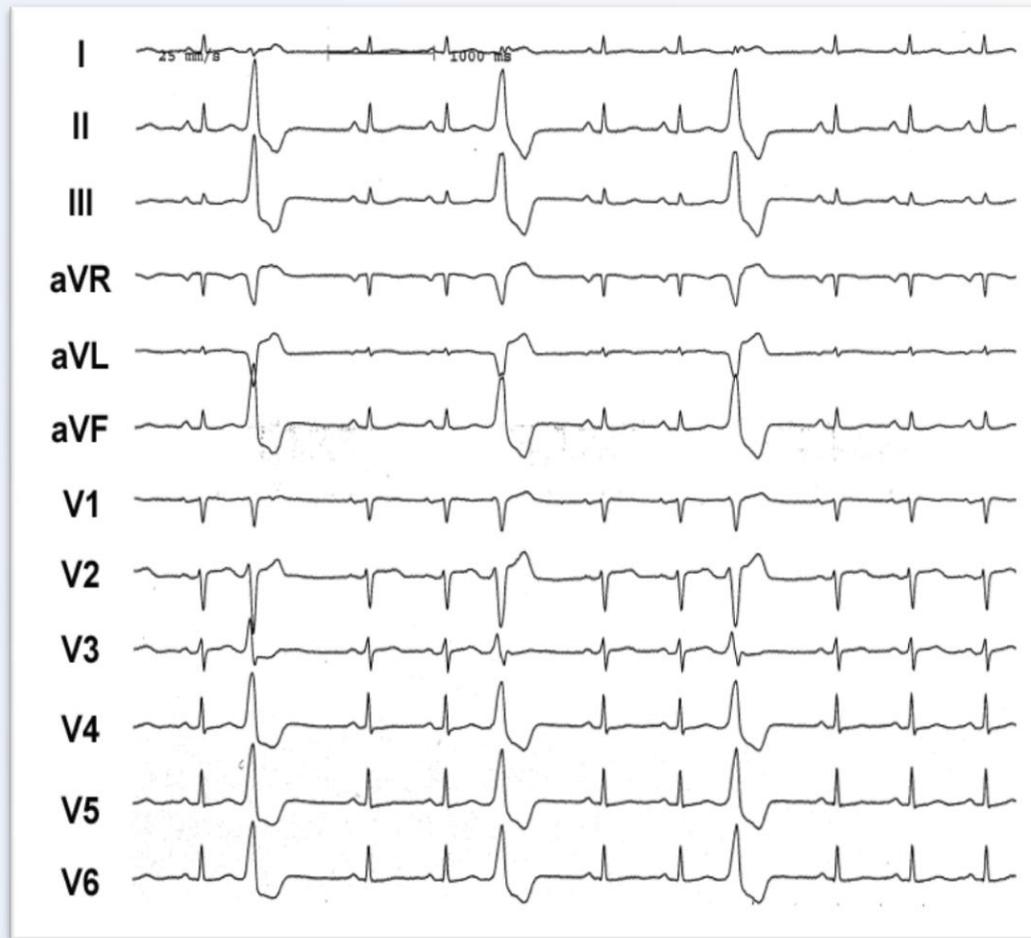


Možnosti léčby KT ve specializovaném centru

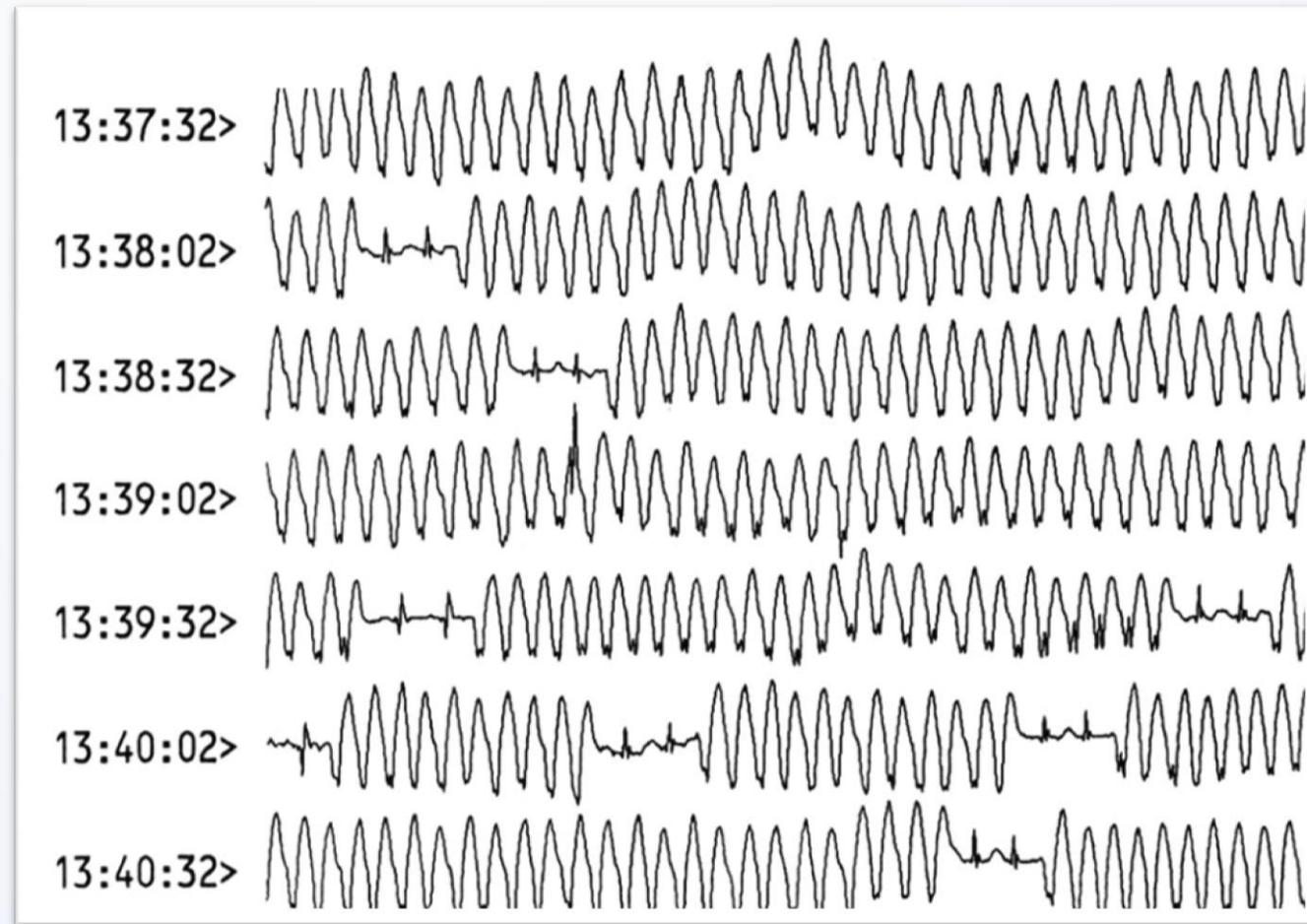
P. Peichl



Spektrum komorových tachykardií



Četné komorové extrasystoly



Běhy incesantní komorové tachykardie

Indication for PVC catheter ablation

ESC guidelines 2022

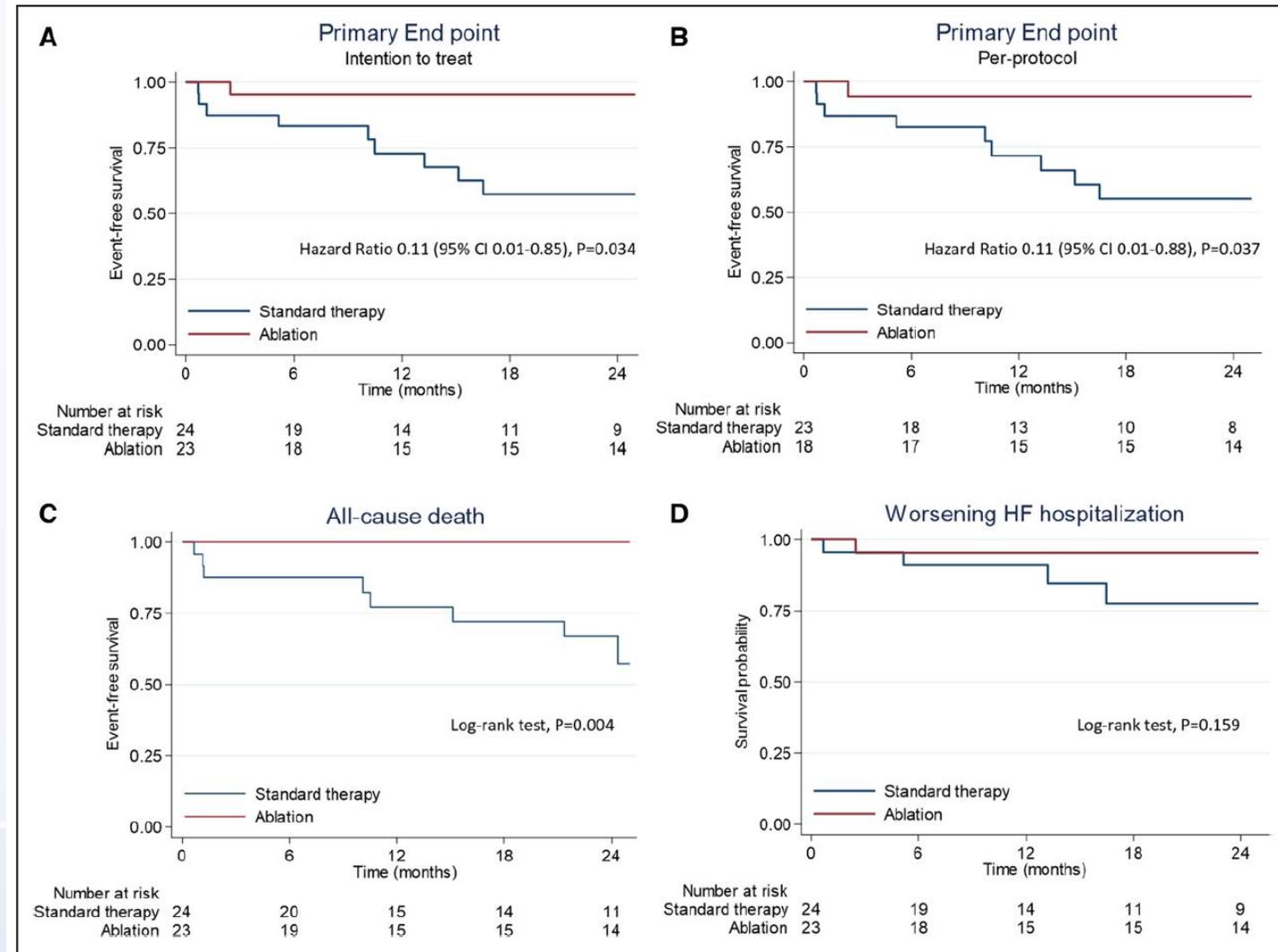
	Ablation	Beta-blocker	CCB	Flecainide	Amiodarone
RVOT/fascicular PVC/VT: Symptomatic, normal LV function	Class I	Class IIa	Class IIa	Class IIa	Class III
PVC/VT other than RVOT/fascicular: Symptomatic, normal LV function	Class IIa	Class I	Class I	Class IIa	Class III
