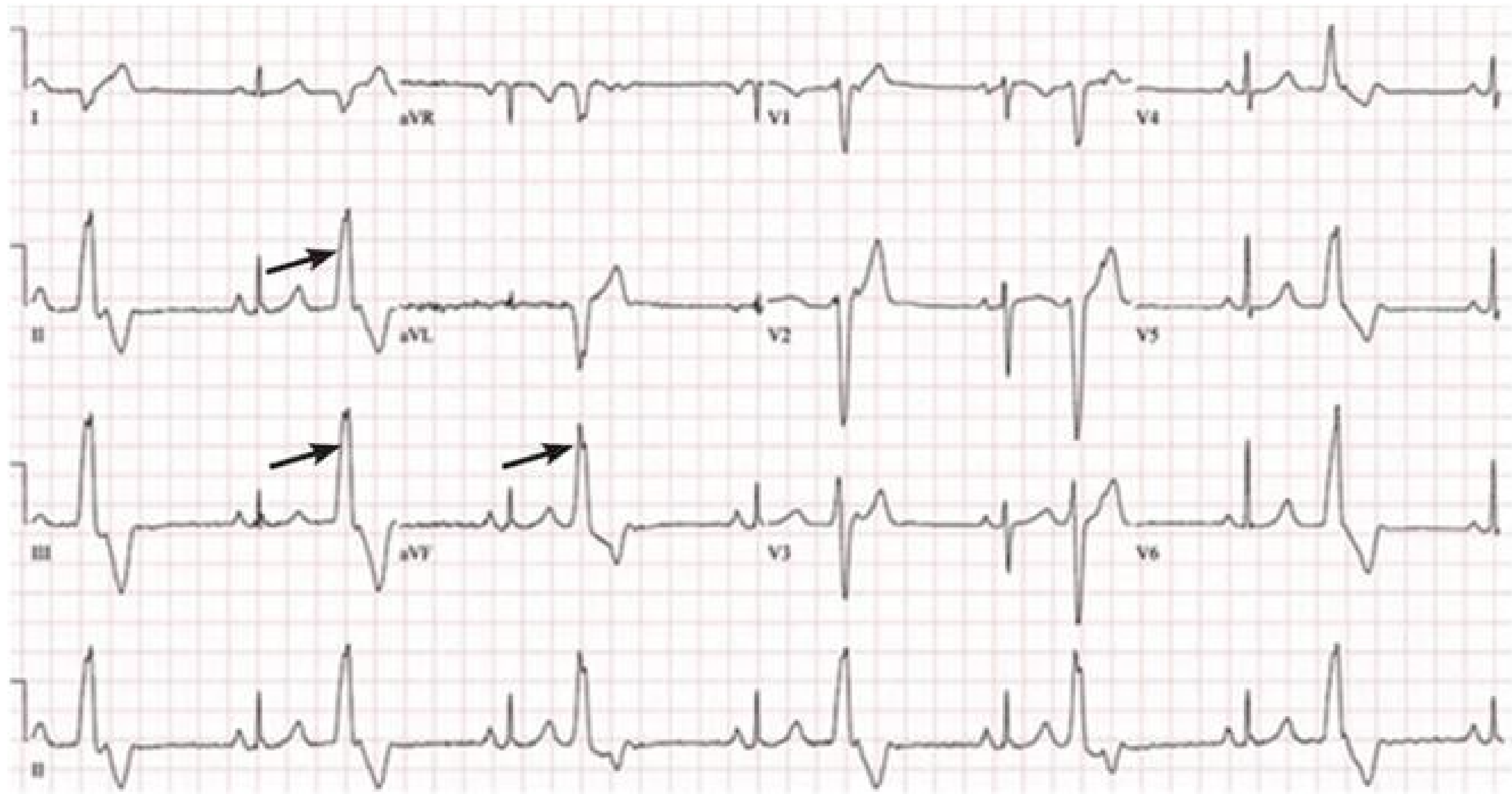
- 24-uurs Holter
  - HF: gemiddeld > 90-100/min
  - Belangrijke stijging bij minste inpanning
- Specifiek psychologisch profiel
- Beleid - moeilijk



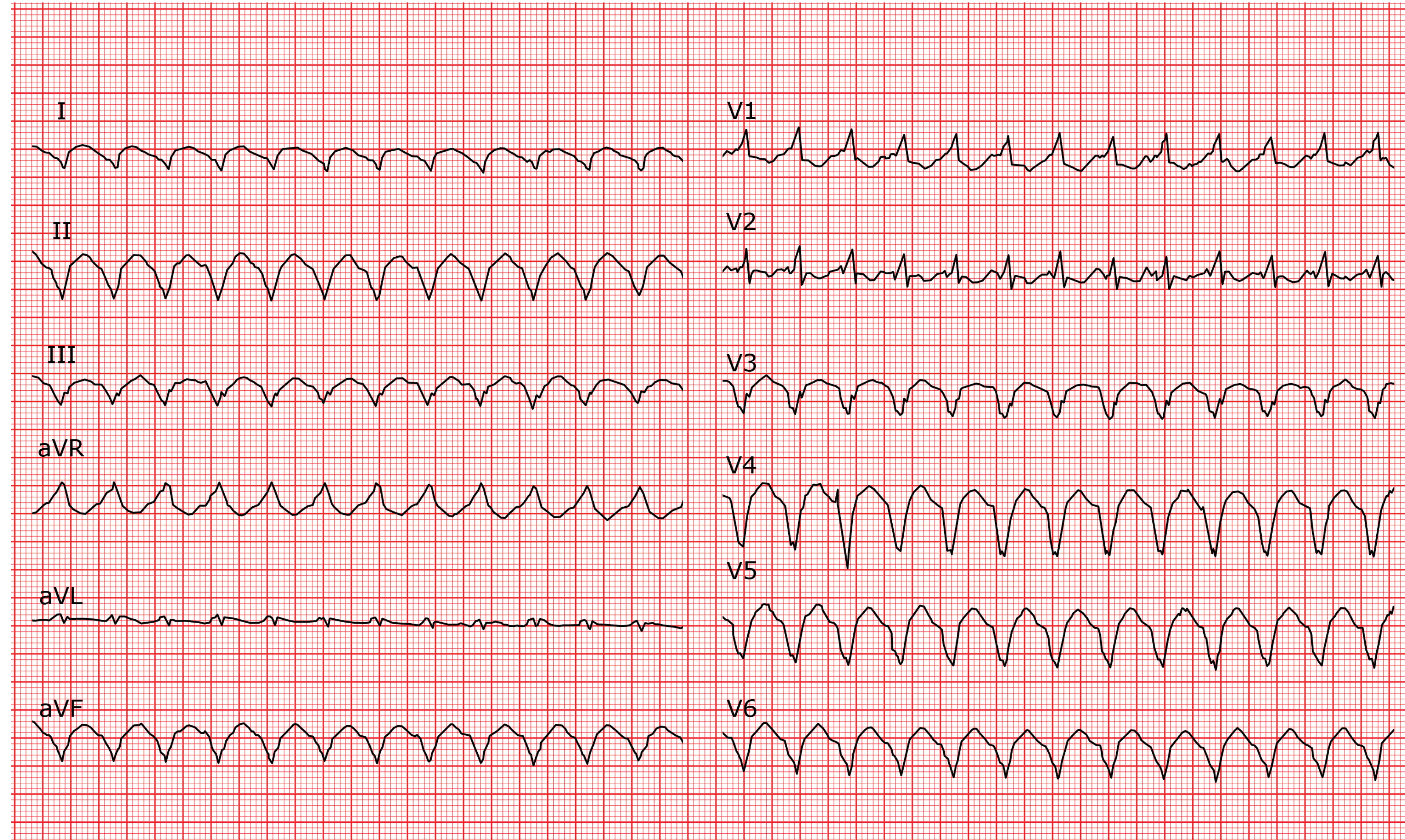
ESC Guidelines SVT: European Heart Journal, Volume 41, Issue 5, 1 February 2020, Pages 655–720,

