Hereditárne ataxie a HCM

Matej Macko, Kardiologická klinika 2.LFUK a FN Motol

HEREDITÁRNE ATAXIE

Geneticky podmienená skupina ochorení

AD, AR dedičnosť

Spinocerebellárne ataxie, Friedreichova ataxia (FA)...

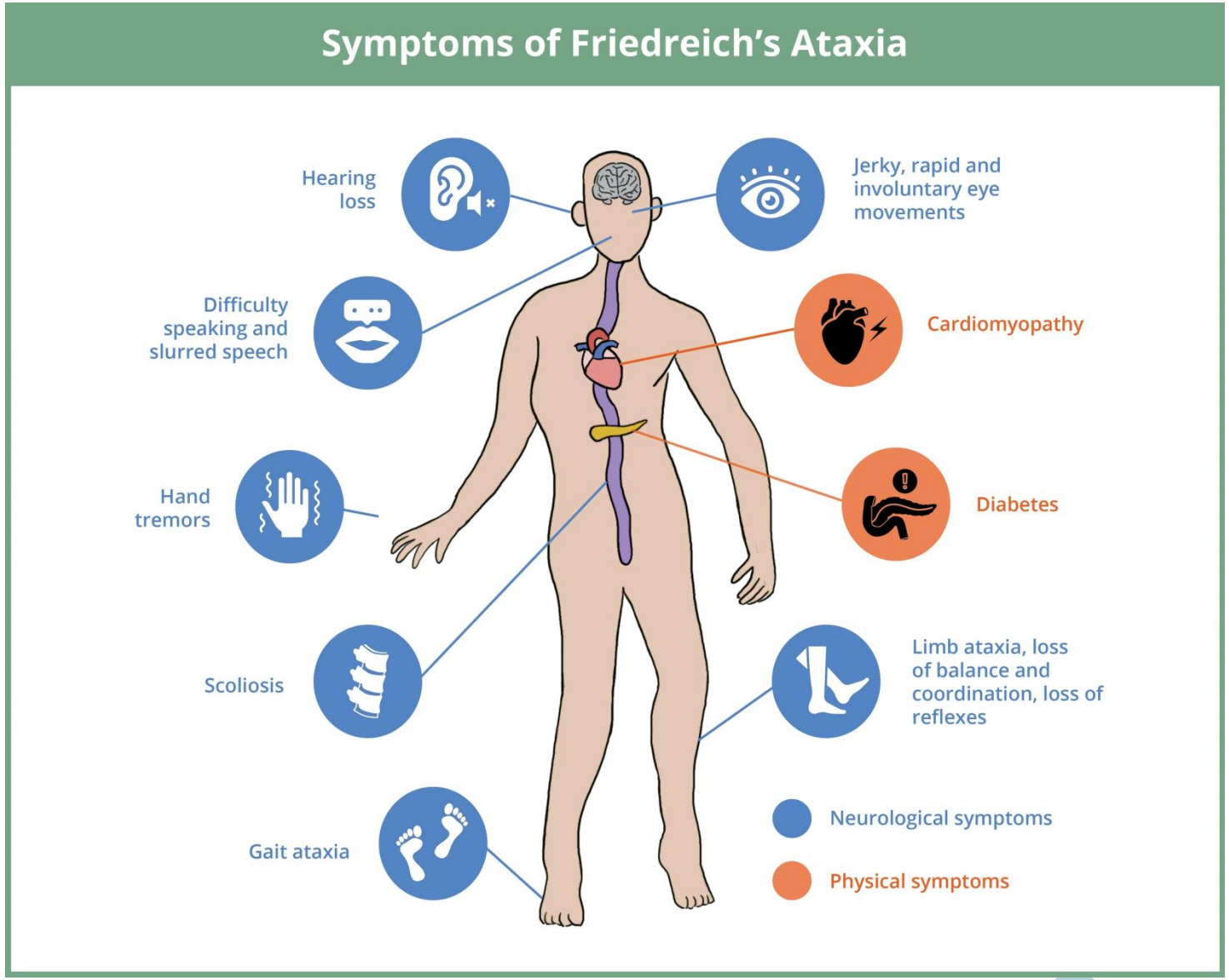
FA incidencia
1: 50 000

Jayadev S, Bird TD. Genet Med. 2013 Sep;15(9):673-83.