RVOT/fascicular PVC/VT: LV dysfunction	Class I	Class IIa	Class III ^a	Class IIa ^b	Class IIa
PVC/VT other than RVOT/fascicular: LV dysfunction	Class I	Class IIa	Class III ^a	Class IIa ^b	Class IIa
PVC: Burden >20%, asymptomatic, normal LV function	Class IIb				Class III

© ESC 2022

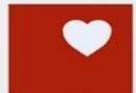
Studie PARTITA

Časná intervence po intervenci ICD zlepšuje prognózu

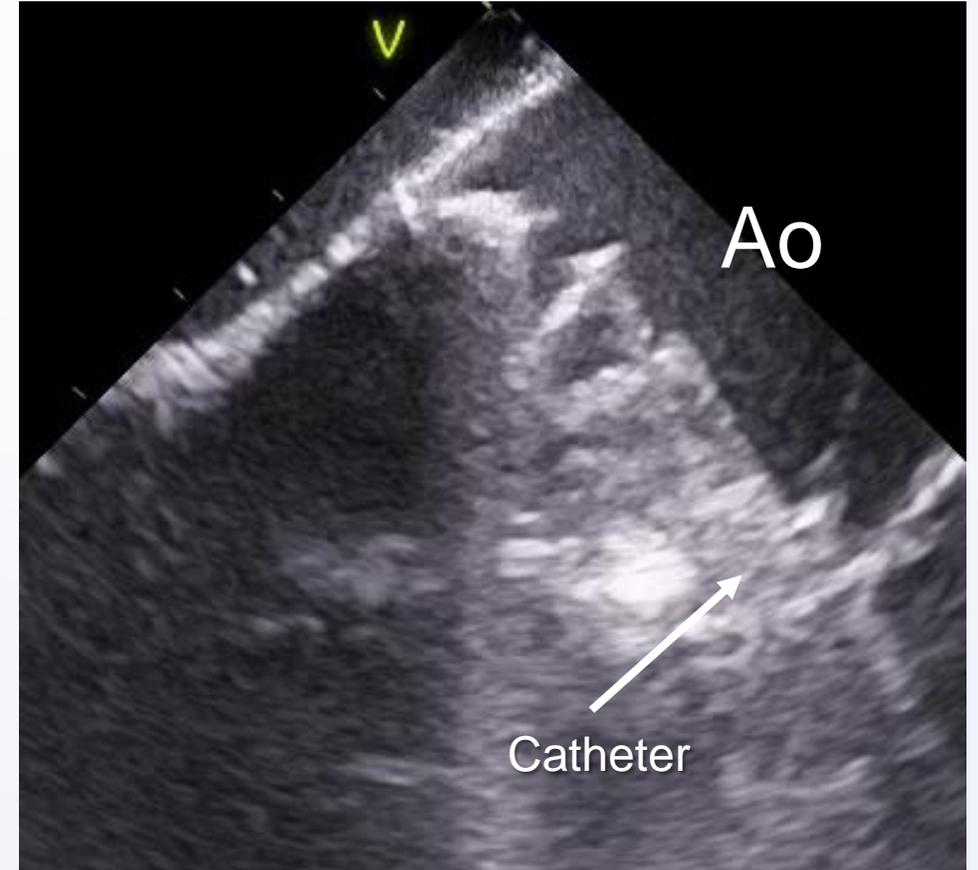
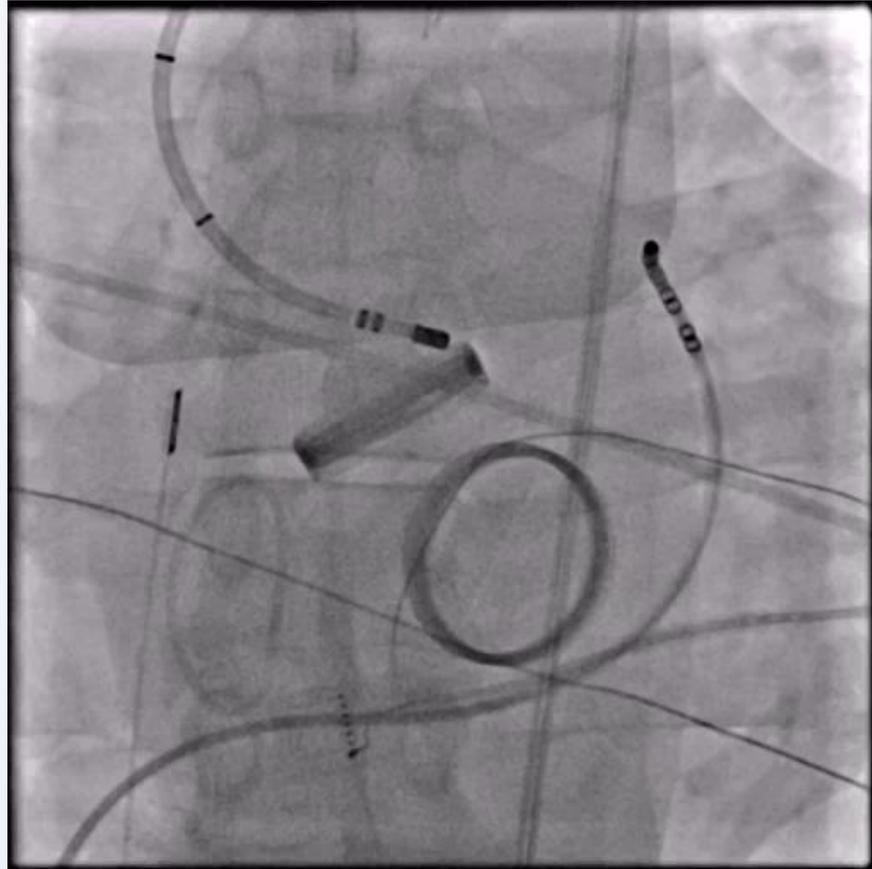
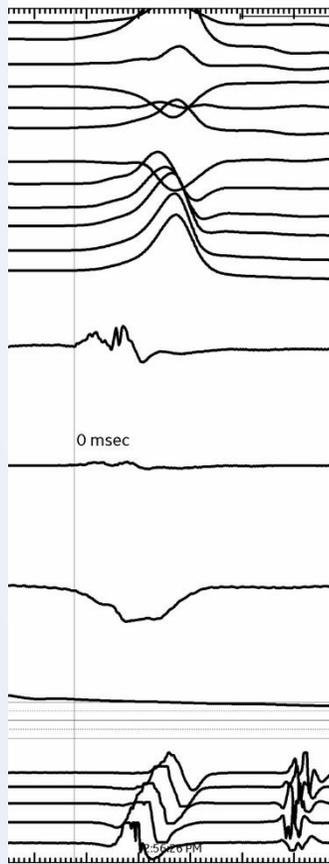
- 517 pts s ICD
- Pts that recieved ICD shock randomized to early ablation of standard care
- In interventional arm decrease in mortality and hospitalisation for HF