Ventriculaire aritmieën

VES

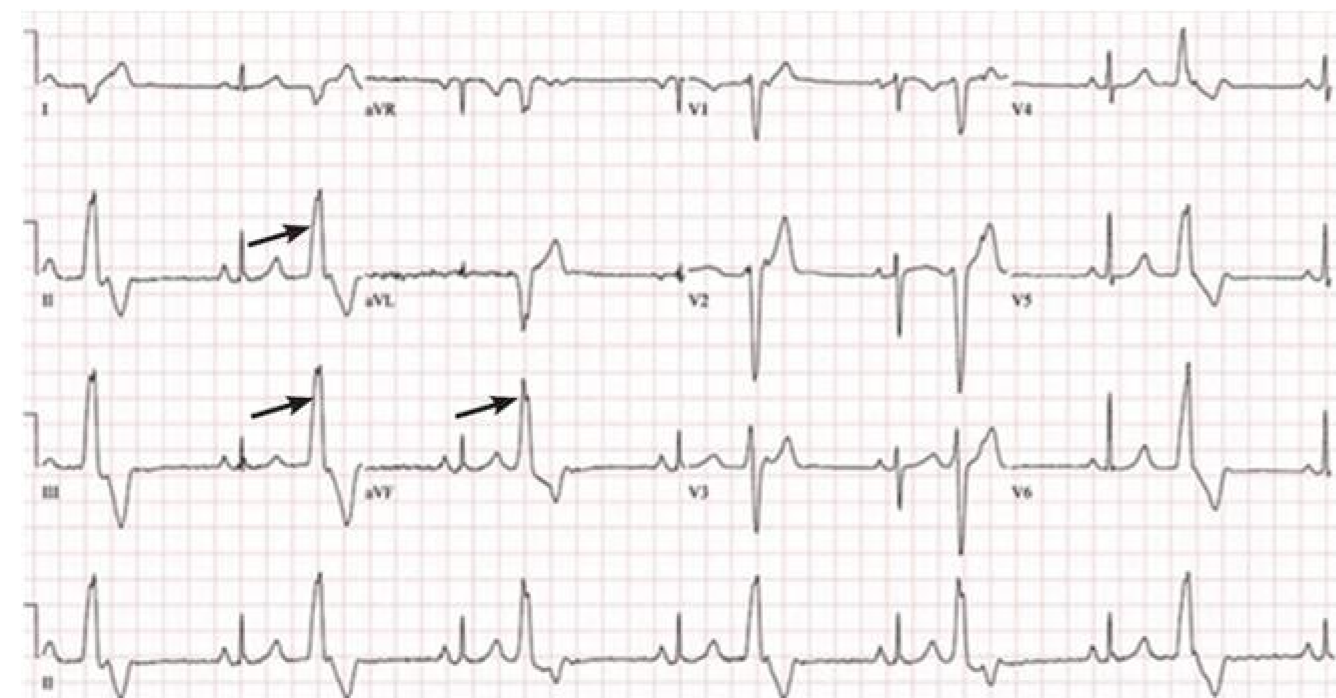


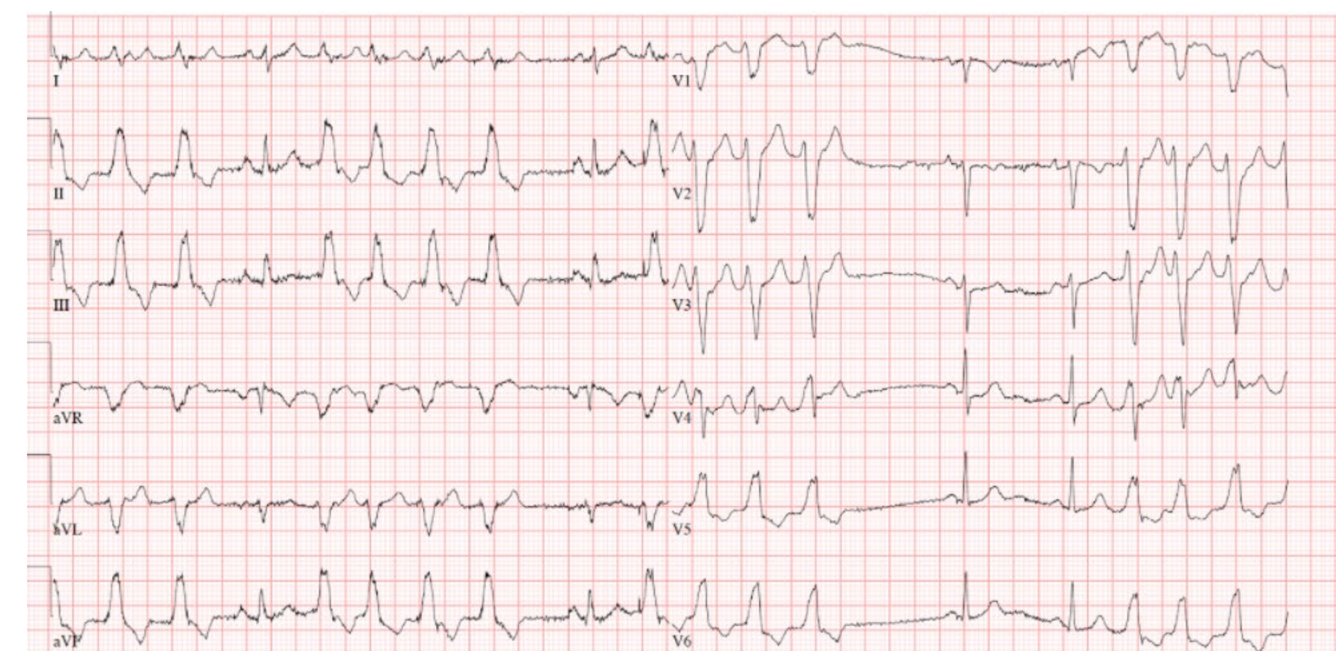
VT



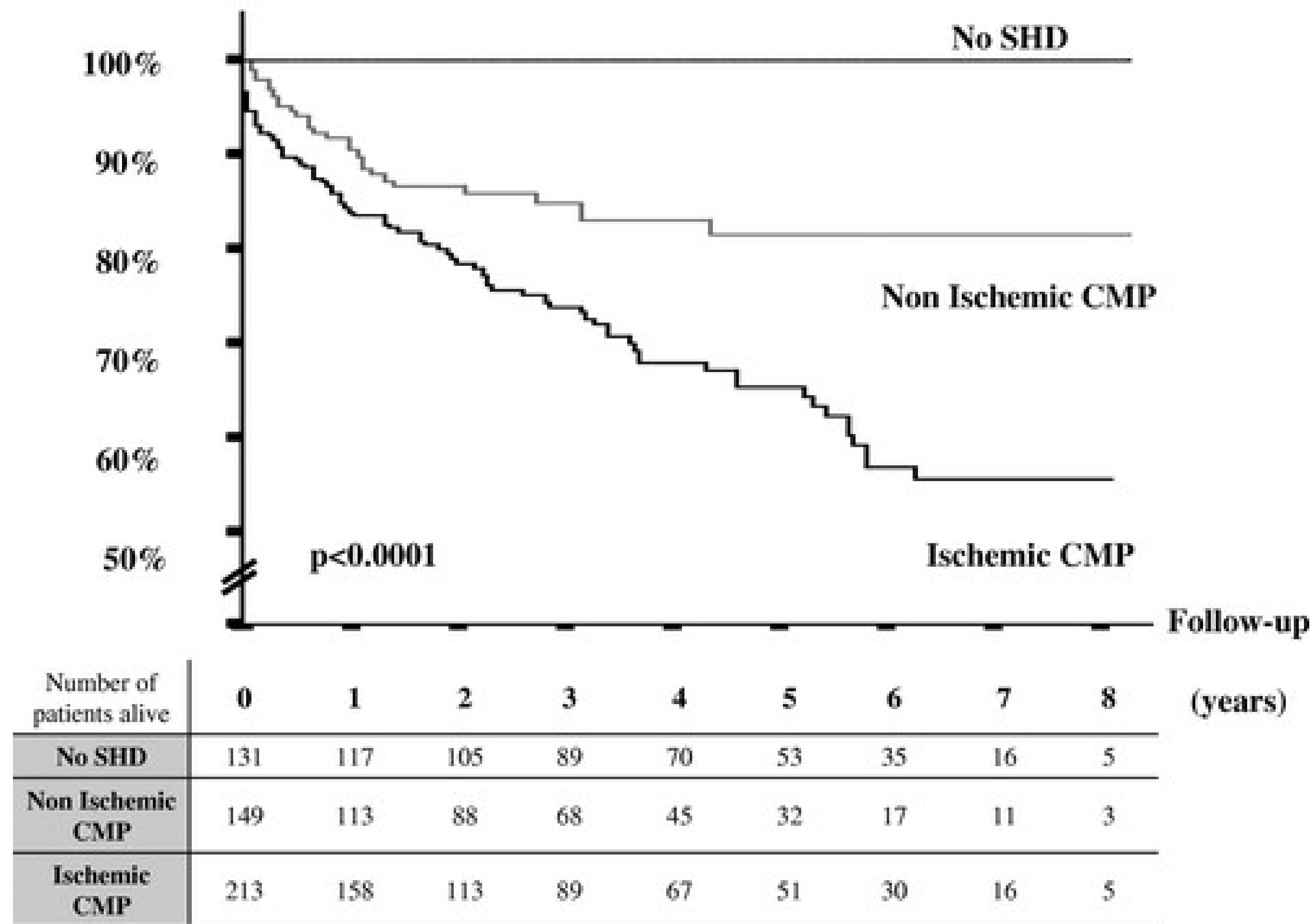
VENTRICULAIRE EXTRASYSTOLEN

- Asymptomatisch – tot invaliderende klachten
- Palpitaties, drukkend gevoel hoofd, nek pulsaties, pre-syncope, inspanningsdyspneu
- Leeftijd, 30-50 j, vrouwen
- Inspanning, recuperatie, rust,
- Trigger (emoties, fysische inspanning, stimulantia)
- Transient. Toevallige vondst





Afwezigheid van structurele afwijkingen



Number of patients alive	0	1	2	3	4	5	6	7	8
No SHD	131	117	105	89	70	53	35	16	5
Non Ischemic CMP	149	113	88	68	45	32	17	11	3
Ischemic CMP	213	158	113	89	67	51	30	16	5

