Mýty v léčbě FiS
Ablace příliš nefunguje…

Petr Peichl

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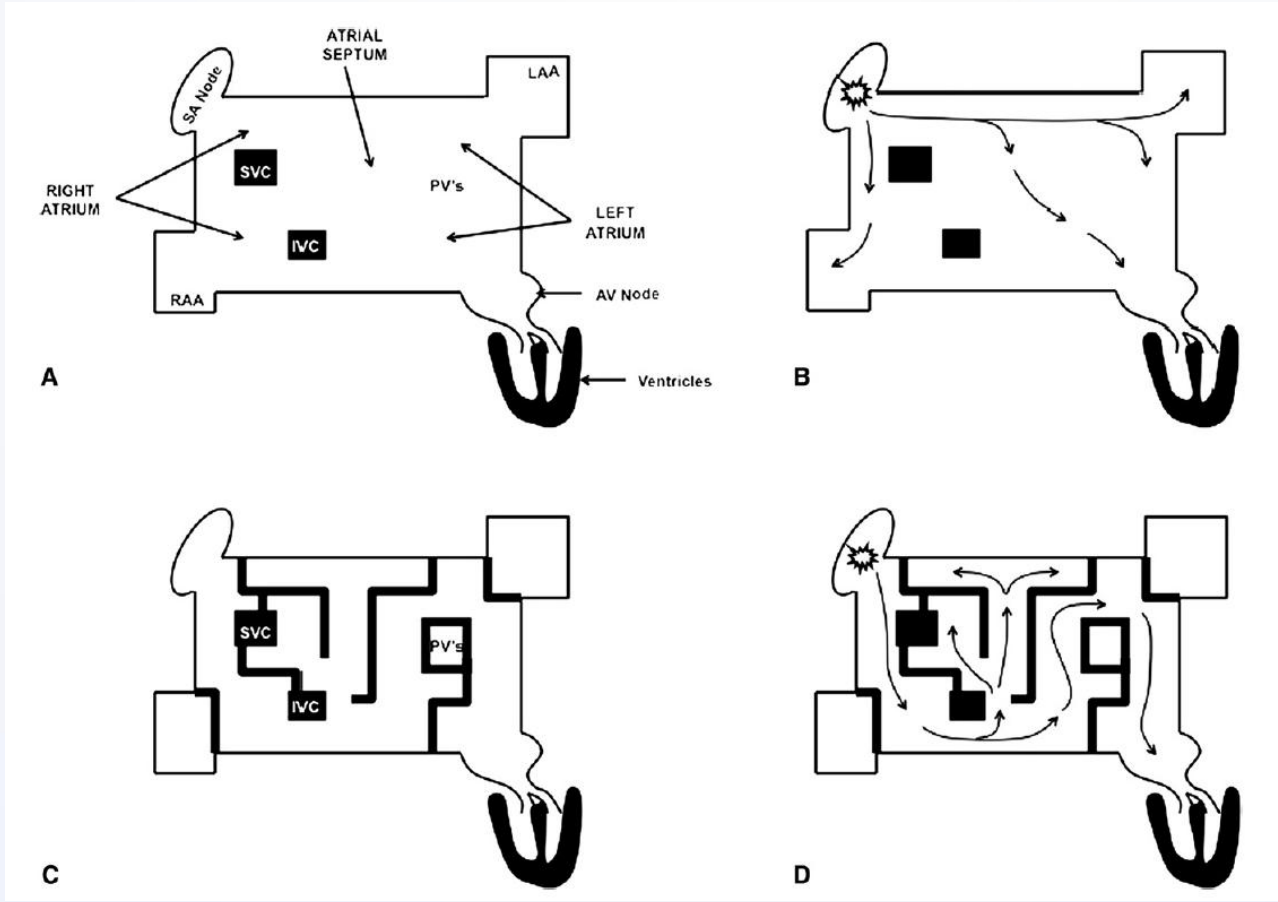
Historie léčby FiS

Chirurgický MAZE

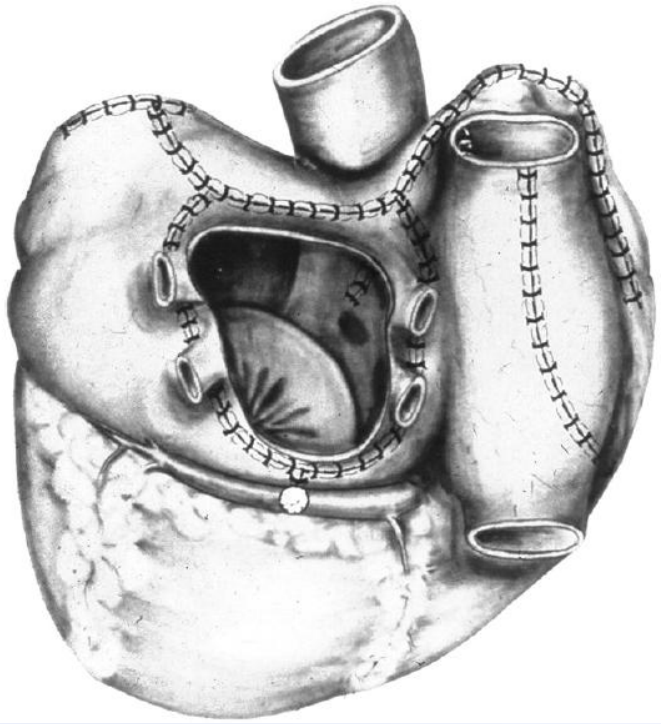
- Revoluční koncept, který vycházel z mapovacích studií na zvířecím modelu a u pacientů s chirurgickou ablací WPW
- FiS je charakterizována mnohočetnými proměnlivými okruhy (5-6cm), které zůstávají na jednom místě pouze 200ms
- Principem byla série chirurgických lézí, které zabrání zformování těchto okruhů

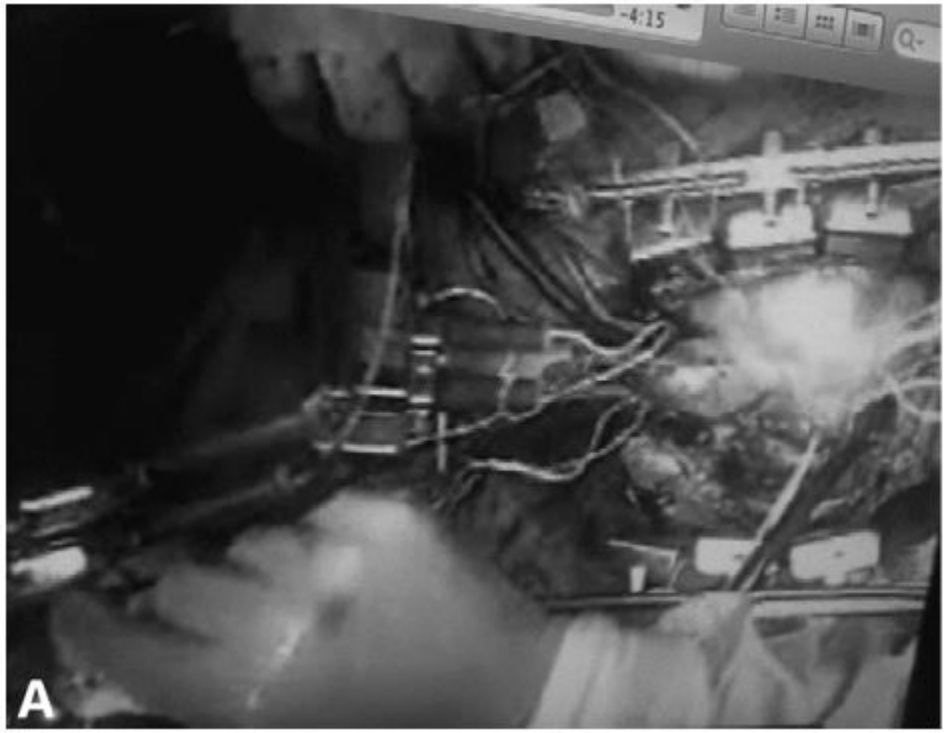


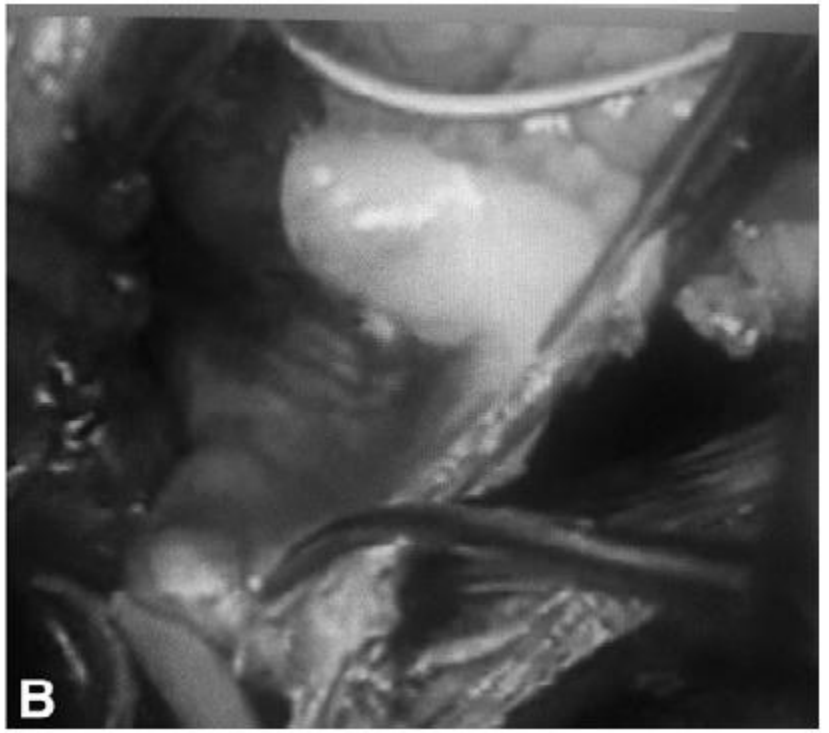
James Cox

Cox J *J Thoracic and Cardiovasc surgery* 2011

Chirurgický MAZE pro fibrilaci síní







- The first surgical “maze procedure” for the treatment of atrial fibrillation (AF) was performed **on 25 September, 1987**. It resulted in the restoration of normal sinus rhythm and the **patient remained AF-free and on no anti-arrhythmia medications for 19 years, 11 months, and 1 week.**

Maze I-III, 168 pts,
93 % total success rate

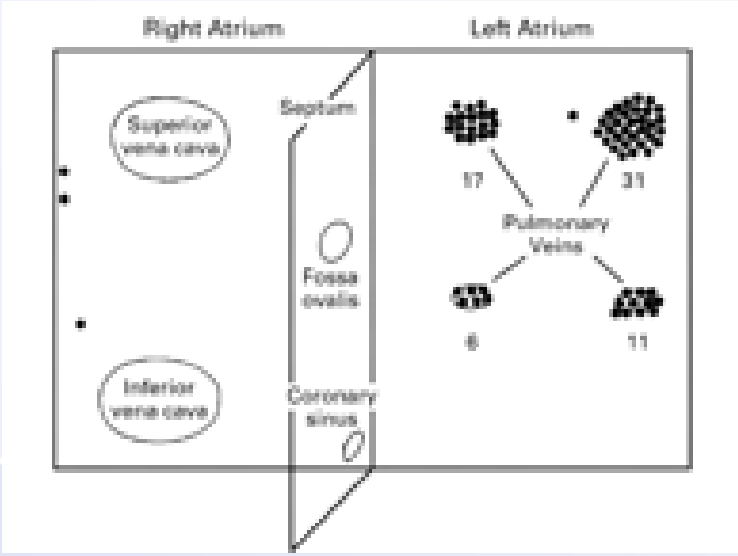
Cox J *J Thoracic and Cardiovasc surgery* 2011