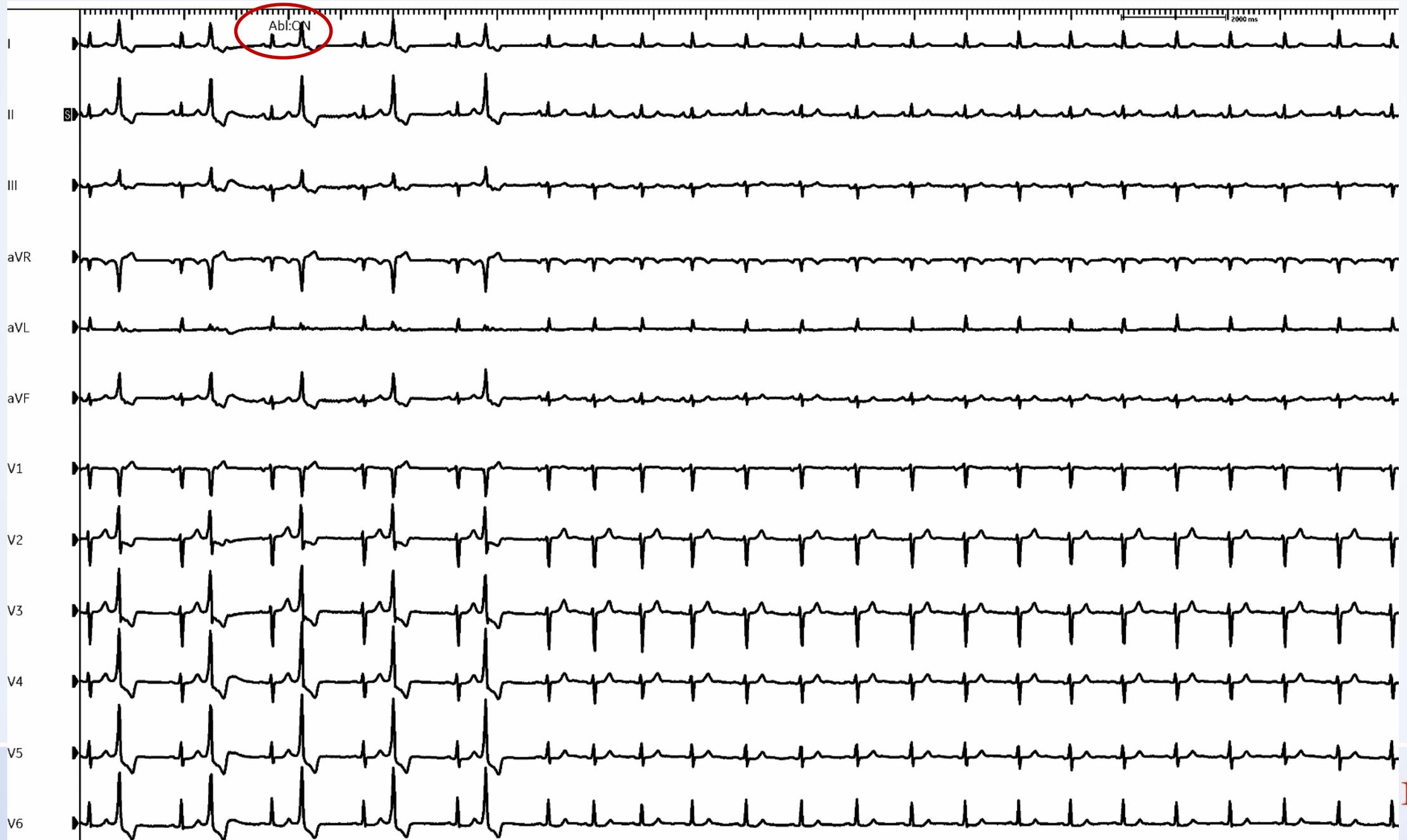


Jaké jsou možnosti řešení KT ve specializovaném centru?

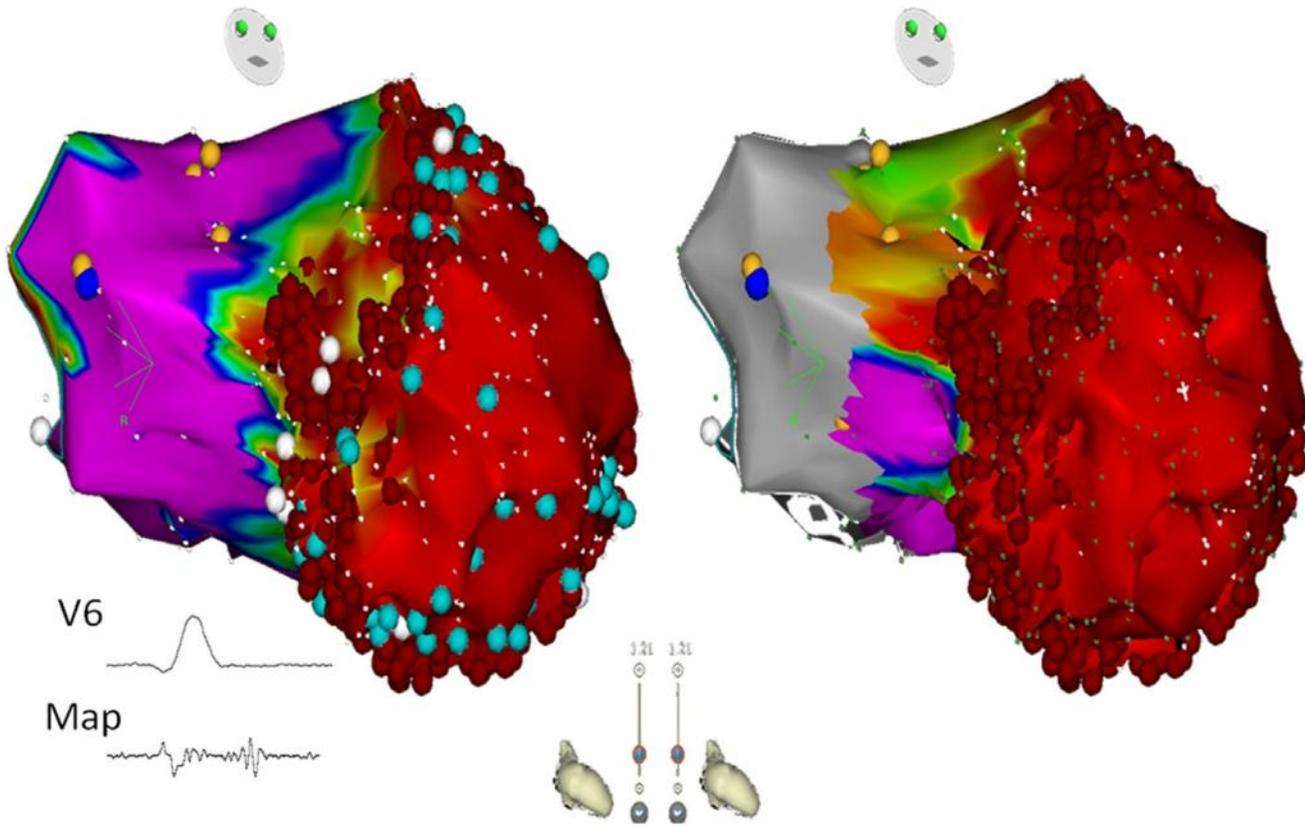


Ablace bigeminických KES u pacienta po náhradě Ao + Mi chlopně





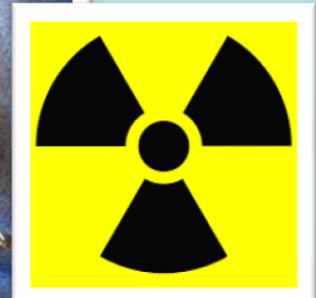
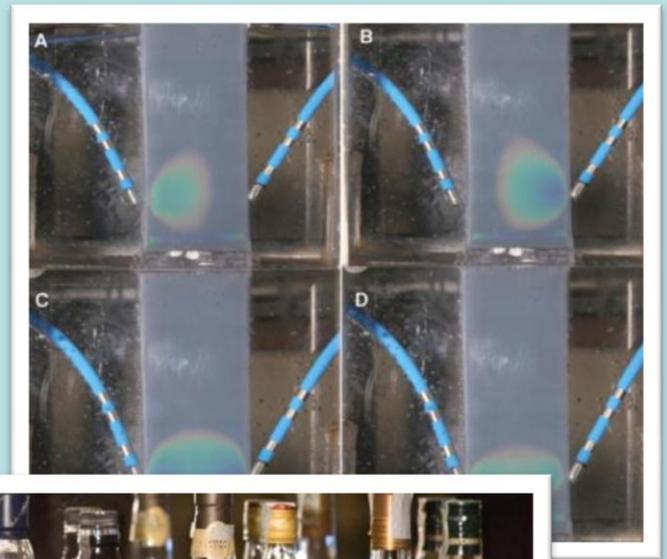
Example of very large substrate and multiple VTs?