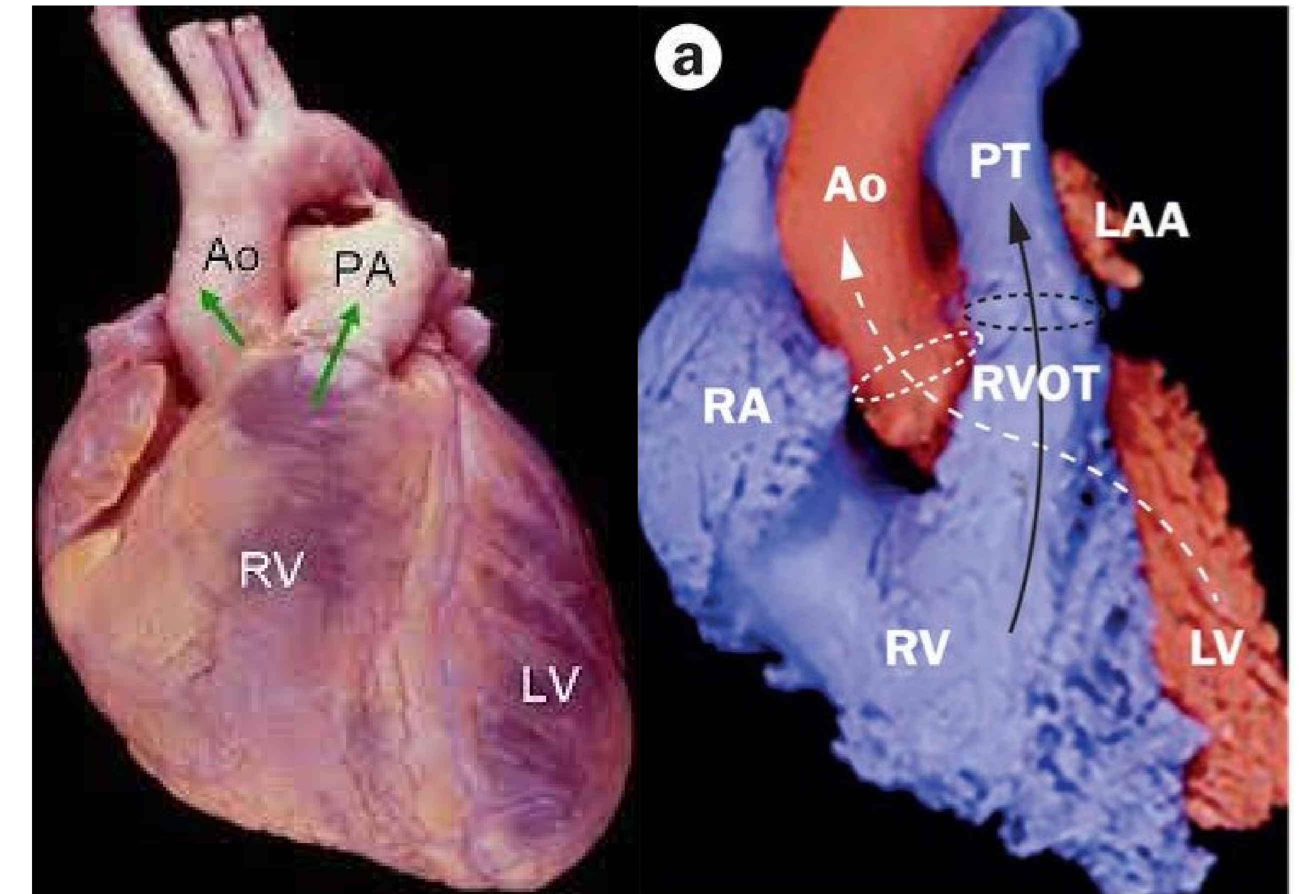
Figure 2. Kaplan-Meier curves of survival after ventricular tachycardia (VT) ablation depending on the substrate. SHD indicates structural heart disease; CMP, cardiomyopathy.

Frédéric Sacher. Circulation: Arrhythmia and Electrophysiology. Ventricular Tachycardia Ablation, Volume: 1, Issue: 3, Pages: 153-161,

Idiopathisch PVCs/VT

- ➢ Afwezigheid van structureel cardiaal lijden
  - ➢ ECG
  - ➢ TTE
  - ➢ Geen coronairlijden

- ➢ Cardiac MRI



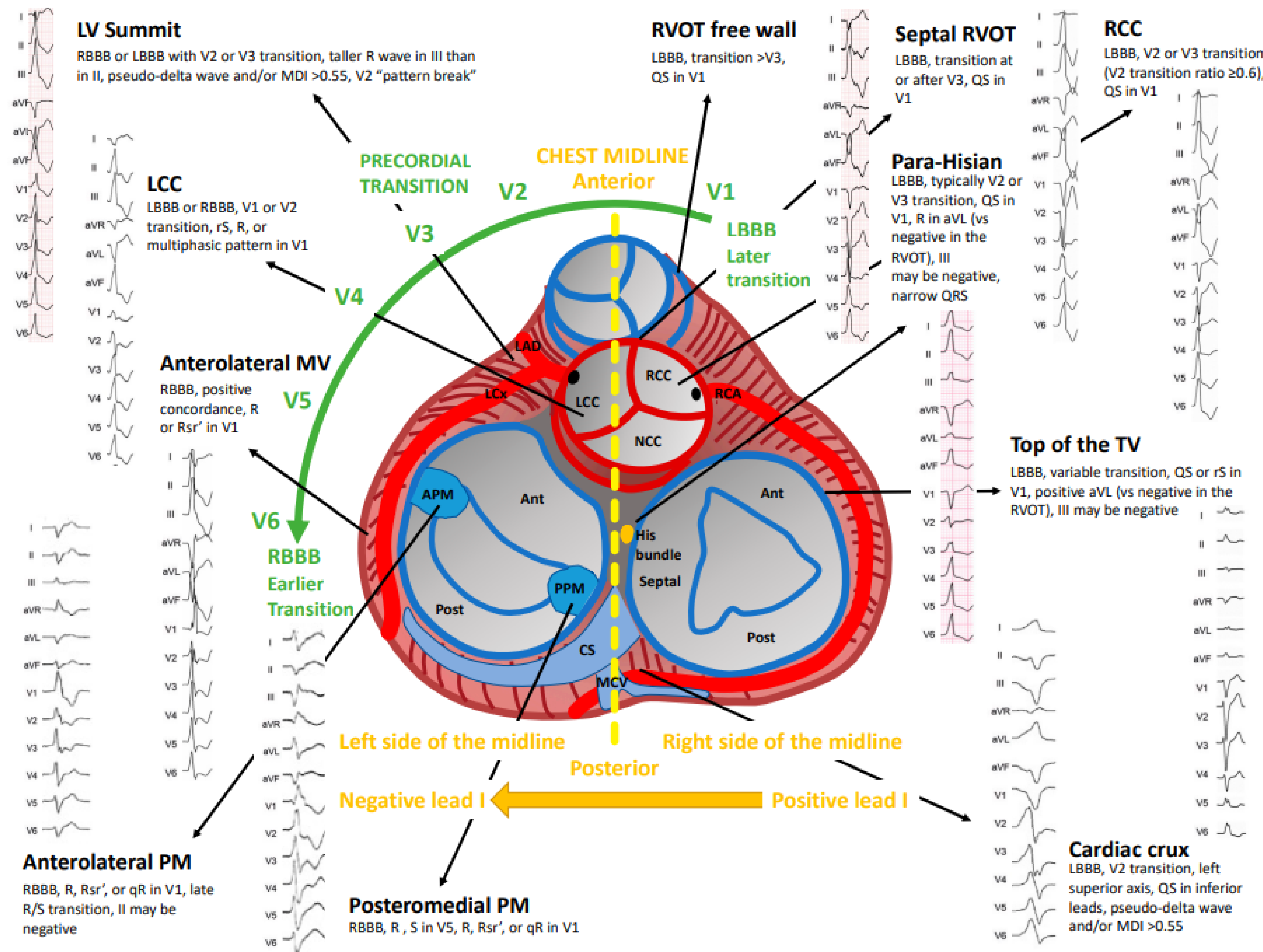
- ➢ Structural heart disease
  - ➢ Ischemische CMP
  - ➢ Gedilateerd CMP
  - ➢ HCMP
  - ➢ ARVC
  - ➢ Sarcoidose
  - ➢ Brugada syndrome
  - ➢ ……….