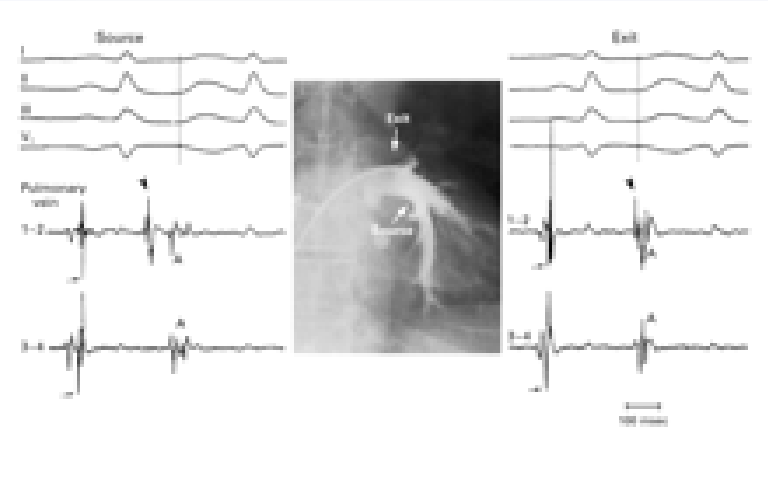
Katetrizační ablace FiS

Case report of three cases of “unusual” mechanism for AF

Haissaguerre M, et al. J Cardiovasc Electrophysiol 1994;5:743-751

Spontaneous triggering of AF by ectopic foci from pulmonary veins:
45 pts with paroxysmal AF, 95 % foci in pulmonary veins
62 % without arrhythmia recurrence after catheter ablation