	VT #1	VT #2	VT #3	VT #4
I				
II				
III				
aVR				
aVL				
aVF				
V1				
V2				
V3				
V4				
V5				
V6				

Bail out strategies

- **Pulsed-field ablation**
- Bipolar ablation
- Alcohol ablation
 - Arterial and venous
- Surgically facilitated access
- Radiotherapy
- Heart transplant



System Affera (Medtronic)



HexaPulse™ PF generator

Unipolar, biphasic PF energy delivery

HexaMap™ CIU

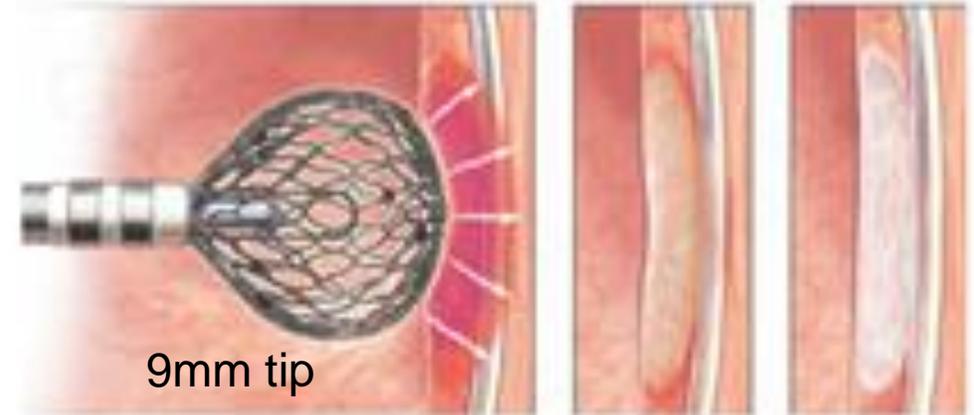
Magnetic navigation and map acquisition with intracardiac electrogram display, recording, and pacing

HexaFlow™ irrigation pump

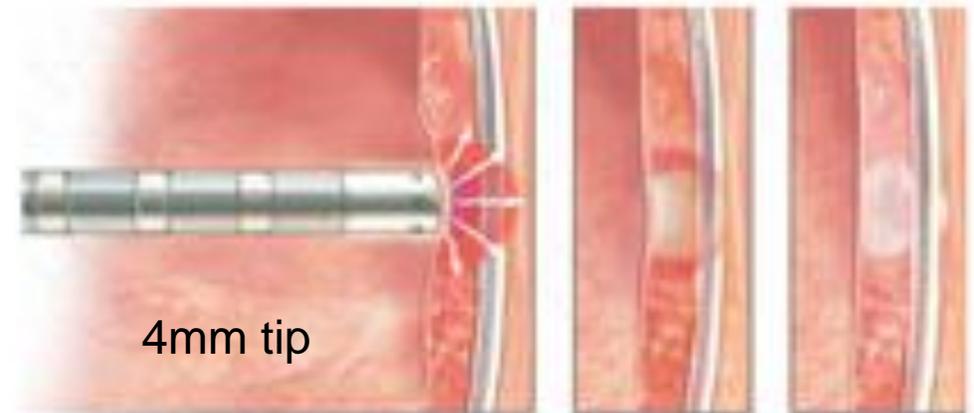
Responsive irrigation and bubble detection



Remote and foot pedal



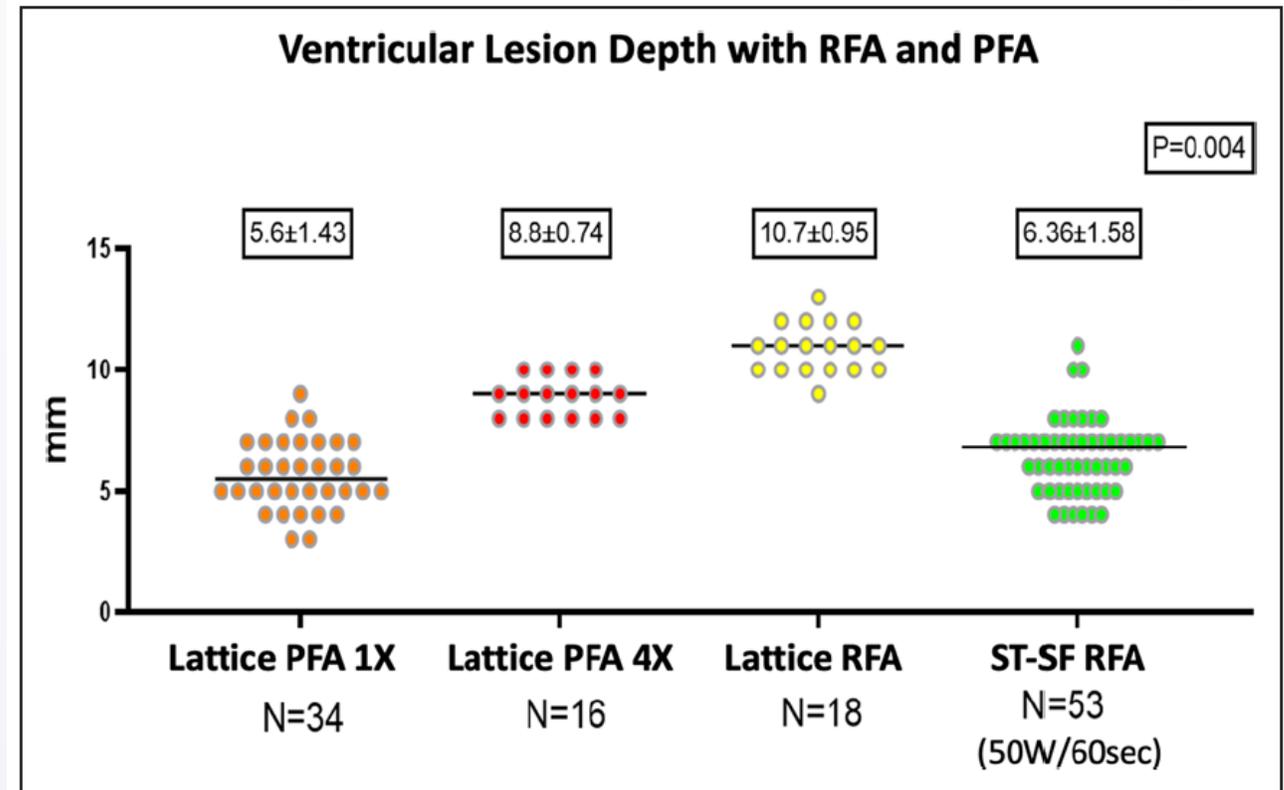
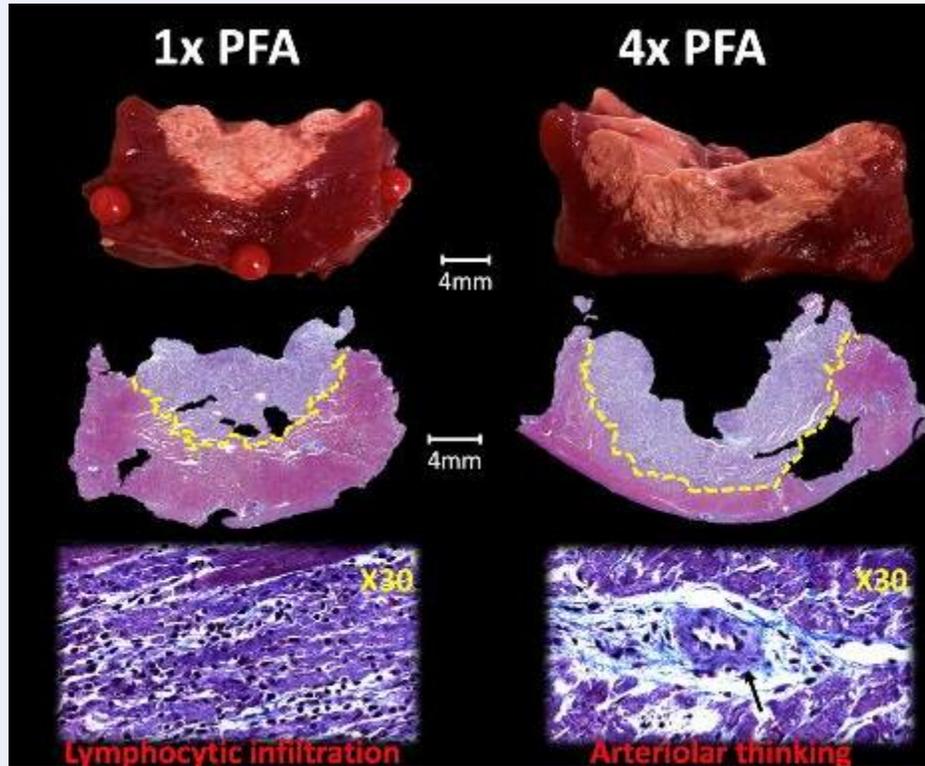
9mm tip