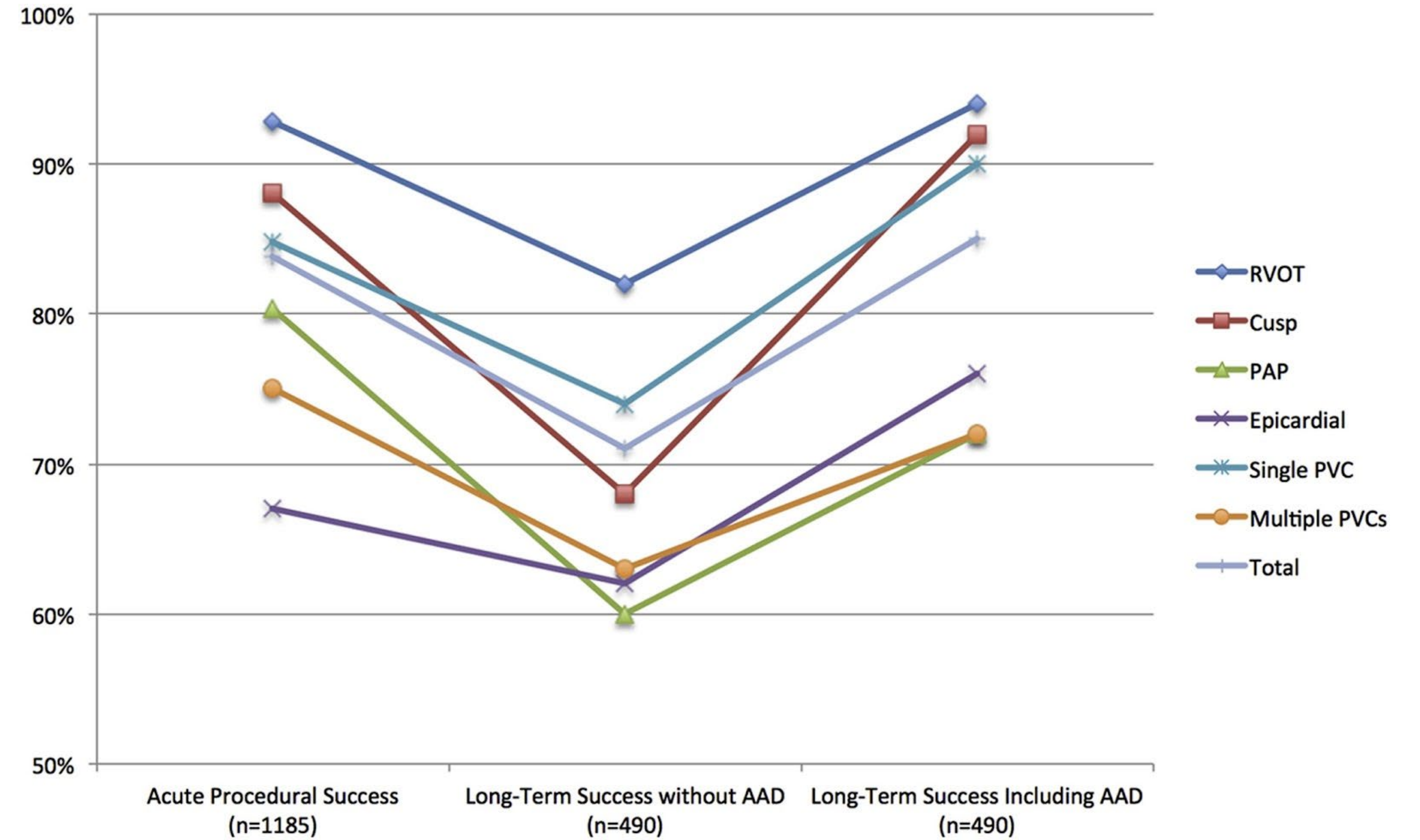
➢ Concealed cardiomyopathy

Behandeling

- Wanneer behandelen?
  - Symptomatisch
  - Asymptomatisch – PVC geïnduceerd CMP
  - Hoge burden van PVCs – Risico CMP
- Hoe behandelen
  - Conservatief
  - AAD
  - Ablatie
- Structureel afwijkend hart
  - ICD
  - AAD-Ablatie