FRIEDREICHOVA ATAXIA

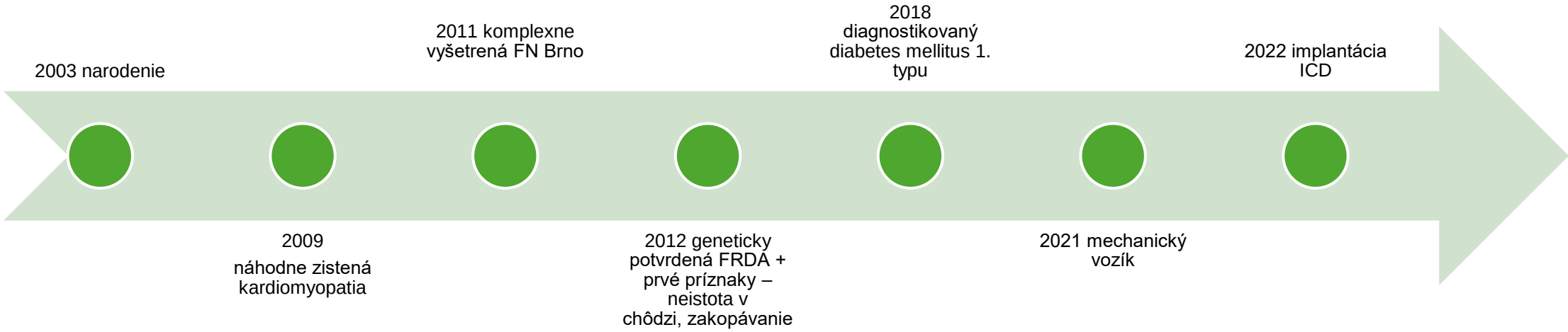
- Najčastejšia AR dedičná ataxia
- Znížená expresia génu FXN (protein frataxin) – mitochondriálna dysfunkcia
- Frataxin – homeostáza železa v mitochondriách – nedostatok – náchylnosť k oxidačnému stresu – najviac ovplyvnené energeticky náročné bunky
- Typická manifestácia pred 20 rokom veku
- Multisystémové ochorenie: neurologická, KARDIOLOGICKÁ, endokrinologická, muskulosk eletálna symptomatika

Vališ, et al. Neurol. praxi. 2024;25(4):296-302



https://imaging-cro.biospective.com/resources/friedreich-ataxia-imaging-biomarkers#frda-symptoms#frda-symptoms