4mm tip

Pulse-field for VT ablation

Preclinical model

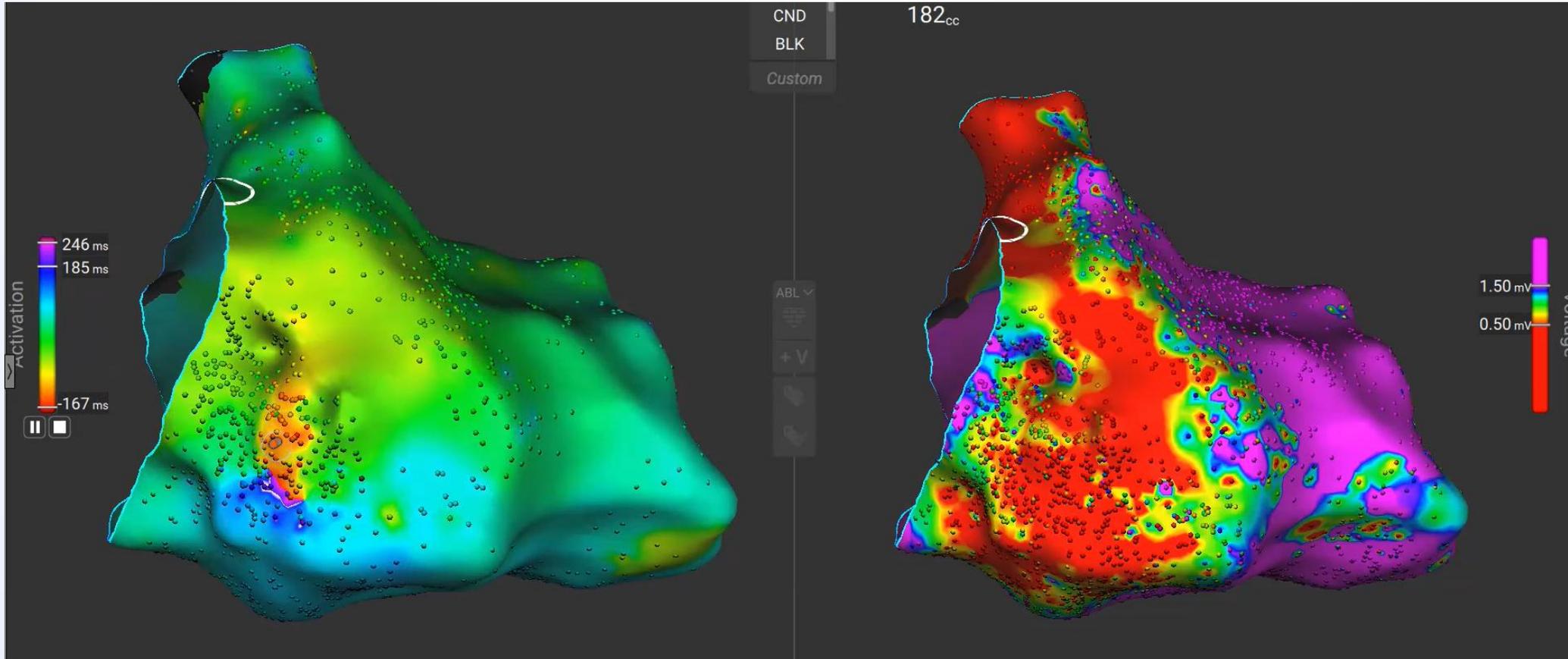


PFA produces discrete lesions with well demarcated borders between treated and untreated myocardium and lesion dimensions that are nearly similar to those achieved using radiofrequency energy.

Detailní mapování během běžící KT



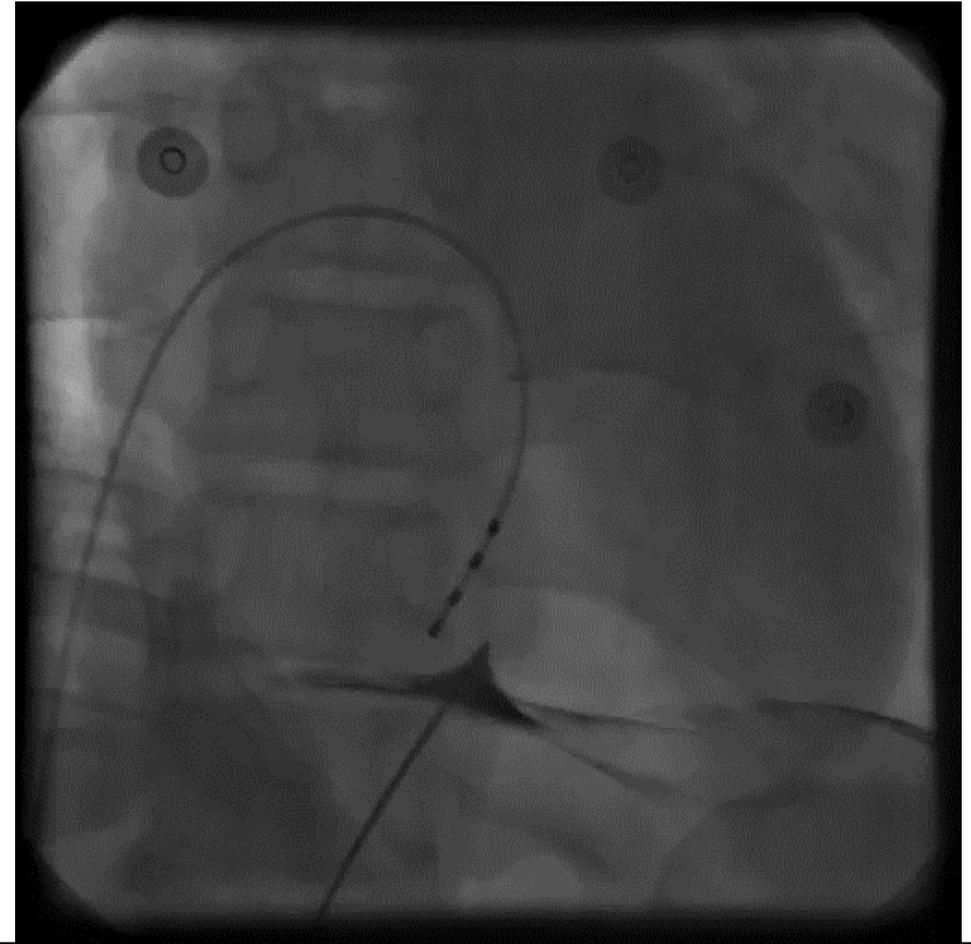
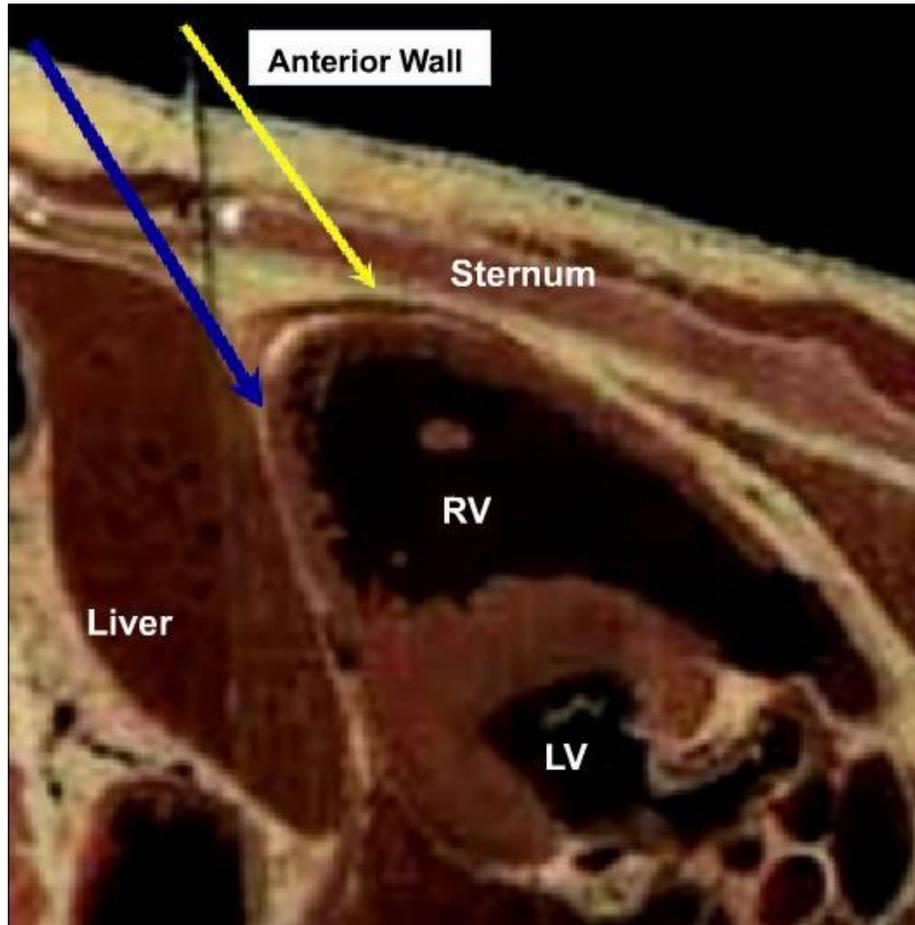
KT 150/min