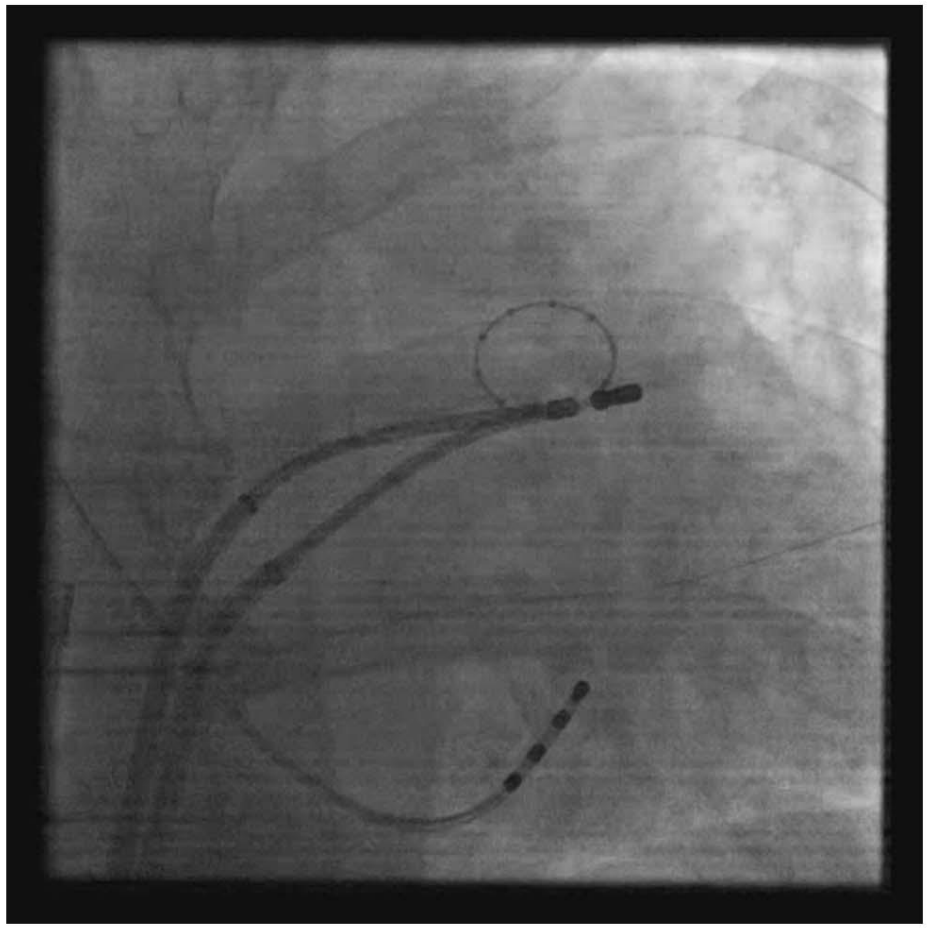


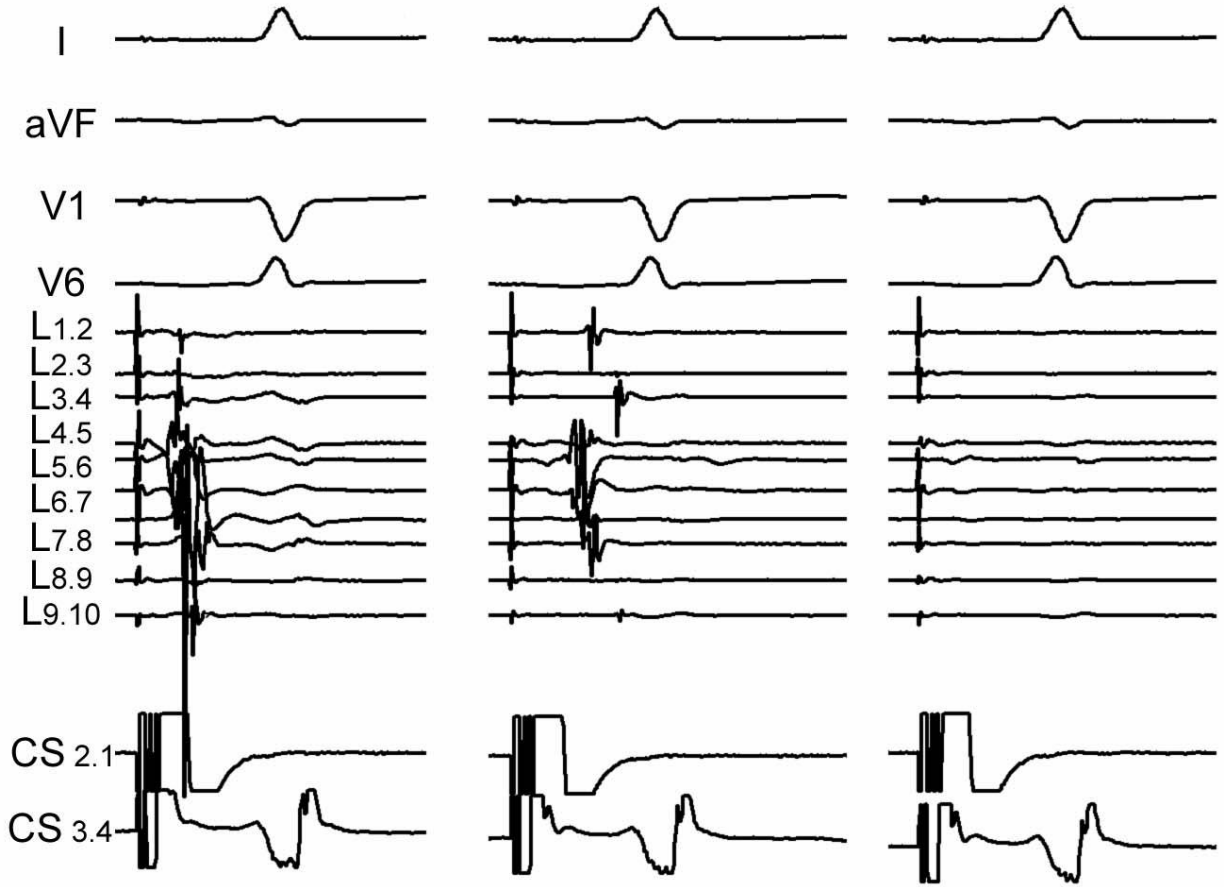


Haissaguerre M, et al. N Engl J Med 1998;339:659-666

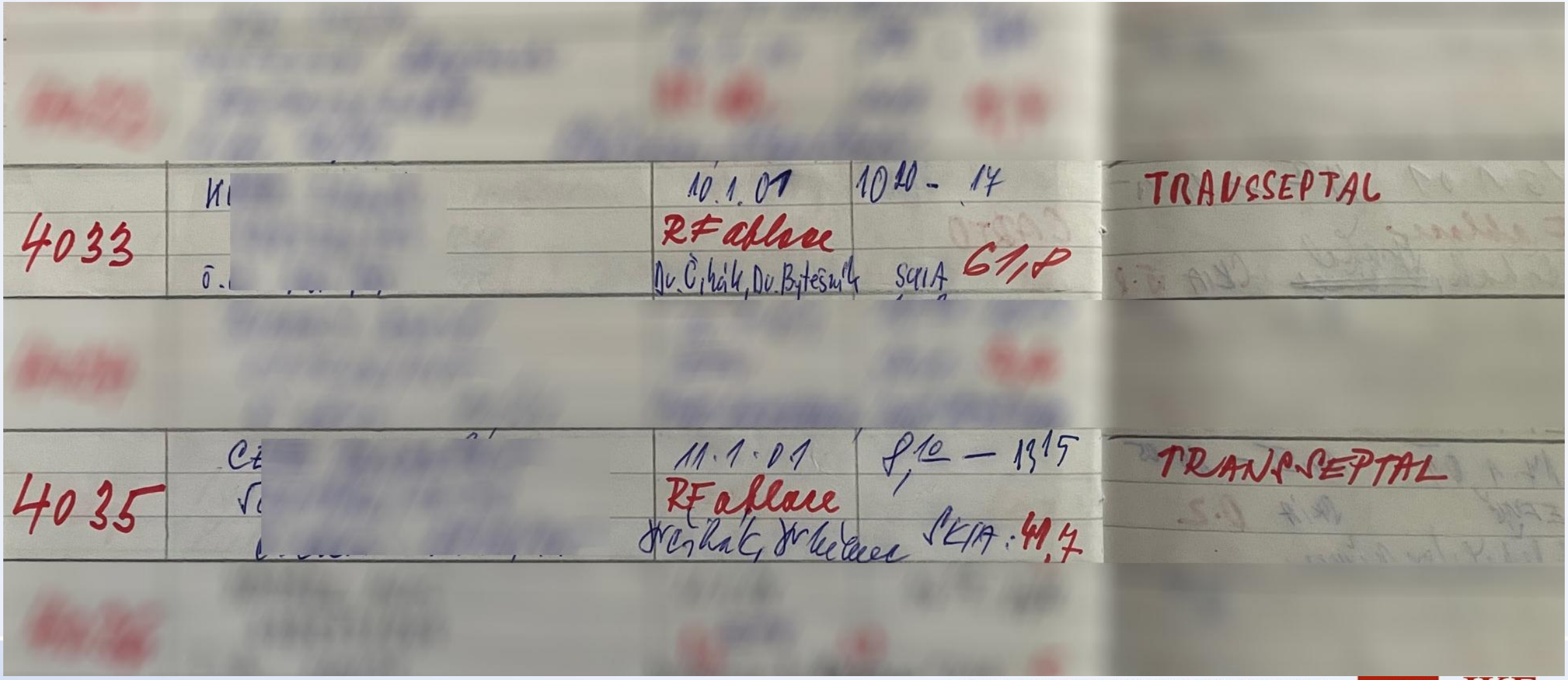
Segmentální izolace plicních žil

Lasso katetr

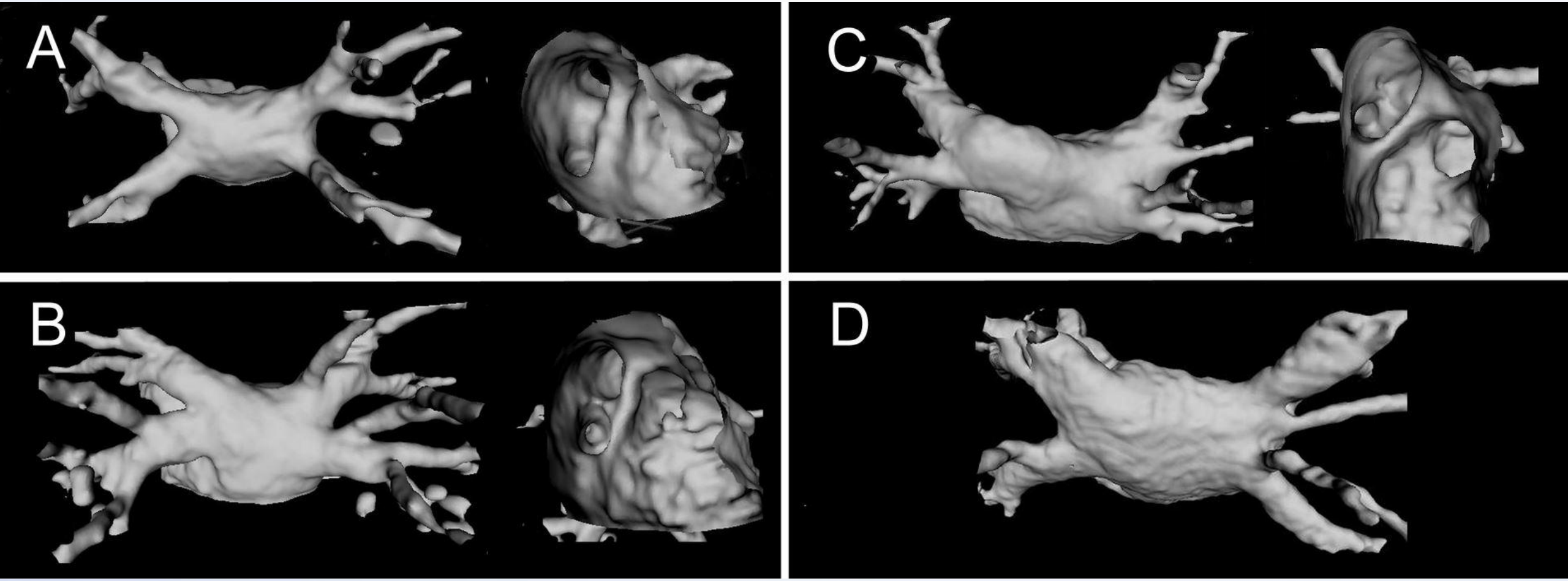




První segmentární izolace plicních žil v IKEMu



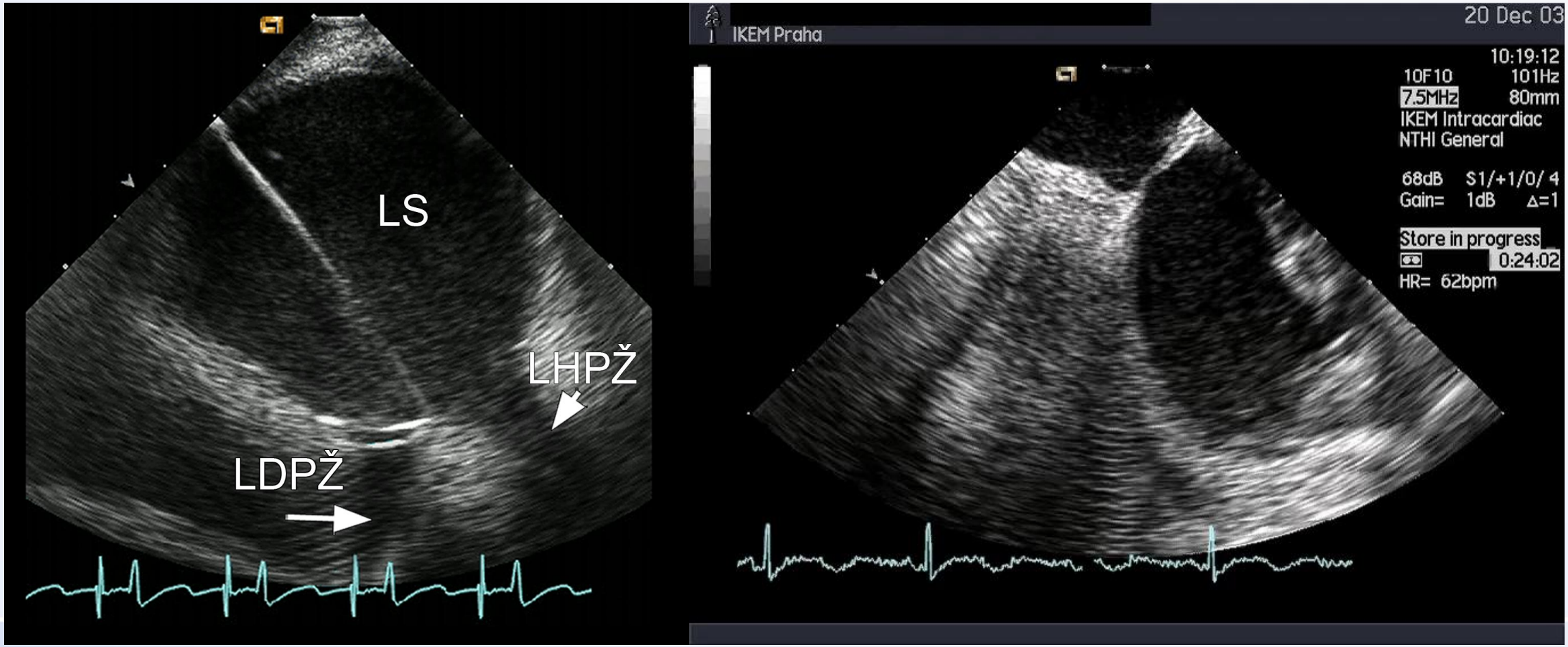