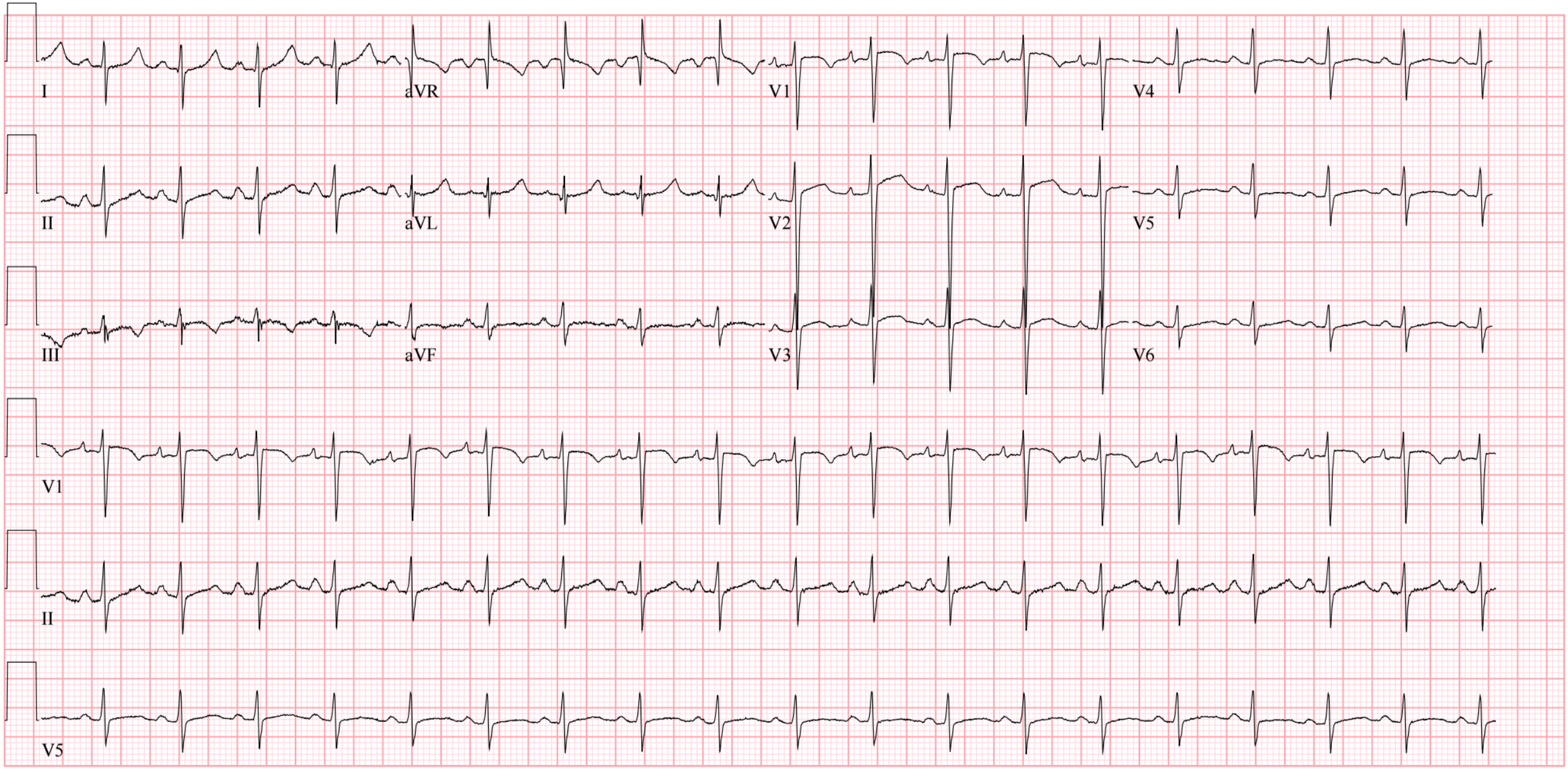
KAZUISTIKA


2003 narodenie
2009
náhodne zistená kardiomyopatia
2011 komplexne vyšetrená FN Brno
2012 geneticky potvrdená FRDA + prvé príznaky – neistota v chôdzi, zakopávanie
2018 diagnostikovaný diabetes mellitus 1. typu
2021 mechanický vozík
2022 implantácia ICD