Aktivační mapa

Voltážová mapa

Percutaneous epicardial access



¹E. Sosa *JCE* 1996

²E. Cronin *HR* 2019 Expert consensus on ablation of VT

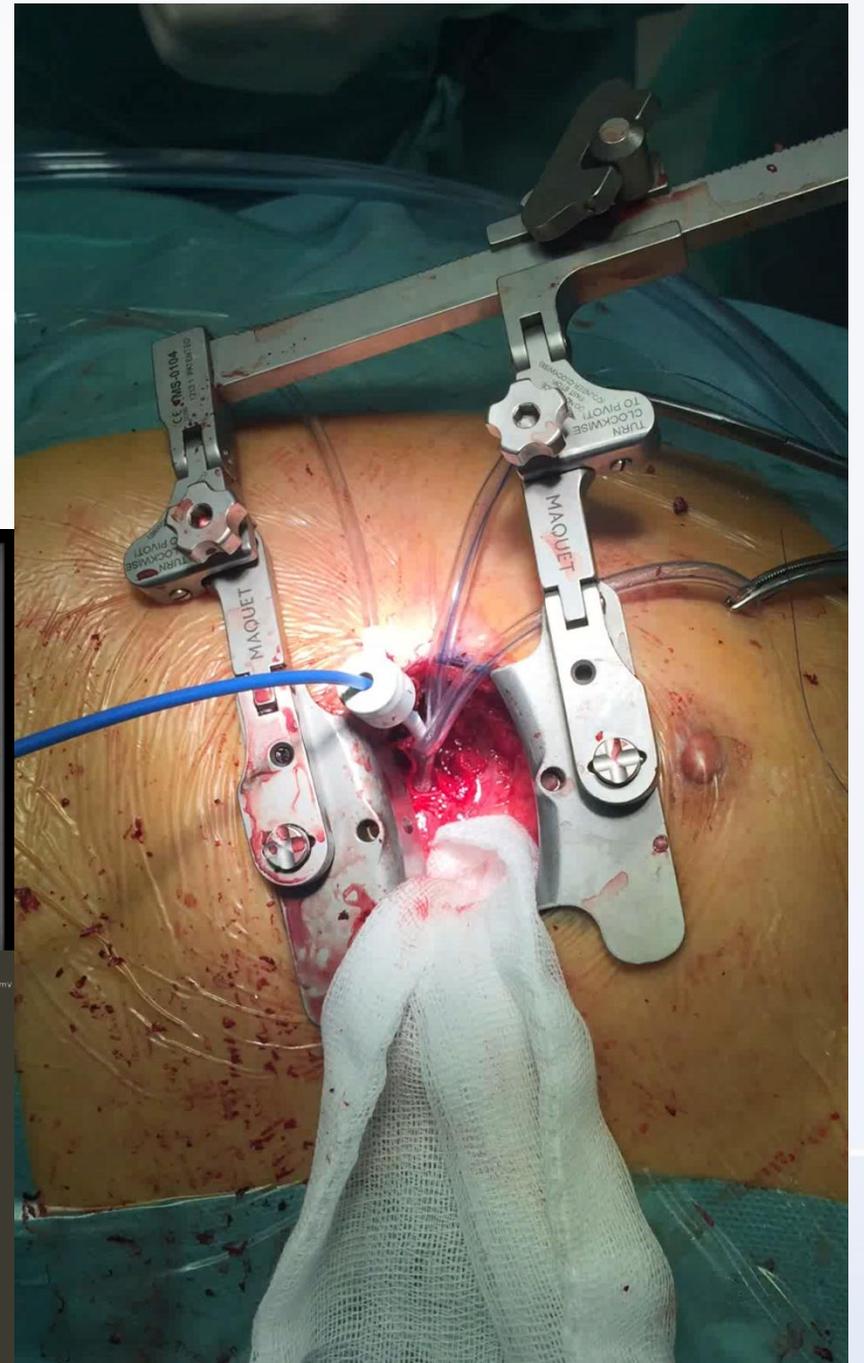
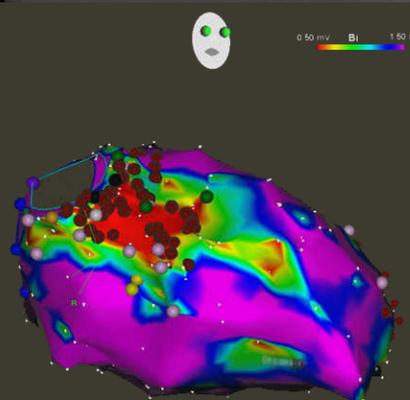
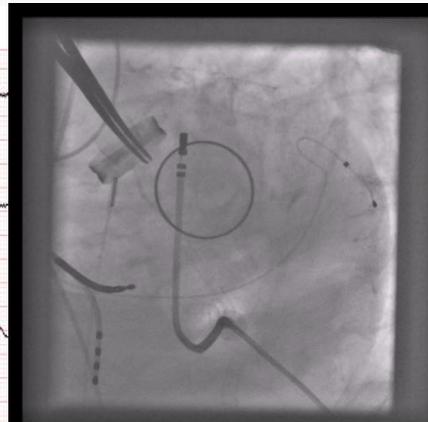
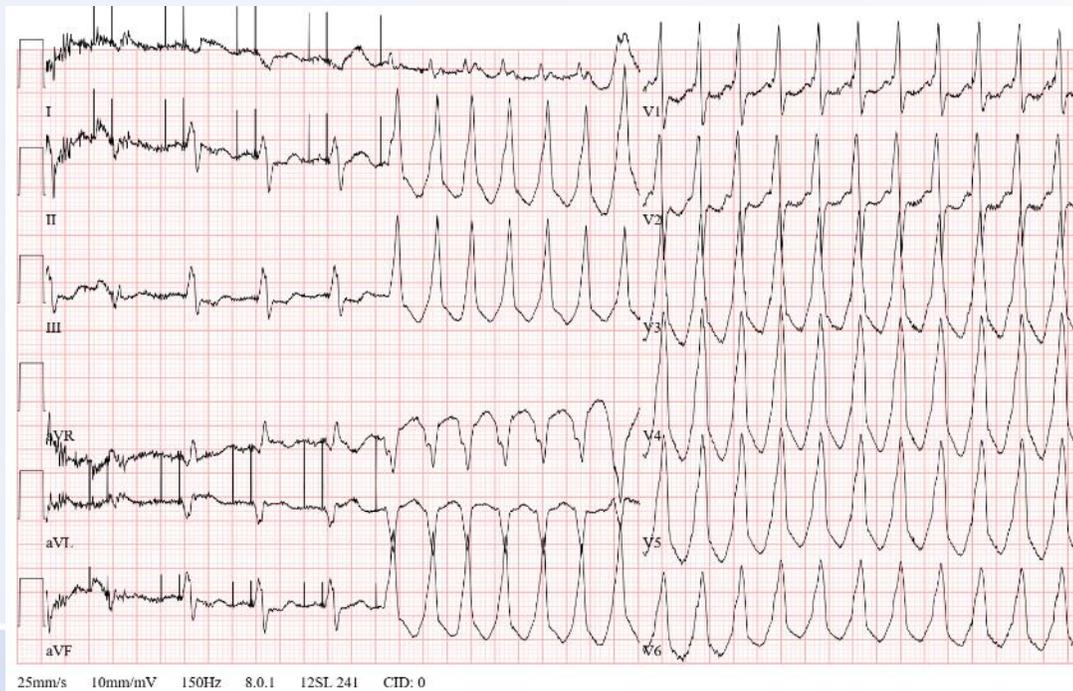
INSTITUT KLINICKÉ A EXPERIMENTÁLNÍ MEDICÍNY
KLINIKA KARDIOLOGIE



IKE
M

Někdy je třeba kardiochirurg....

- 73-year-old male after CABG, AVR, MVR
- Recurrent VT despite medical treatment requiring intubation and deep sedation