Anatomie plicních žil



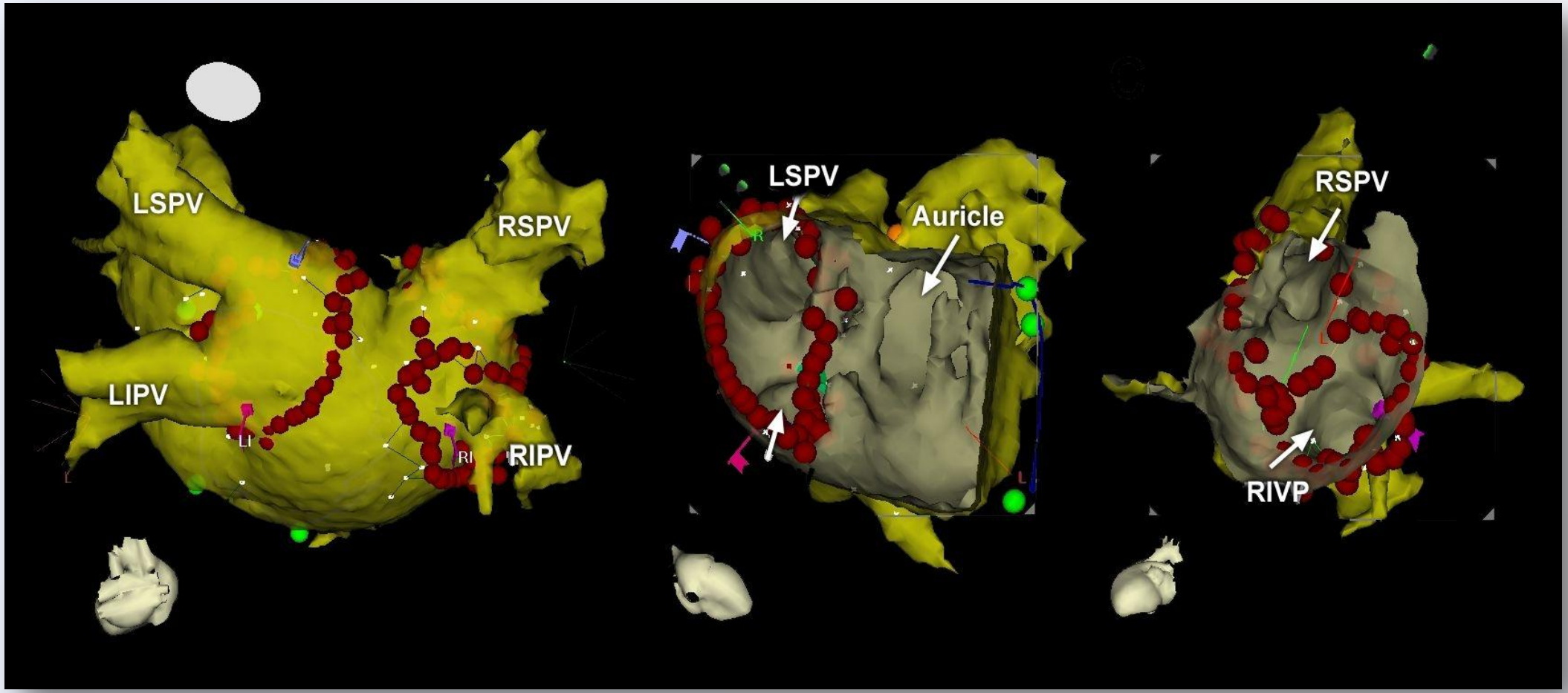
Mlčochová H PACE 2005

Intrakardiální echokardiografie

v ČR od 2003-dosud

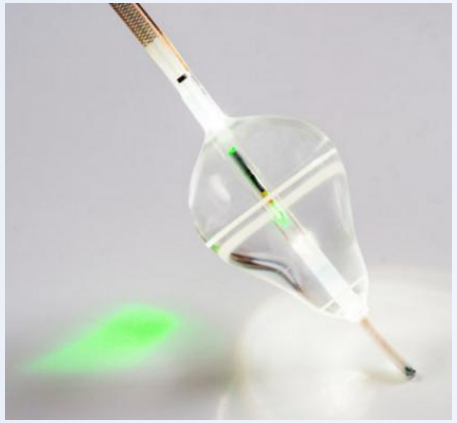


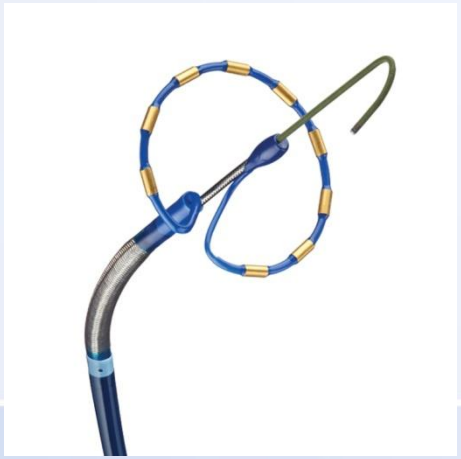
Vývojem prošly 3D mapovací sytémy

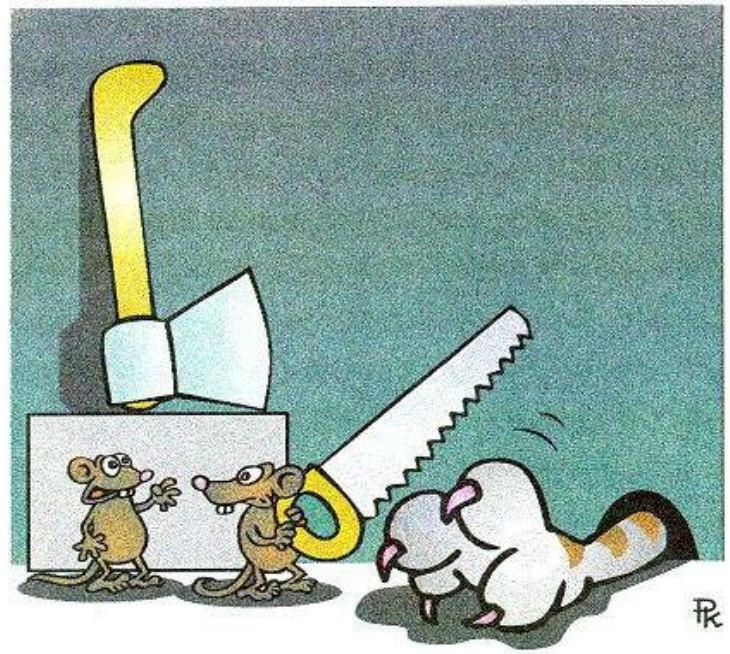


Systém CARTO-MERGE

Jaký je správný katetr na IPŽ?