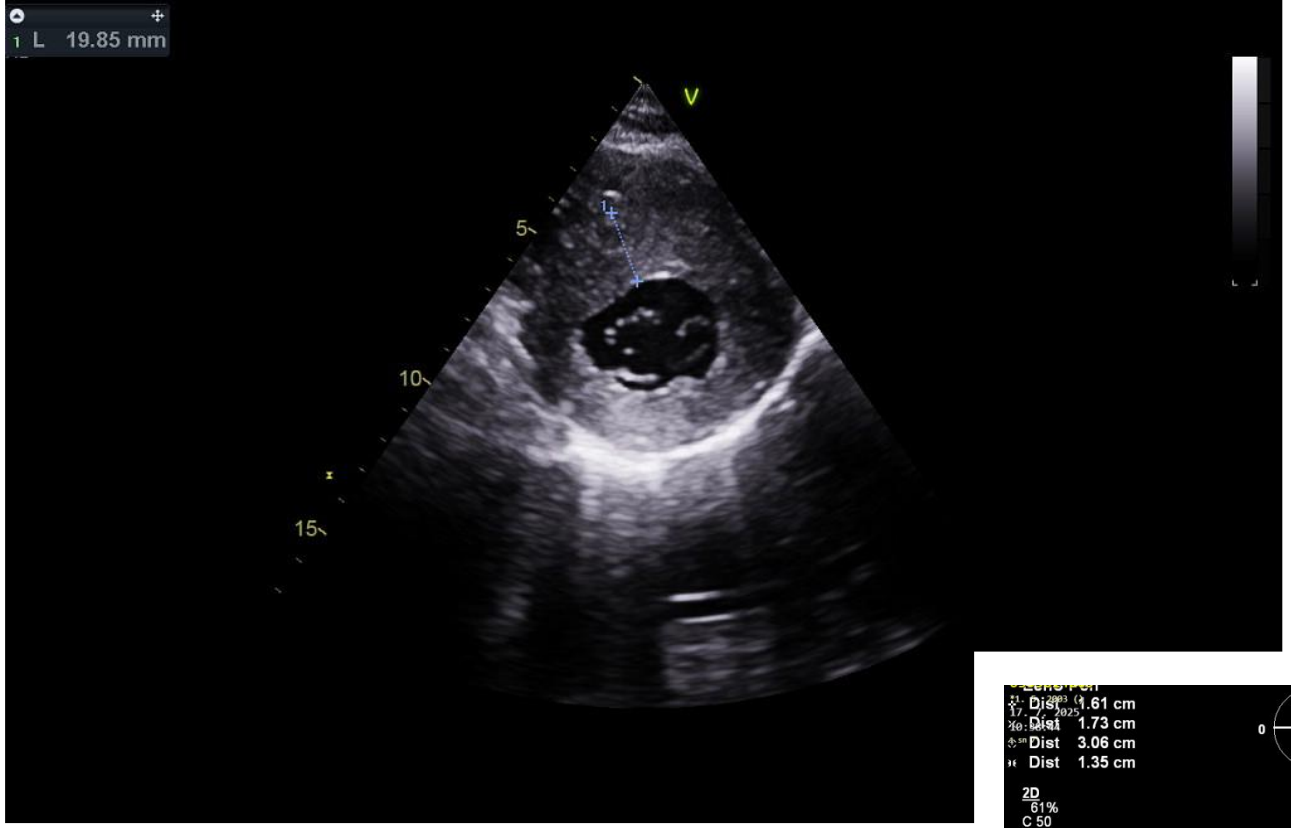
KAZUISTIKA

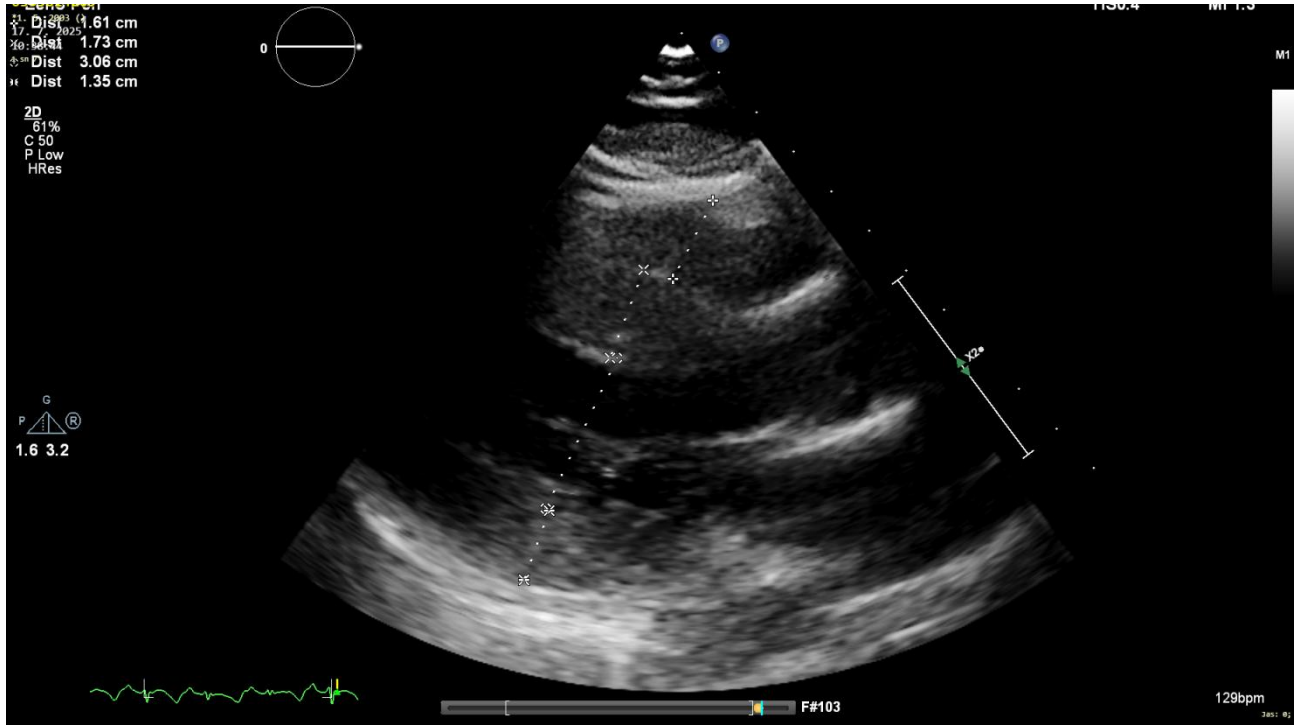
- RA: KV 0 , neurologicky 0
- FA: Novorapid, Toujeo, užívala Skyclaris, vysadený 9/2025 (noncompliance)
- SA: býva sama v bezbariérovom byte, ukončená SŠ s maturitou, štúdium na VŠ ukončila
- AA: PNC susp.