Katheter ablatie

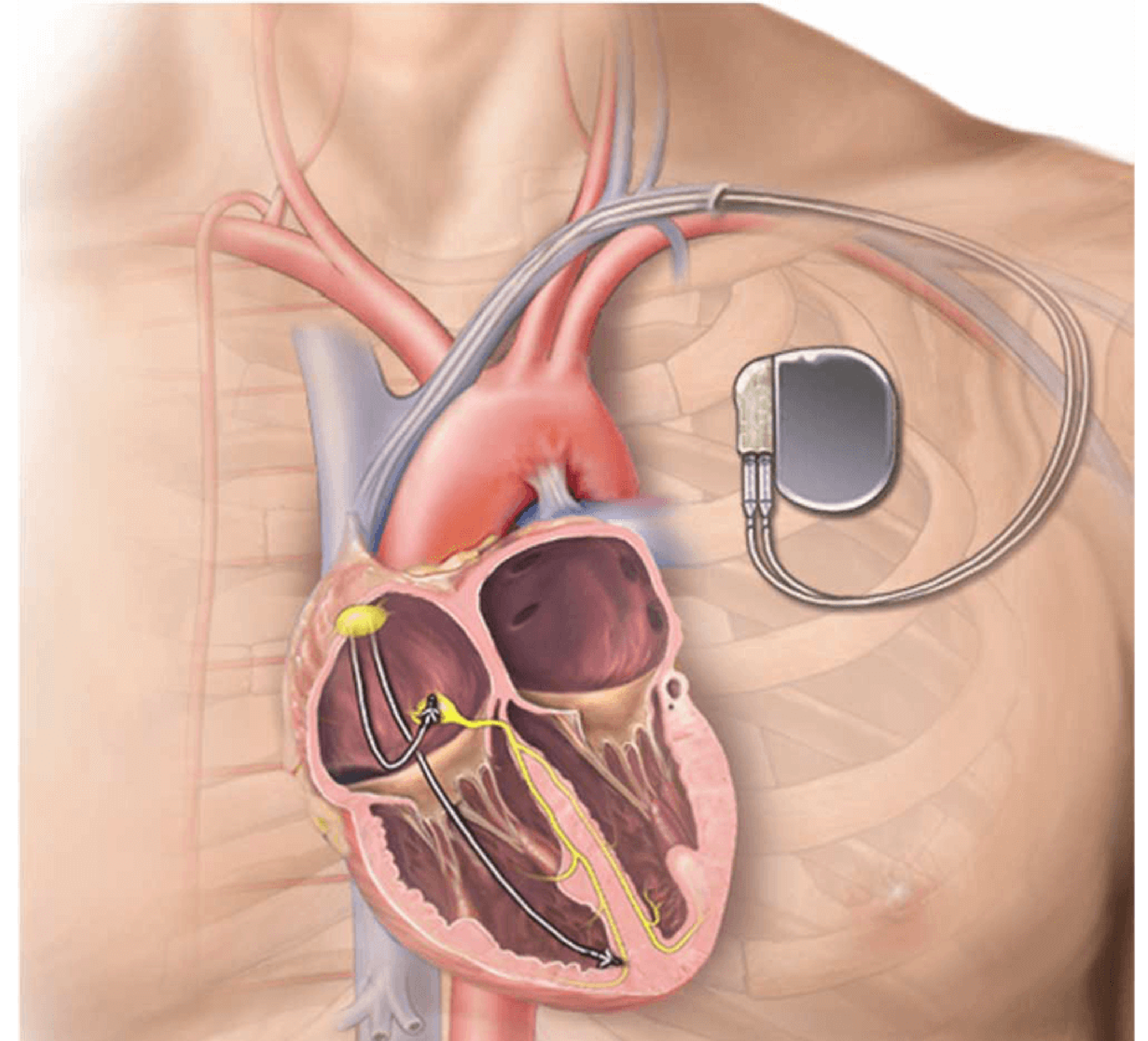




Latchamsetty et al. JACC: Clinical Electrophysiology, Volume 1, Issue 3, June 2015, Pages 116-123