Ne počkej Karlíku, to se dělá tímhle…..

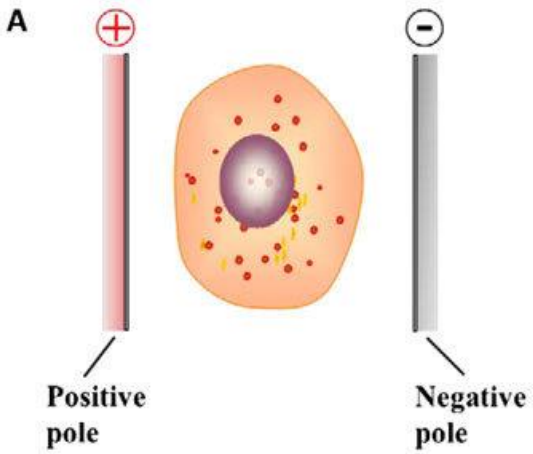
Energy sources for ablation

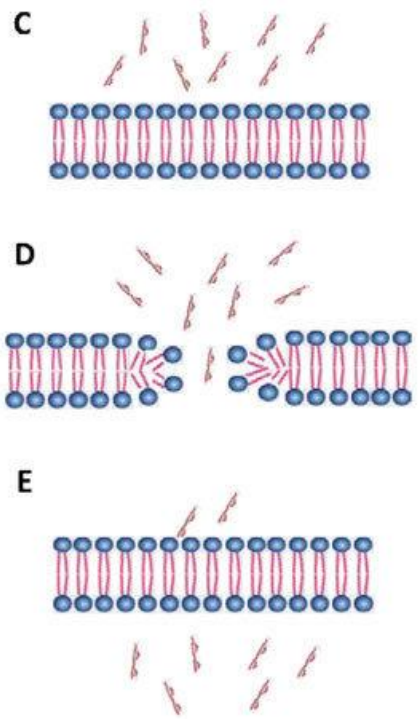
Radiofrequency ablation

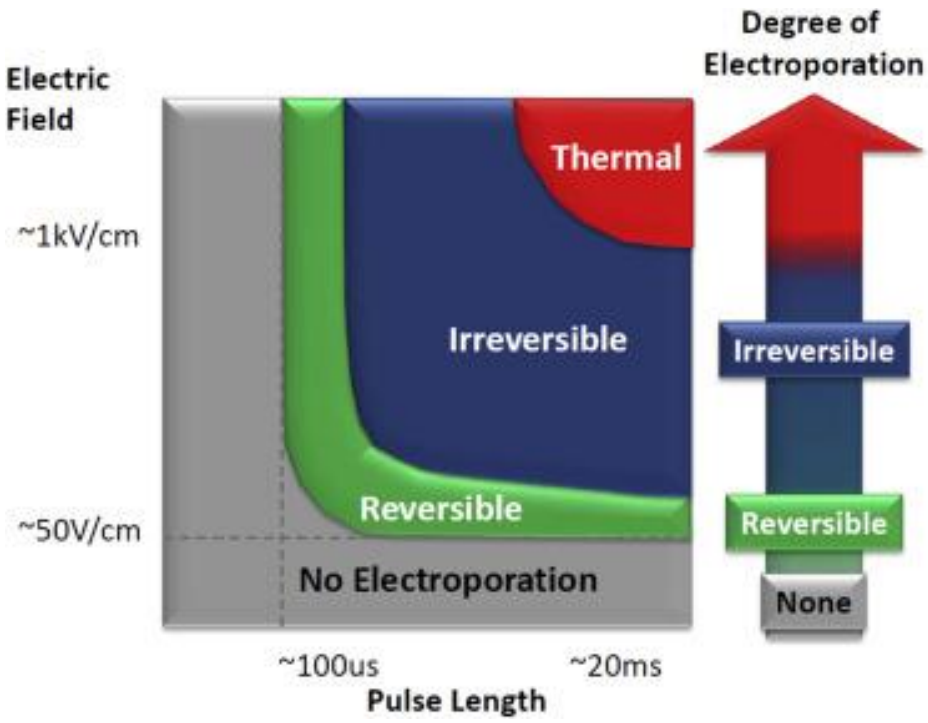
Cryoablation

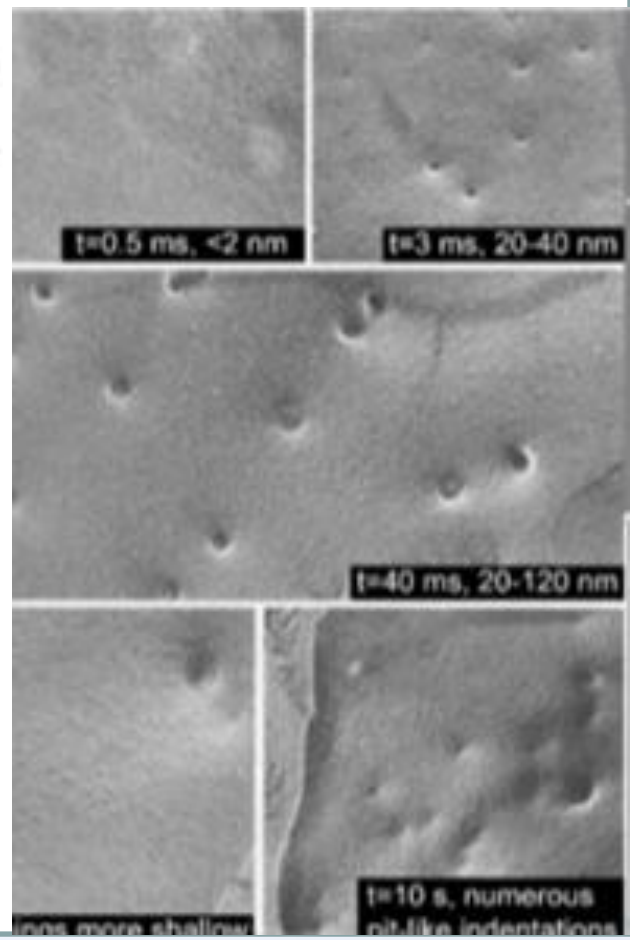
Electroporation

Mechanism of electroporation



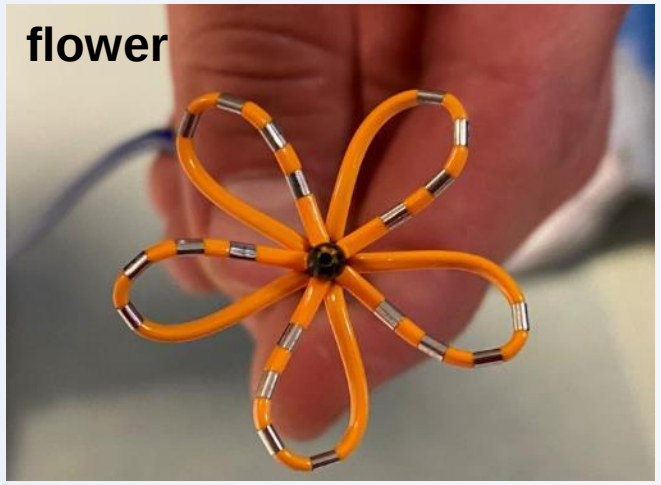


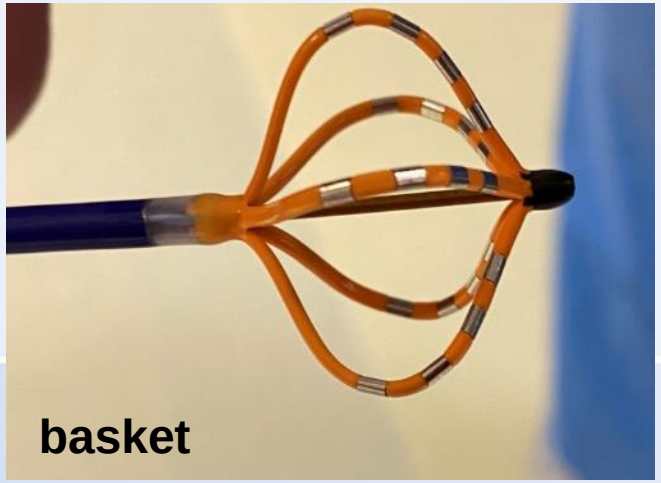


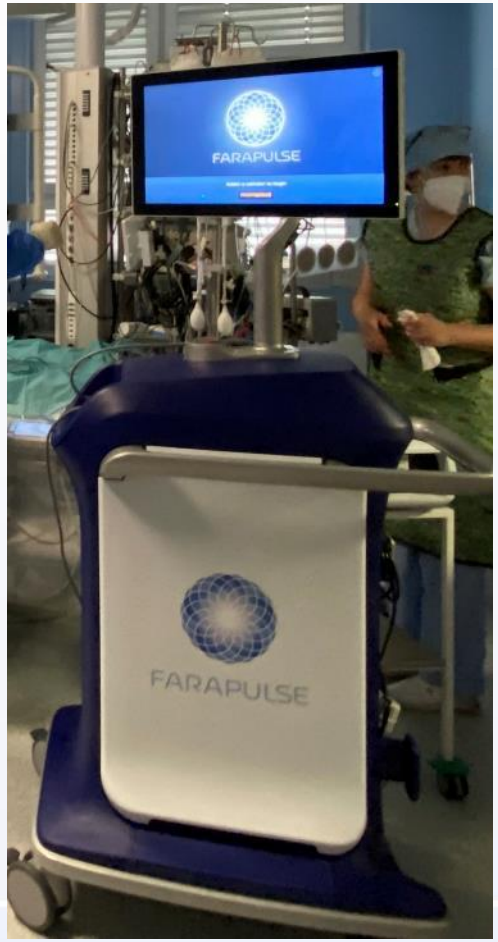


Pores can grow and increase in number depending on pulse details

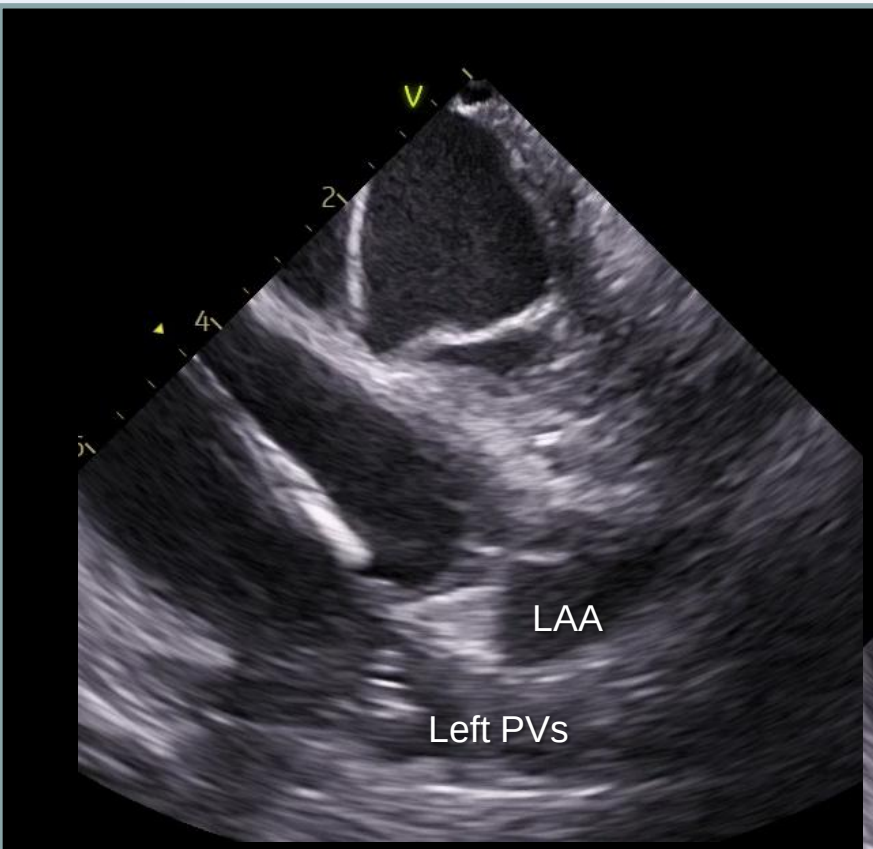
FARAPULSE

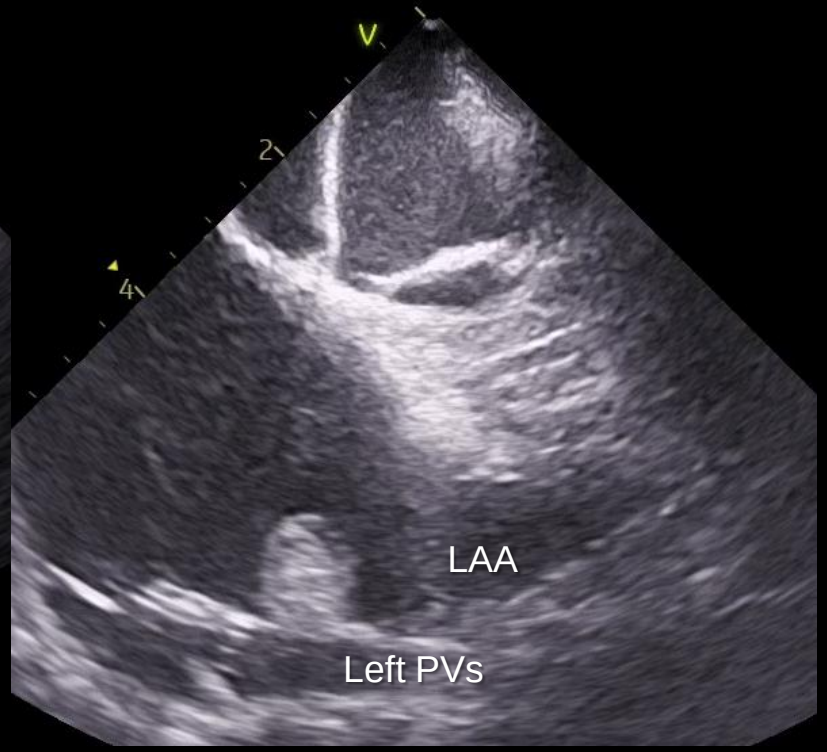