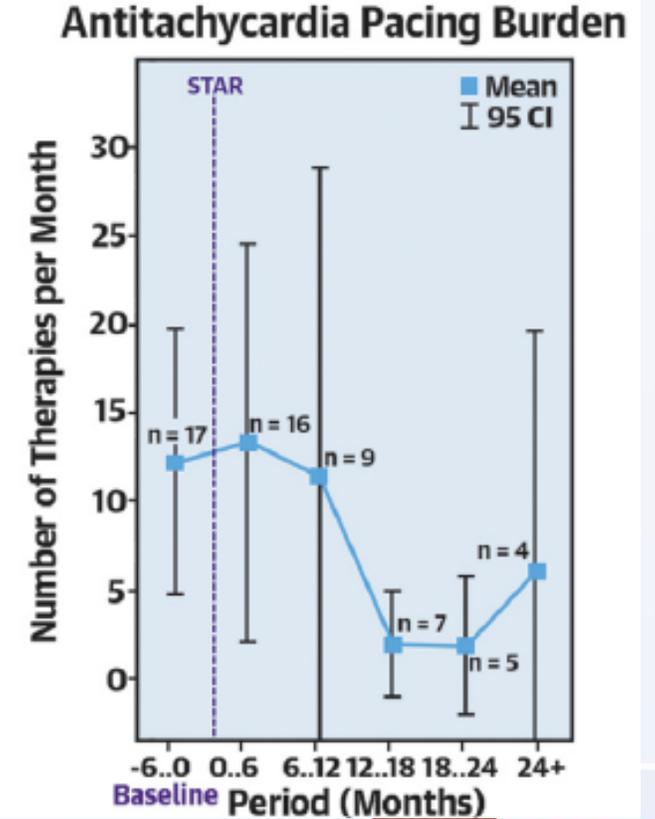
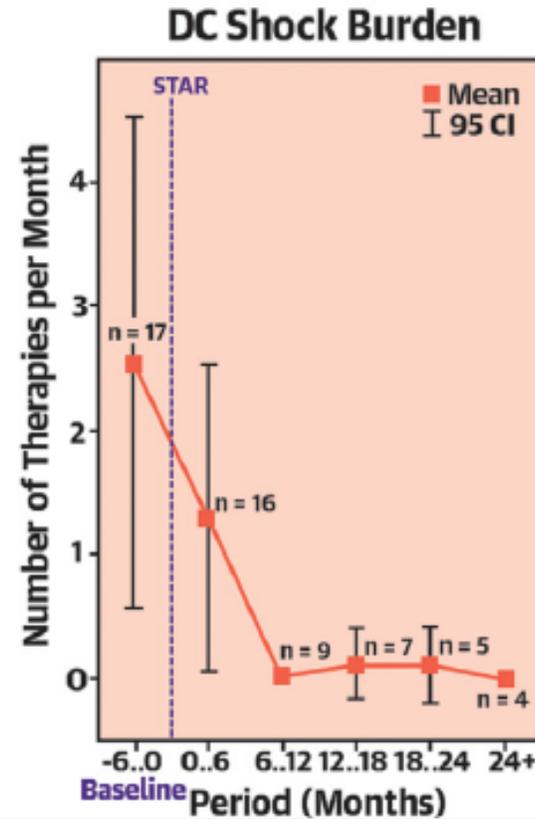
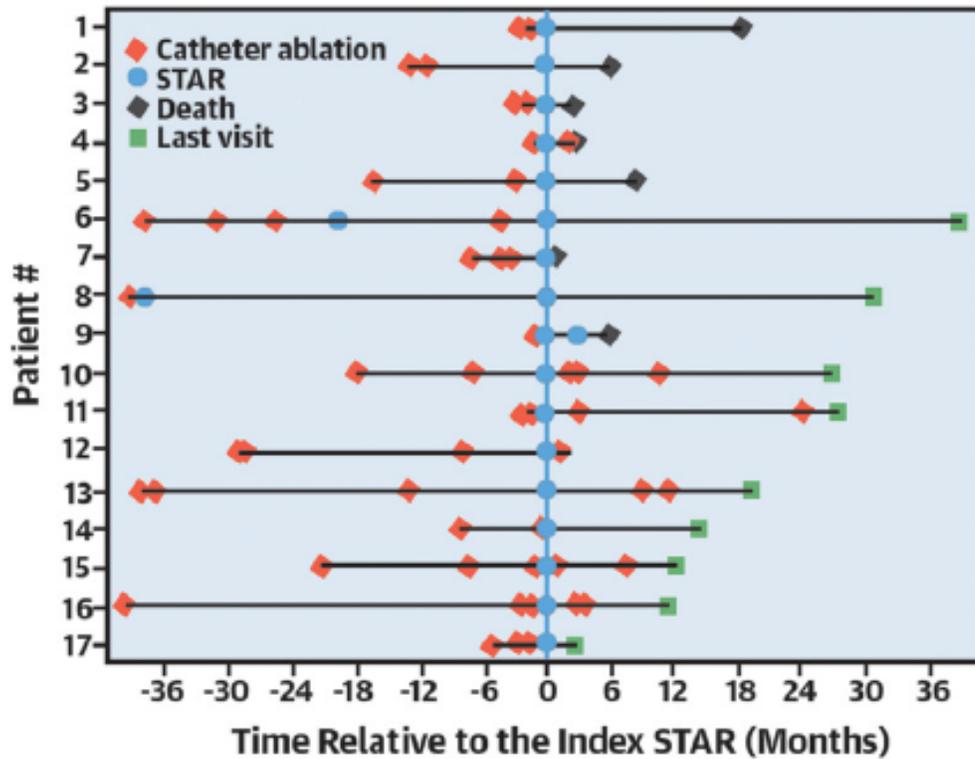


Stereotaktická radioablace

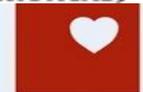
IKEM+Třinec+FN Ostrava



Efficacy Cohort (n = 17)



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KLINIKA KARDIOLOGIE



IKEM

A co když dominuje srdeční selhání?



Drug therapy and catheter ablation for management of arrhythmias in continuous flow left ventricular assist device's patients: a Clinical Consensus Statement of the European Heart Rhythm Association and the Heart Failure Association of the ESC

Petr Pechl ^{1*}, Antoni Bayes-Genis ², Thomas Deneke ³, Ovidiu Chioncel ^{4,5}, Marta deRiva ⁶, Maria Generosa Crespo-Leiro ⁷, Antonio Frontera ⁸, Finn Gustafsson ⁹, Raphaël P. Martins ¹⁰, Matteo Pagnesi ¹¹, Philippe Maury ¹², Mark C. Petrie ¹³, Frederic Sacher ¹⁴, and Offer Amir ¹⁵



Difficult vascular access due to absence of pulsatility

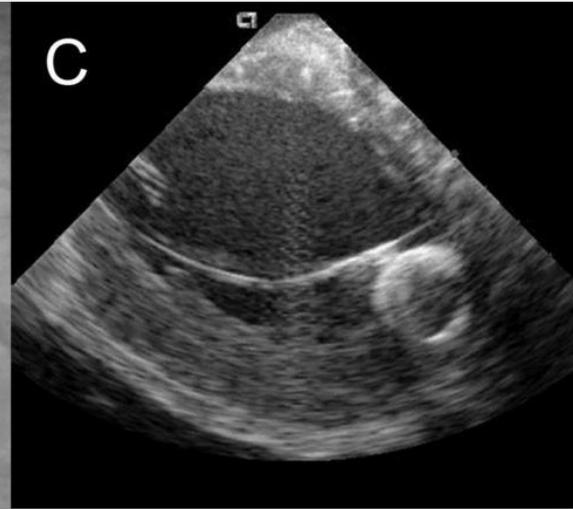
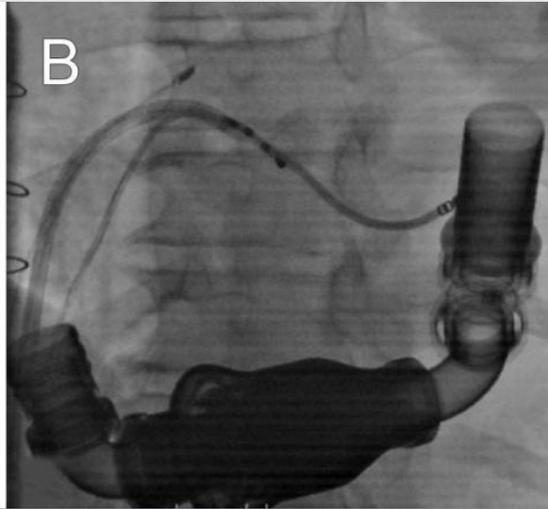
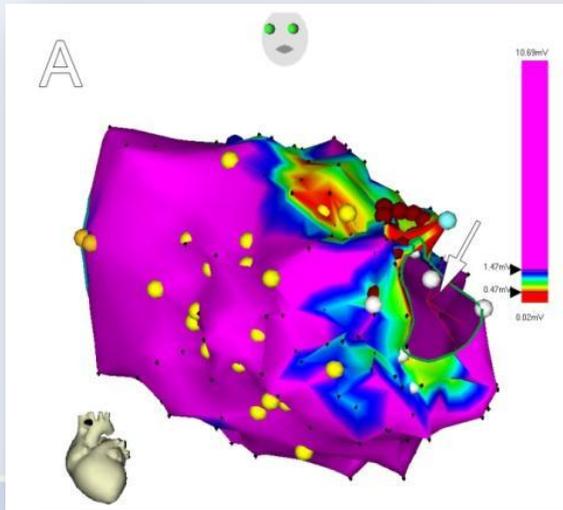
- US guided puncture recommended

Aortic valve may not open

- TS approach preferred

Risk of catheter entrapment

HD support of LVAD allows mapping during ongoing VT



Komplikace ablace KT

Type of Complication	Total (n=722)	Idiopathic VT (n=249)	SHD-VT (n=473)
Death	0	0	0
Perforation	3 (0.4%)	0 (0.0%)	3 (0.6%)
Tamponade	2	0	2
Hemopericardium	1	0	1
Thromboembolic event	5 (0.7%)	1 (0.4%)	4 (0.8%)
Stroke intraprocedural	2	0	2
TIA intraprocedural	1	1	0
TIA <7 d	1	0	1
Systemic embolism (legs)	1	0	1
Conduction system damage	7 (1.0%)	1 (0.4%)	6 (1.3%)
AV block	6	1	5
LBBB resulting in HF	1	0	1
Other	4 (0.6%)	1 (0.4%)	3 (0.6%)
Pericarditis	1	1	0
RV lead dysfunction	1	0	1
CPR during the procedure	2	0	2
Vascular access	26 (3.6%)	4 (1.6%)	22 (4.7%)
Femoral pseudoaneurysm	14	2	12
Femoral AVF	5	2	3
Groin hematoma			
With surgical management	3	0	3
With transfusion needed	3	0	3
With conservative management	1	0	1
Total	45 (6.2%)	7 (2.8%)	38 (8.0%)

Values are counts (%). AV indicates atrioventricular; AVF, arteriovenous fistula; CPR, cardiopulmonary resuscitation; HF, heart failure; LBBB, left bundle branch block; RV, right ventricular; SHD, structural heart disease; TIA, transient ischemic event; and VT, ventricular tachycardia.