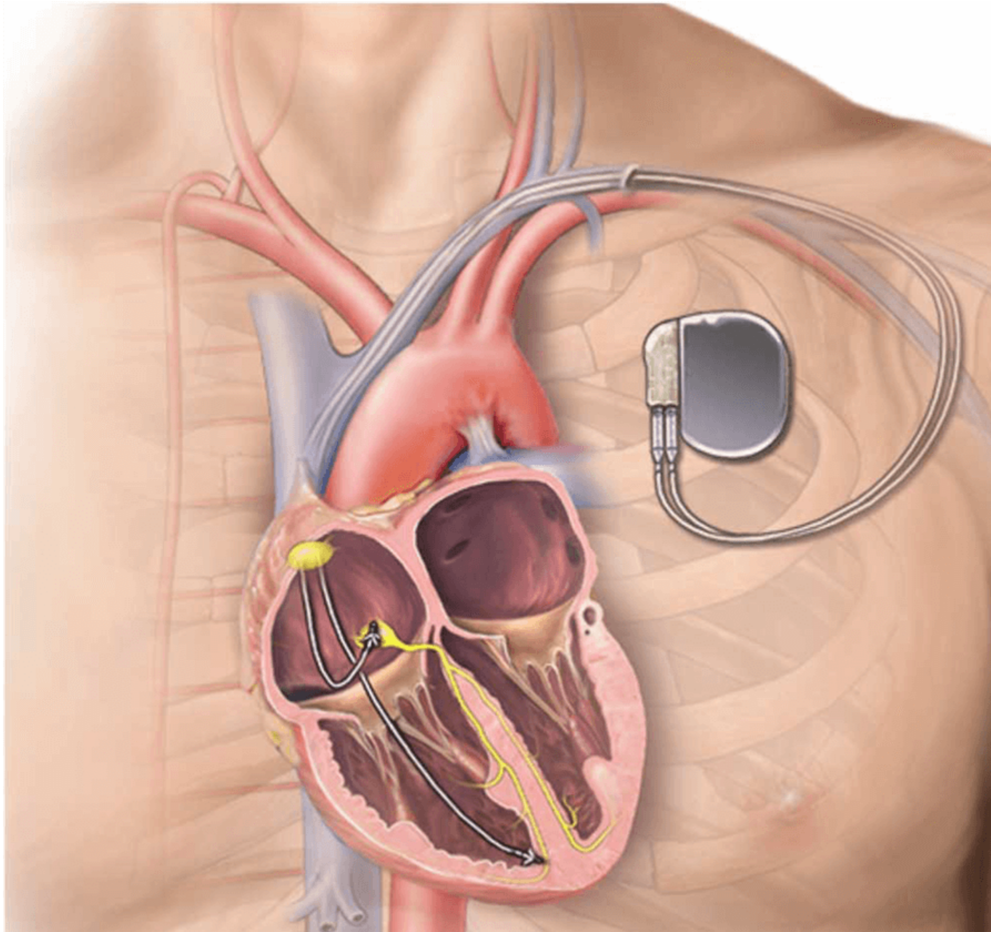
Brady -aritmieën

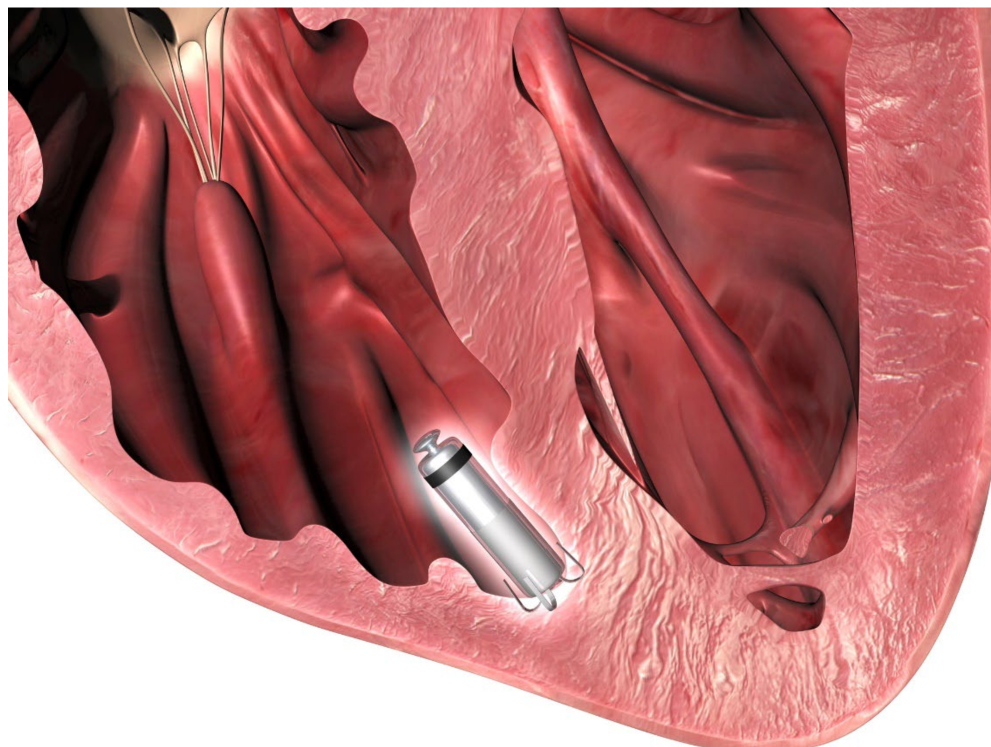
- Sinusknoopziekte
  - Bradycardie <35/min, sinus pauzes
- AV-geleidingsziekte
  - 2de graads AV-blok, totaal AV-blok
- Kliniek
  - Syncope, pre-syncope
  - Dyspneu bij minste inspanning
  - Trage hartslag