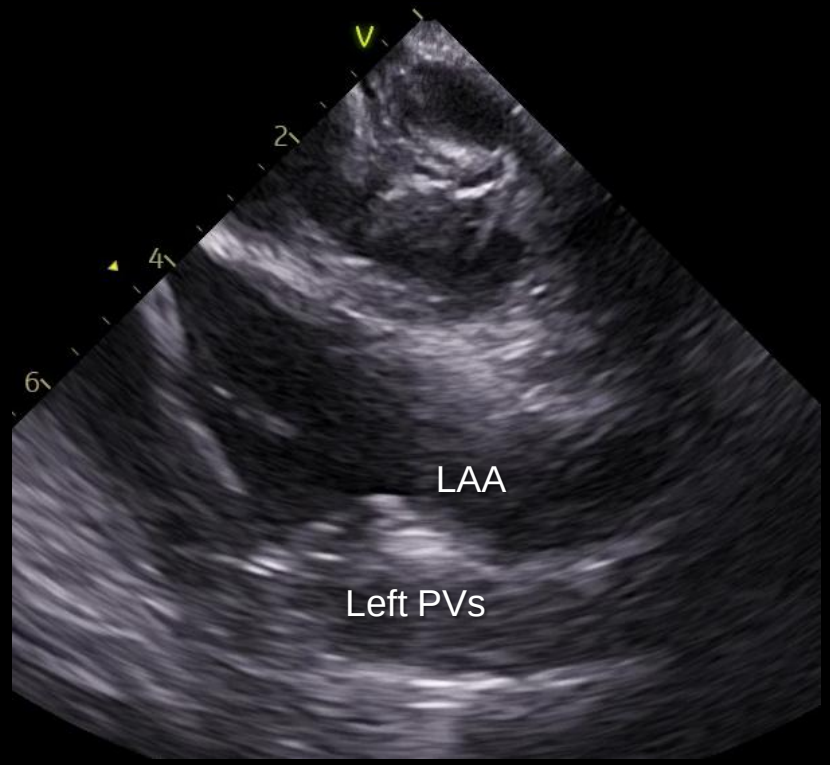


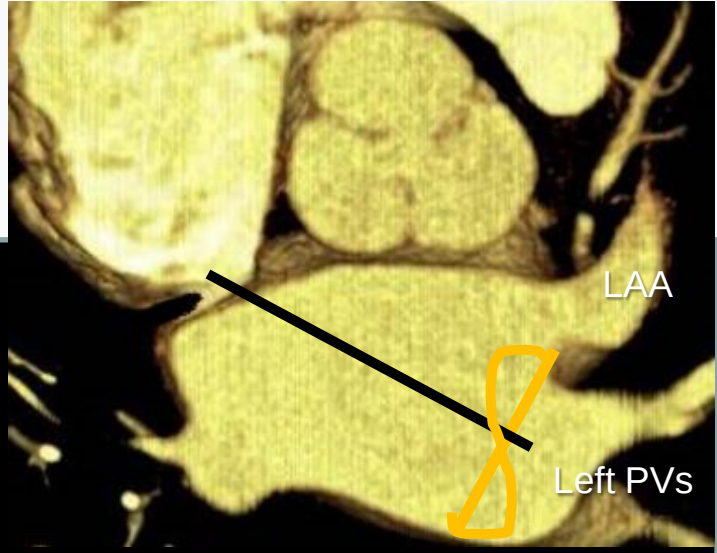


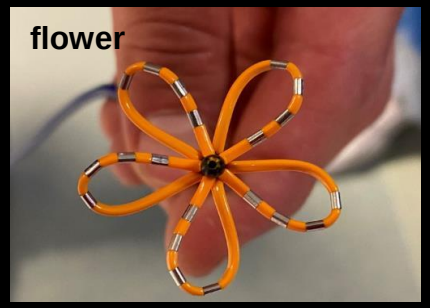
ICE guided approach



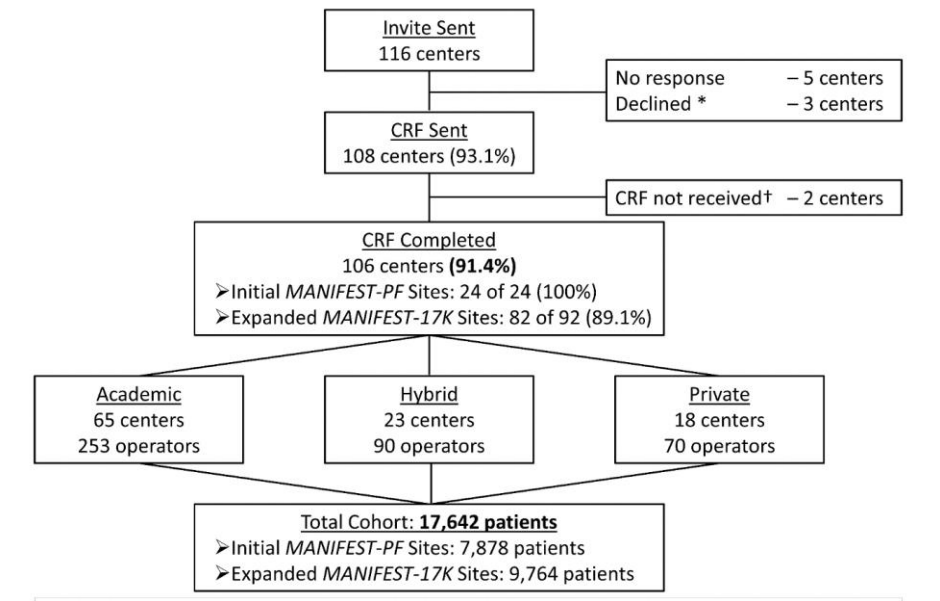


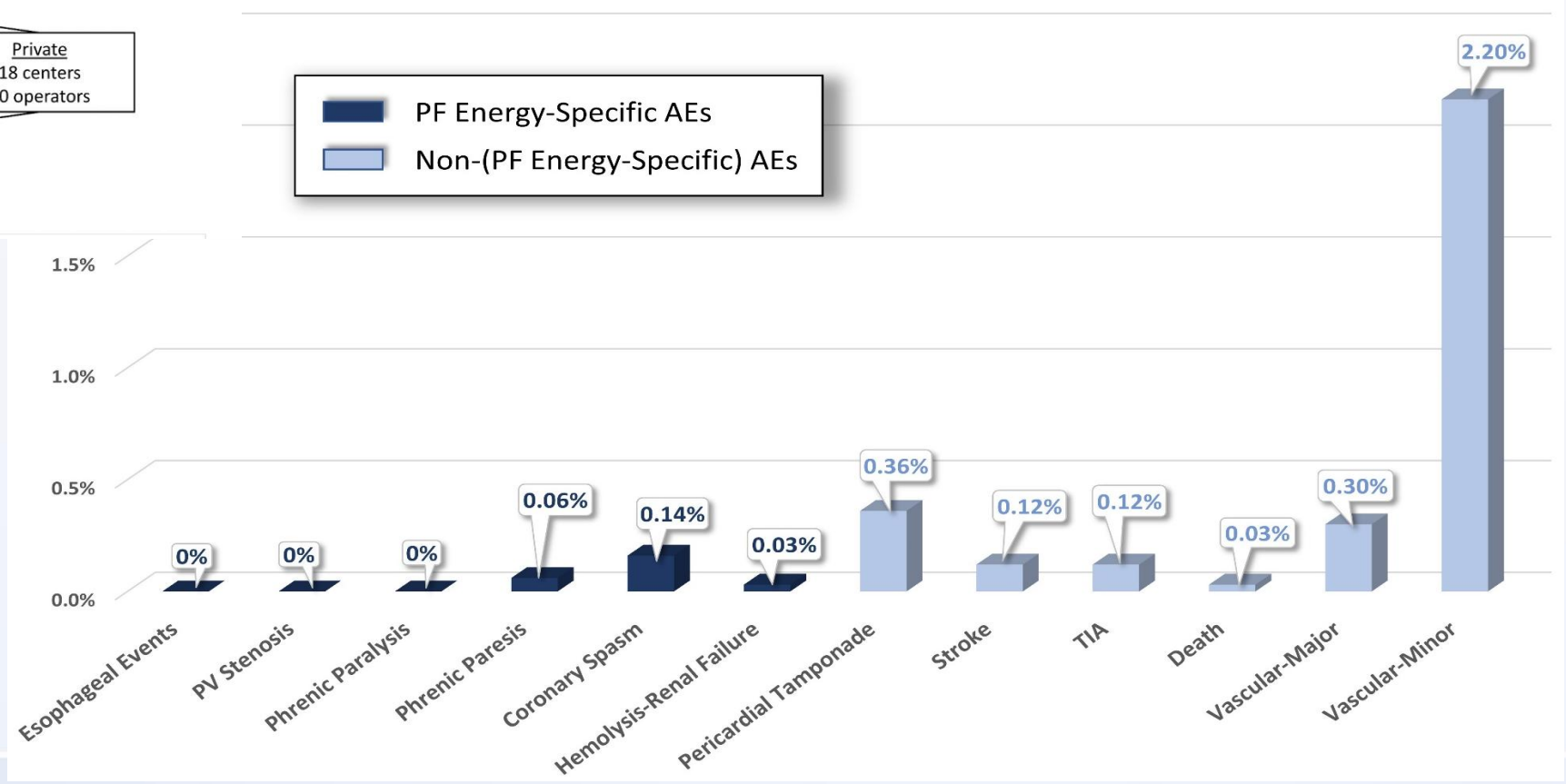






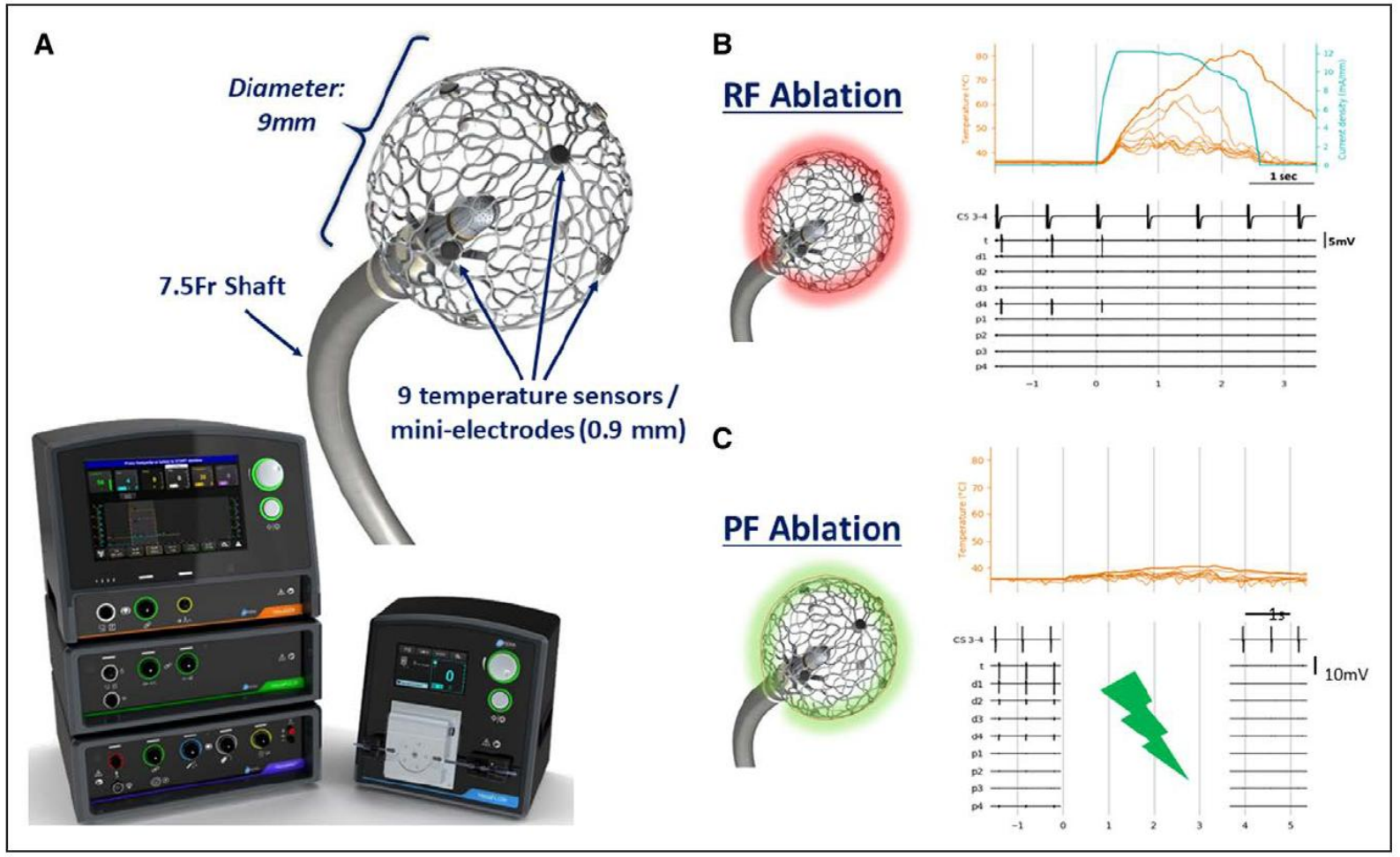
Bezpečnost PFA (+17000 pts)

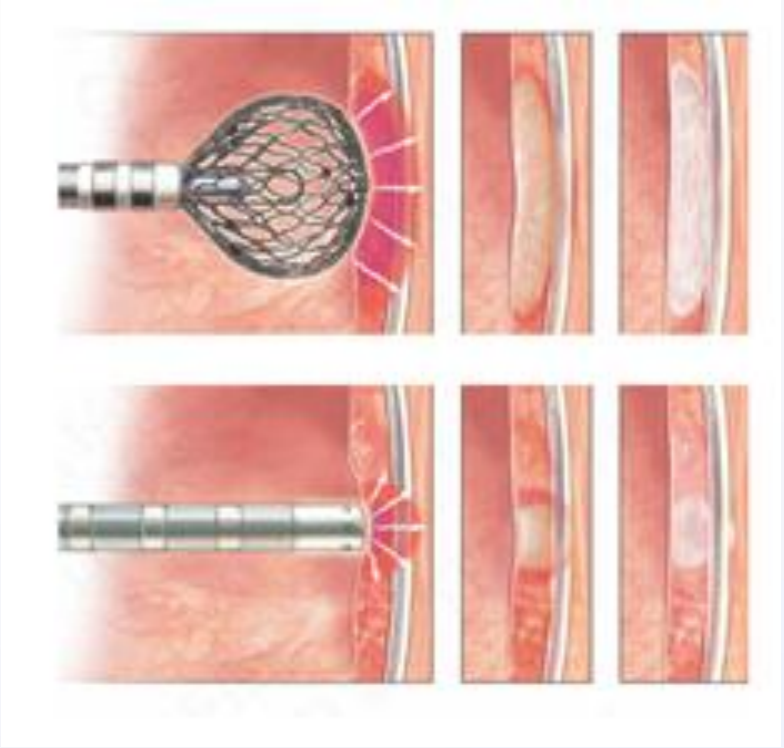




Reddy VY, et al. AHA 2023 .

Affera system (Medtronic)
Combination of PF/RF

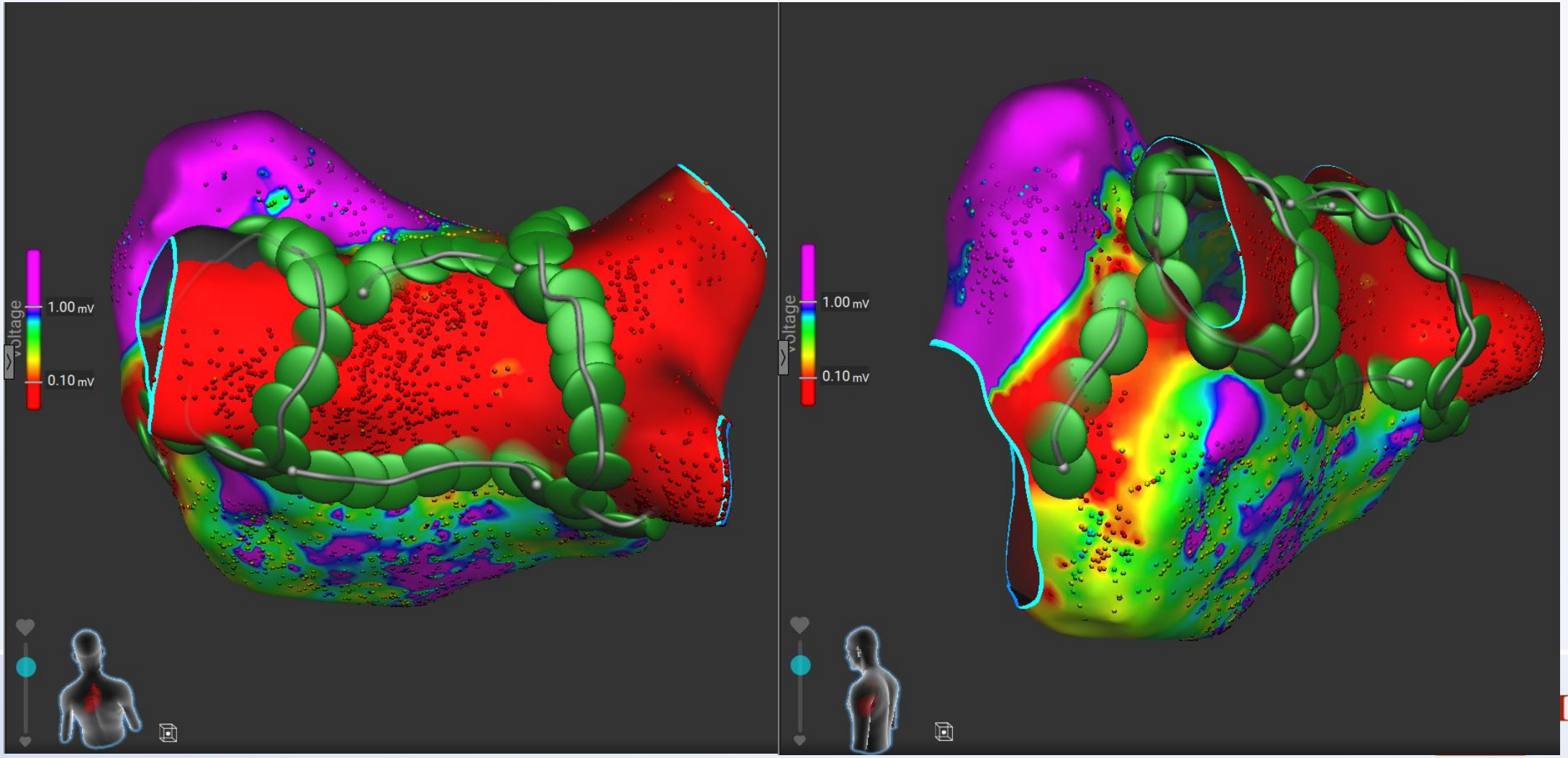




Reddy…Peichl, Kautzner, Neužil Circ EP 2020

Lesion set for persistent AF

PVI + box + mitral + TC isthmus=„MAZE“



Jaká je úspěšnost katetrizační ablace?