- 722 pts s ablací KT v období 2006-2012
 - 249 idiopatických KT
 - 473 ablací u strukturálního srdečního onemocnění
- Celkové riziko komplikací 6.2%
- Nejčastější vaskulární
- Život ohrožující komplikace jako tamponáda či CMP <1%
- **Prediktory komplikací:**
 - Věk >70let
 - Kreatinin >115umol/l
 - Ejekční frakce <25%

Acute hemodynamic decompensation during VT ablation

IKEM analysis

Population

Patients who had their **first** ablation for **SHD-related** VA between **August 2006** and **December 2020** and followed up to September 2022

Baseline Characteristics (N = 1143)

Age	63 ± 13 yrs
Males	87 %
Ischemic CMP	67 %
Electrical storm	25 %
NYHA	2.1 ± 1.0
LVEF	34 ± 13 %
Diabetes mellitus	32 %
COPD	12 %
Prior LVAD	2.4 %
PAINESD score	11.4 ± 6.6

Periprocedural Characteristics (N = 1143)

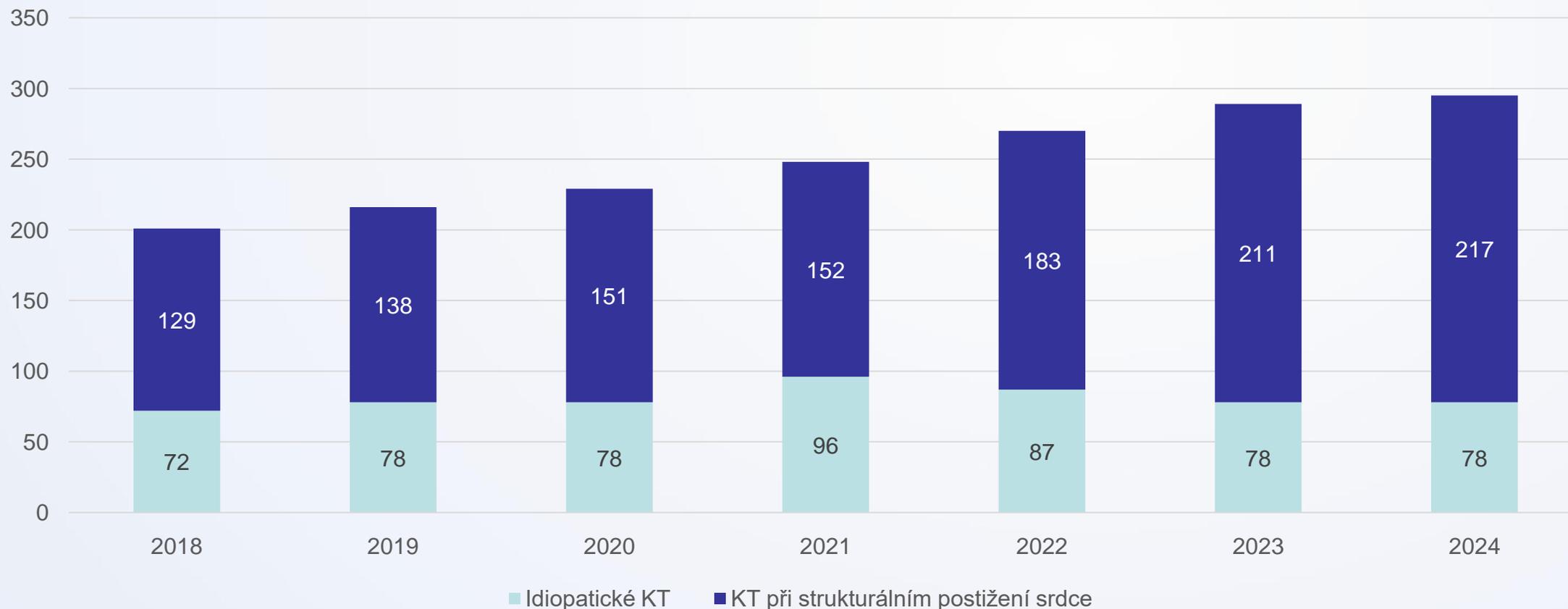
Procedure time	187 ± 78 min
RF Time	23 ± 15 min
Major complications	7.5 %
Acute HF event	1.1 %

Clinical Outcome (N = 1143)

Follow up	4.1 (IQR: 2.0 – 7.2) yrs
Reablation	28 %
New LVAD	2.7 %
Heart transplant	5.2 %
All-cause death	48 %

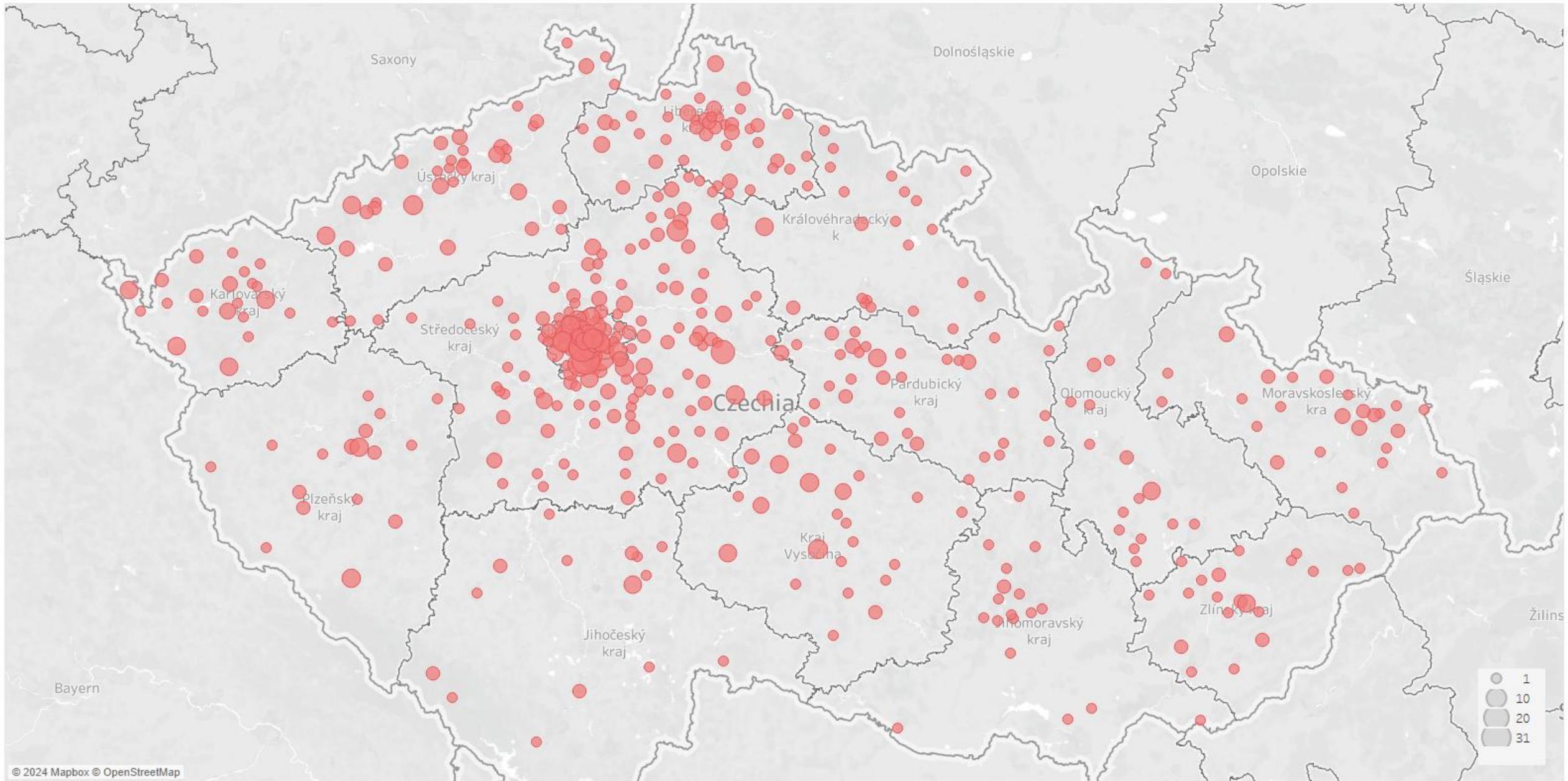
Centrum komplexní léčby komorových arytmií

Počty ablací KT v IKEM 2018-2024



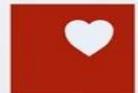
Pozn. Celkový počet ablací pro KT v roce 2023 ČR byl 970.

pacienti po ablaci komorové tachykardie podle PSČ n=1253



Závěry

- Na rozdíl od ablace fibrilace síní, může být arytmogenní substrát pro KT výrazně variabilní
- K úspěšné modifikaci arytmogenního substrátu a eliminaci KT je často třeba použít alternativních technik
- Vzhledem k specializovanému charakteru péče by tato léčba měla být směřována do specializovaných center



komorovky@ikem.cz