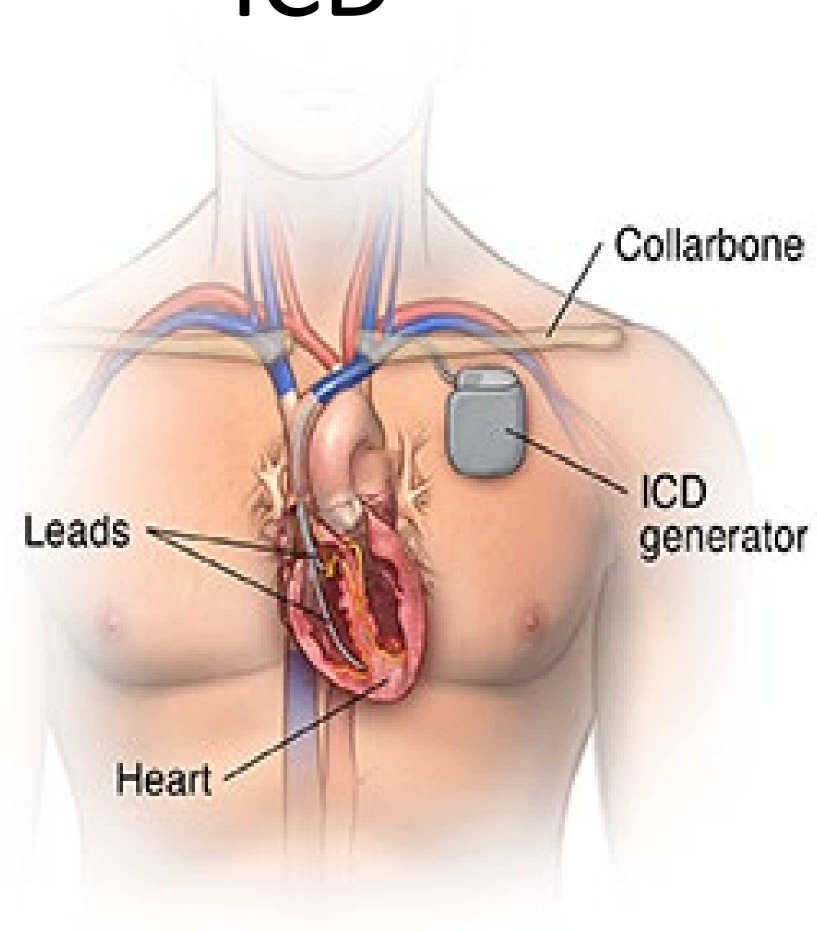
Cardiale devices

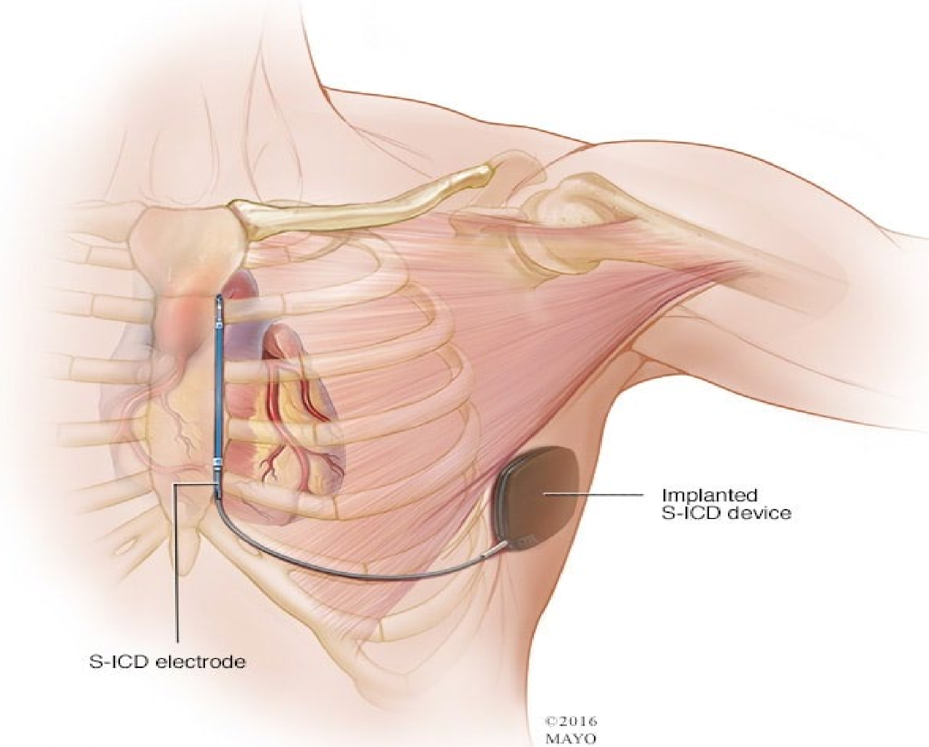
PM





ICD





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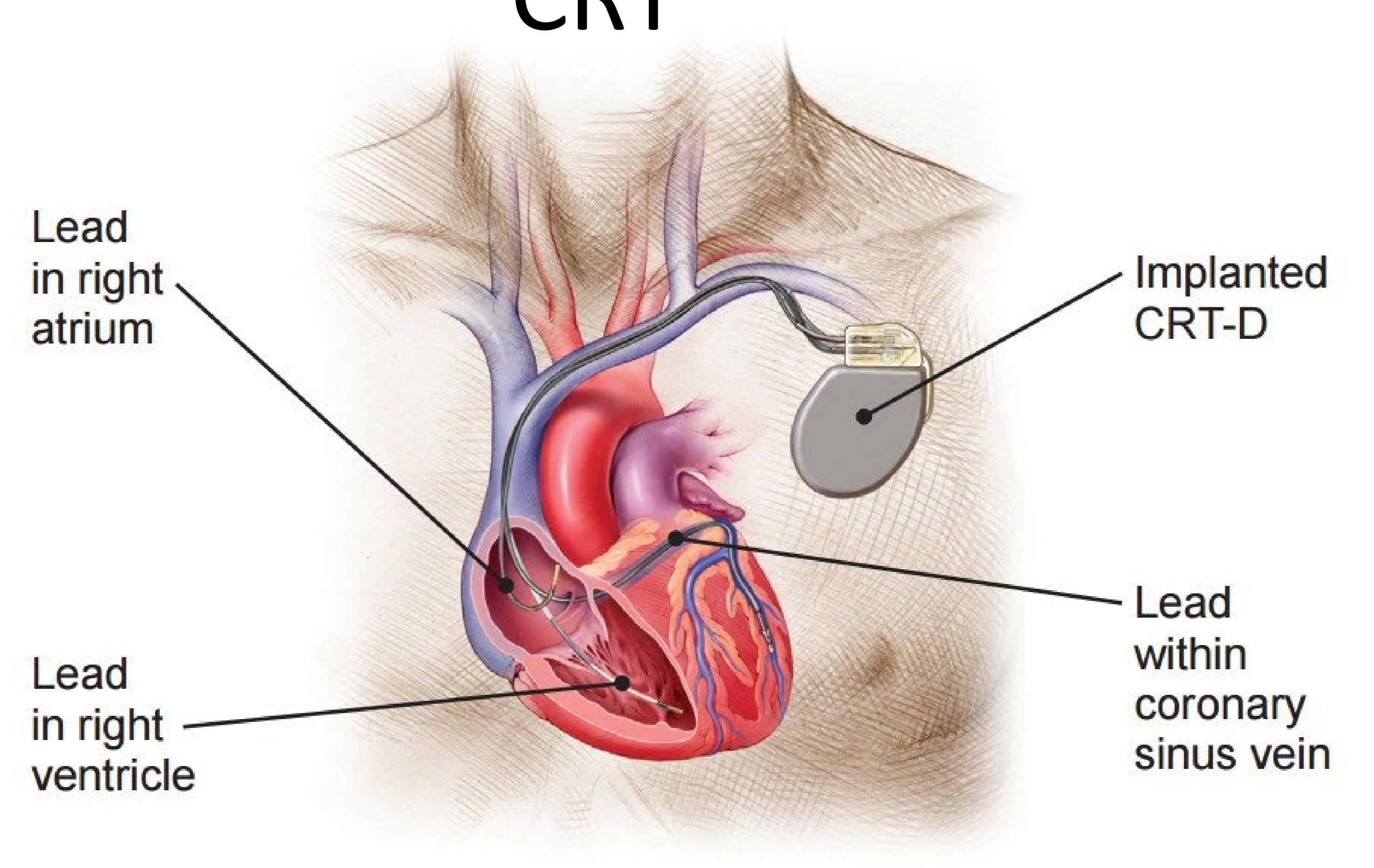
CRT



HRMC
Heart Rhythm Management Centre

Take home messages

- Symptomatologie
  - Invloed op arbeid
- Invasieve behandeling
  - Invloed op arbeid
- Medicamenteuse behandeling
  - Invloed op arbeid