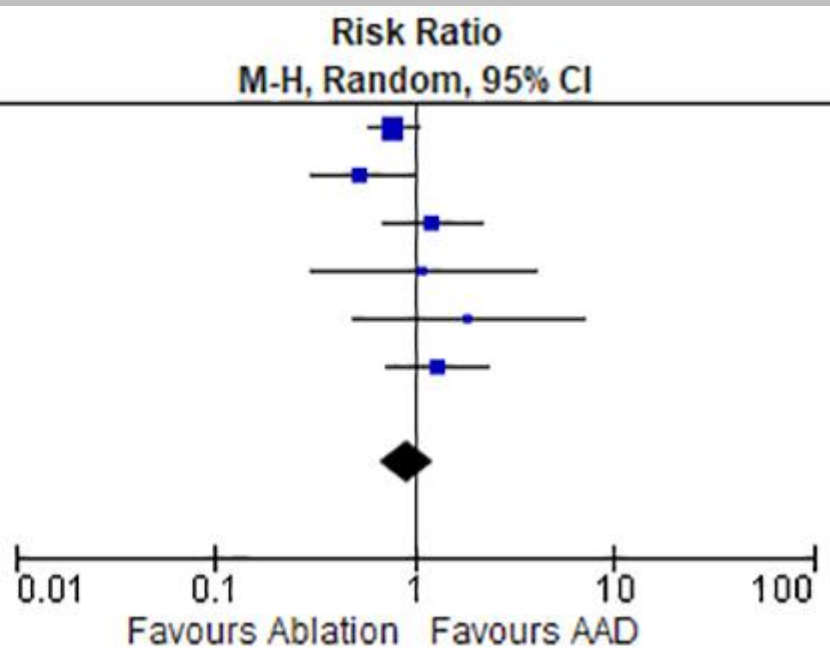
Ablace je lepší volba než léky…

Srovnání komplikací ablace a AAD

Study or Subgroup	Ablation Events	Ablation Total	AAD Events	AAD Total	Weight	Risk Ratio M-H, Random, 95% CI
Cryo-FIRST 2021	42	107	56	111	34.4%	0.78 [0.58, 1.05]
EARLY AF 2020	15	154	27	149	18.2%	0.54 [0.30, 0.97]
MANTRA-PAF 2012	22	146	18	148	18.6%	1.24 [0.69, 2.21]
RAAFT-1 2005	4	32	4	35	5.3%	1.09 [0.30, 4.01]
RAAFT-2 2014	6	66	3	61	5.0%	1.85 [0.48, 7.07]
STOP-AF 2020	22	104	16	99	18.5%	1.31 [0.73, 2.34]
Total (95% CI)		**609**		**603**	**100.0%**	**0.93 [0.68, 1.27]**
Total events	111		124			

Heterogeneity: Tau² = 0.05; Chi² = 7.79, df = 5 (P = 0.17); I² = 36%

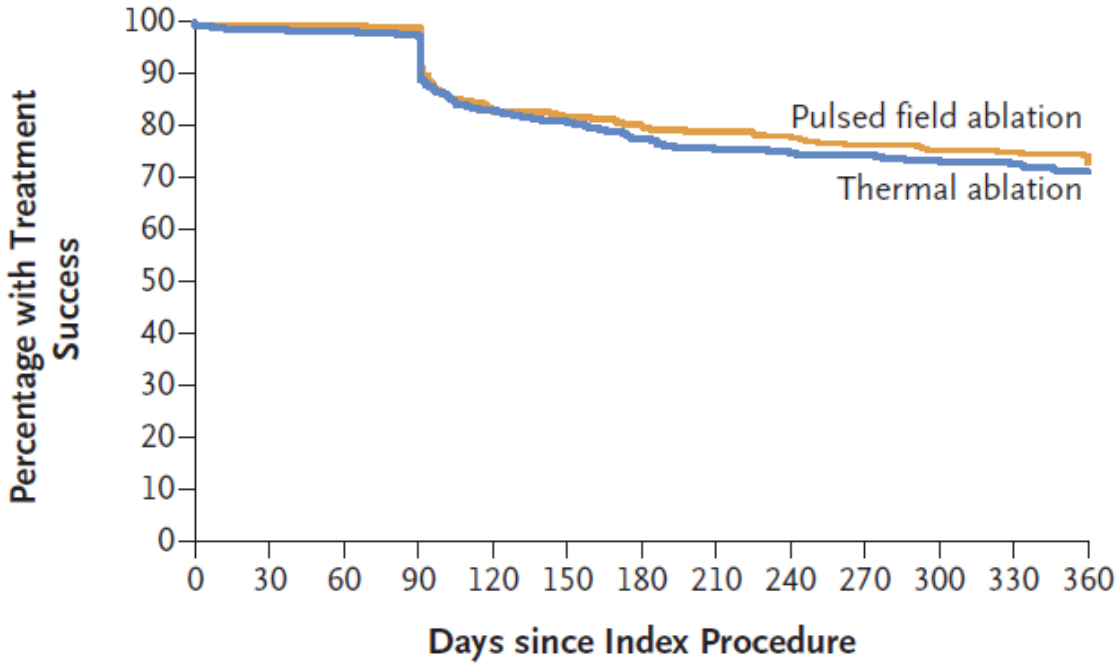
Test for overall effect: Z = 0.46 (P = 0.64)



Razzack AA et al. Rev. Cardiovasc. Med. 2022

ADVENT trial

- 305pts s FiS randomizovaných k
  - PF vs RF/Kryo
- **Kompositní endpoint:**
  - FiS/ST>30sec, použití AAD, EKV, reablace po blanking periodě (3m)
- Komplikace
  - 2.1% vs 1.5%



No. at Risk					
Pulsed field ablation	301	298	238	228	176
Thermal ablation	296	292	228	219	150

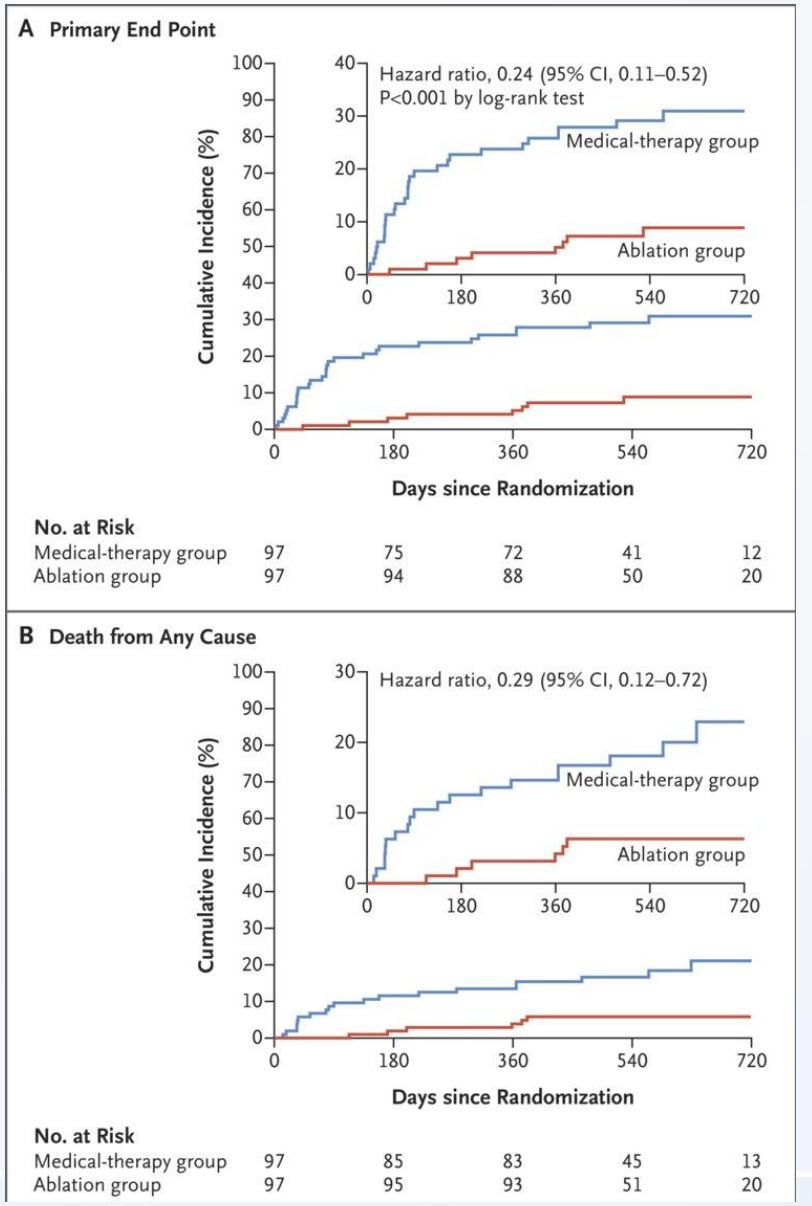
Treatment Success (%)					
Pulsed field ablation	99.3	99.0	79.7	76.4	73.1
Thermal ablation	98.7	97.3	77.5	74.5	71.3

Reddy V NEJM 2023;389:1660-71

CASTLE HTx

Ablace u pacientů s FiS a CHSS

- 194pts s pokročilým CHSS a FiS (NYHA II-IV), EF LK 27±6%, LA 48±8mm
- Ablace vs farmakoterapie
- Follow up 18m
- Předčasně zastavena, pro 3x nižší mortalitu ve skupině s ablací



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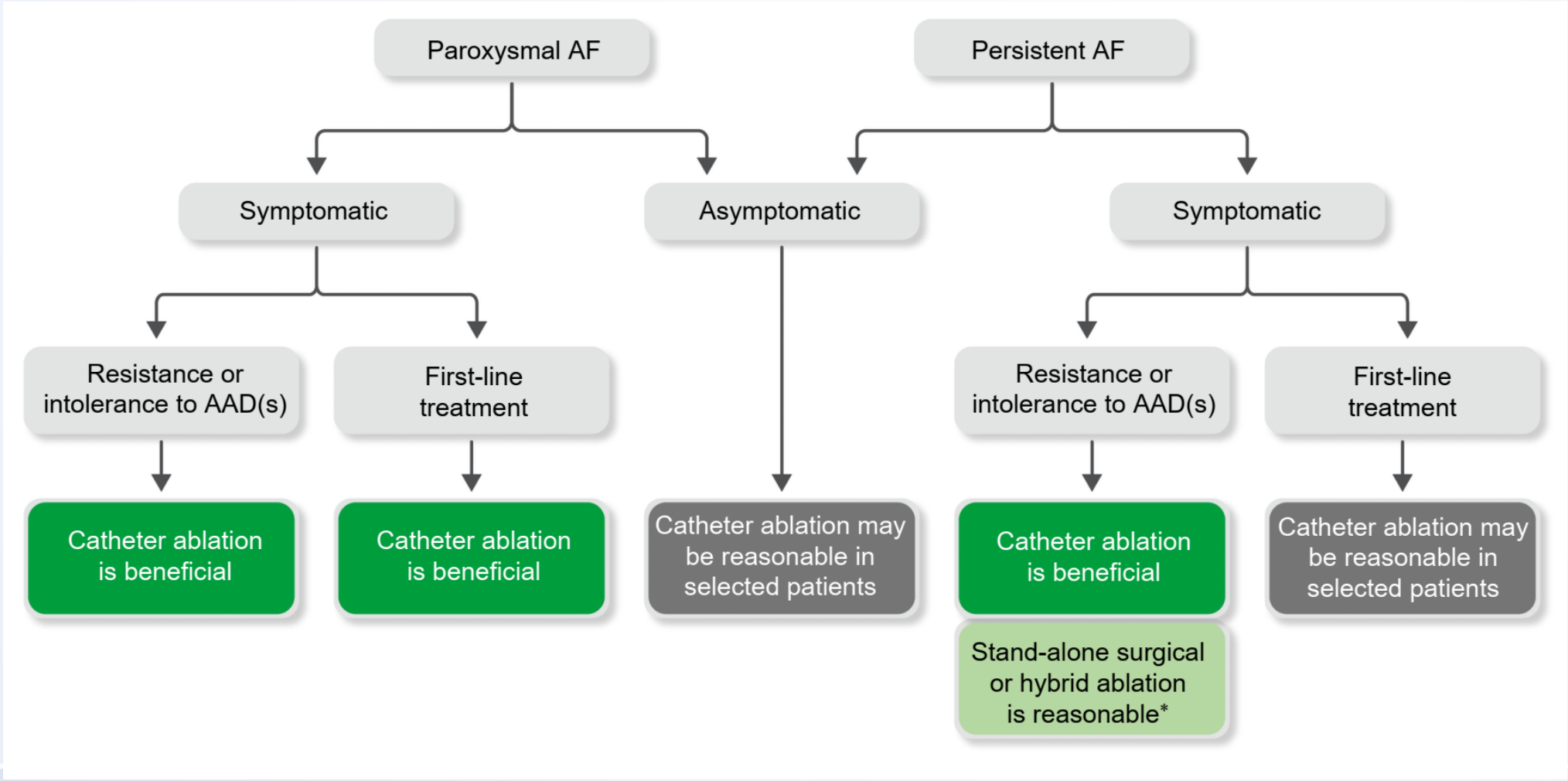
Sohns C et al. NEJM 2023;389:1380-1389

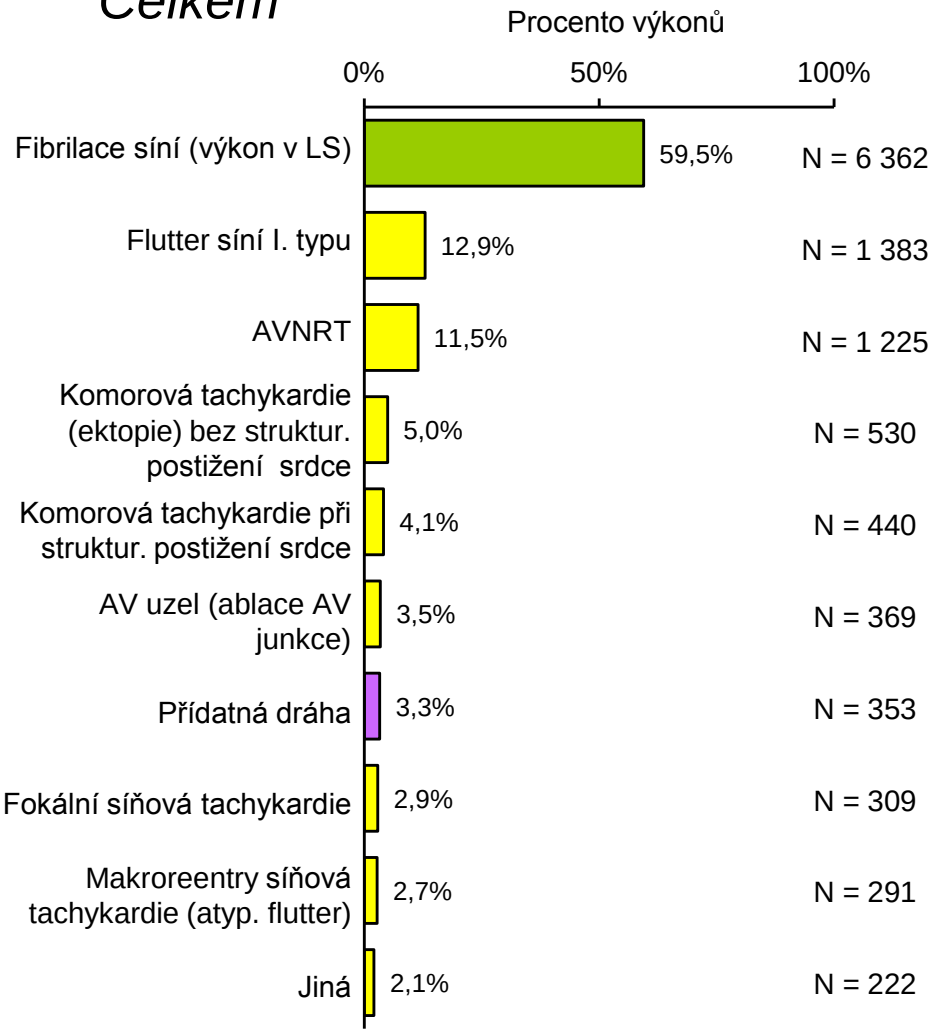
Indikace k ablaci FiS



Tzeis et al. Europace 2024

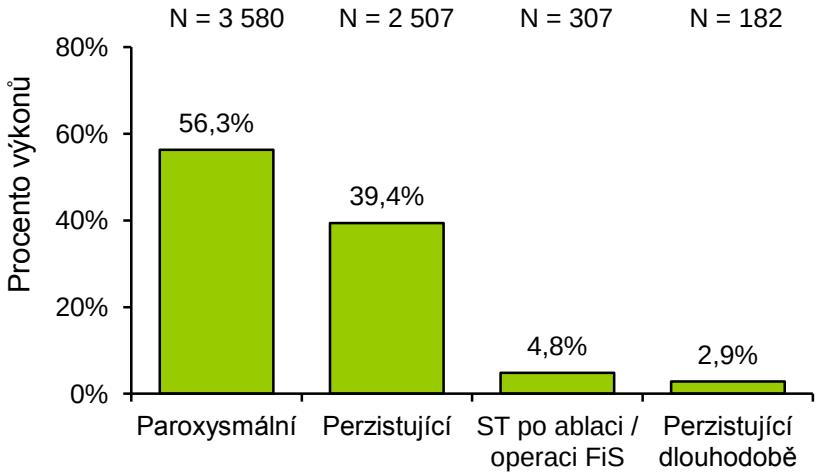
Registr ablací v ČR 2023

Celkem



Báze: všechny výkony 2023 (N = 10 694)

Fibrilace síní (N = 6 362)



Jeden výkon může mít více typů arytmií.

Dominantním typem arytmie je (paroxysmální) FiS, dále pak Flutter síní a AVNRT.

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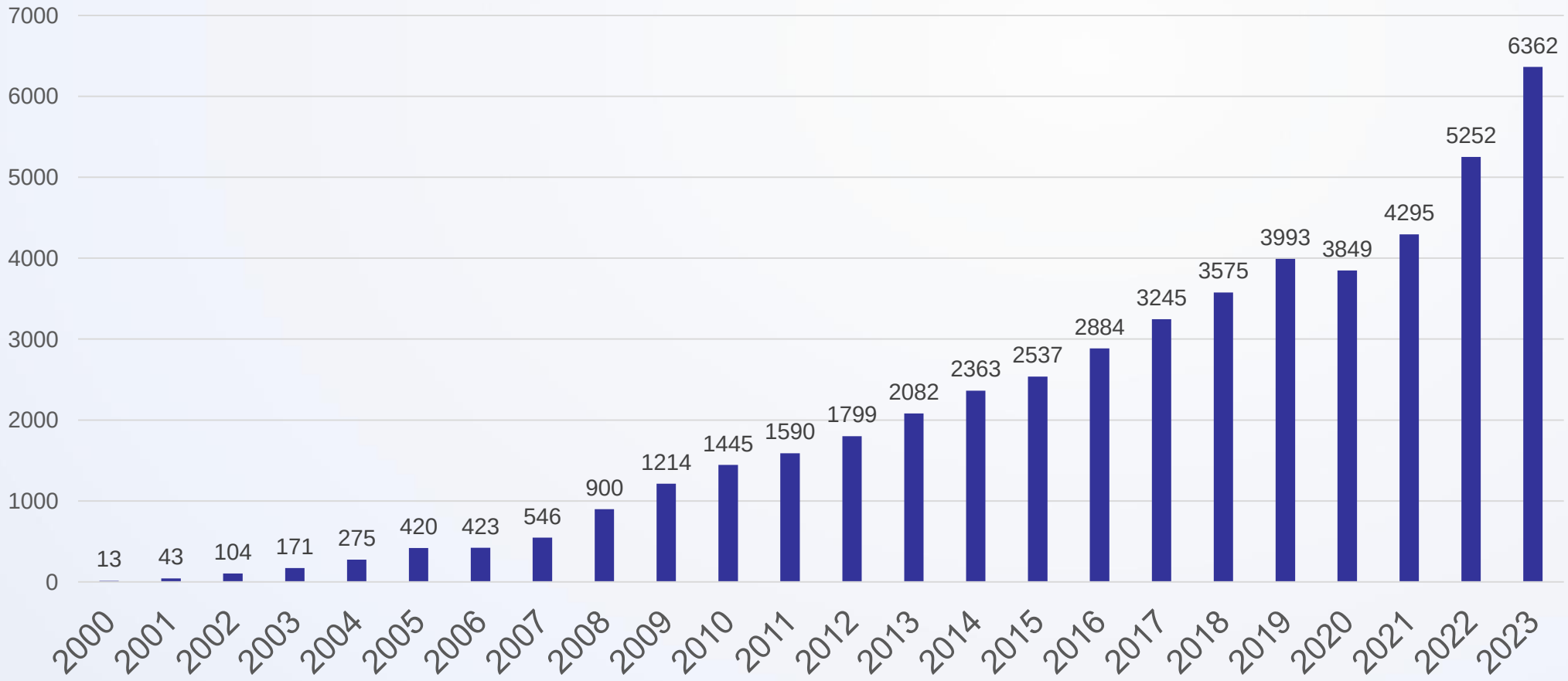
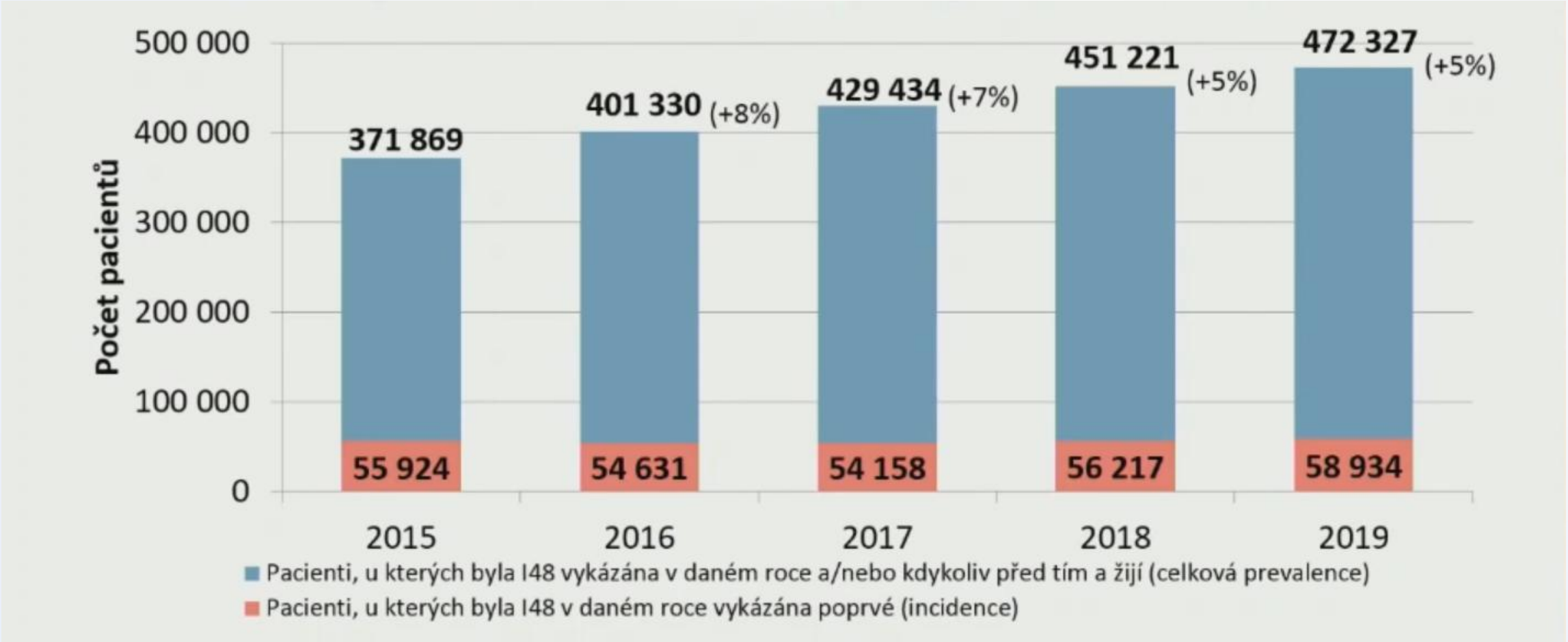
Počty ablací pro FiS v ČR 2000-2023



Epidemiologie FiS v ČR



Zdroj: M. Táborský – analýza NRHZS

Závěry

- Intervenční léčba FiS urazila dlouhou cestu
- V současné době je standardním výkonem pro symptomatické pacienty s FiS
- Nové přístupy mají zjednodušily, zrychlily a mají potenciál zlepšit výsledky léčby FiS