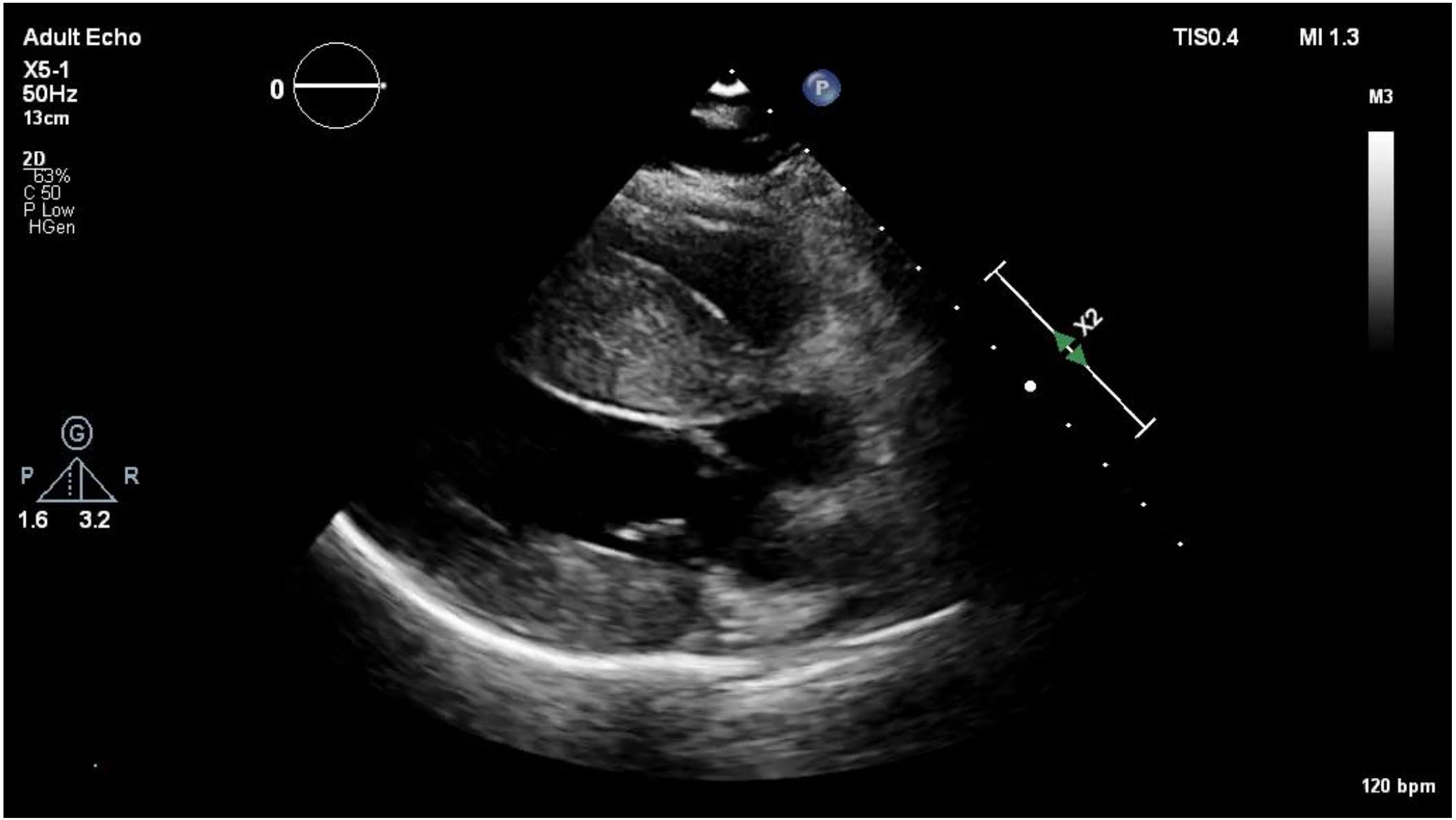
- ... 7/2025 Nají se sama, hygienu zvládá v bezbariérovém prostoru. Není schopná psát tužkou. Pohyb na elektrickém vozíku. Má asistentku...

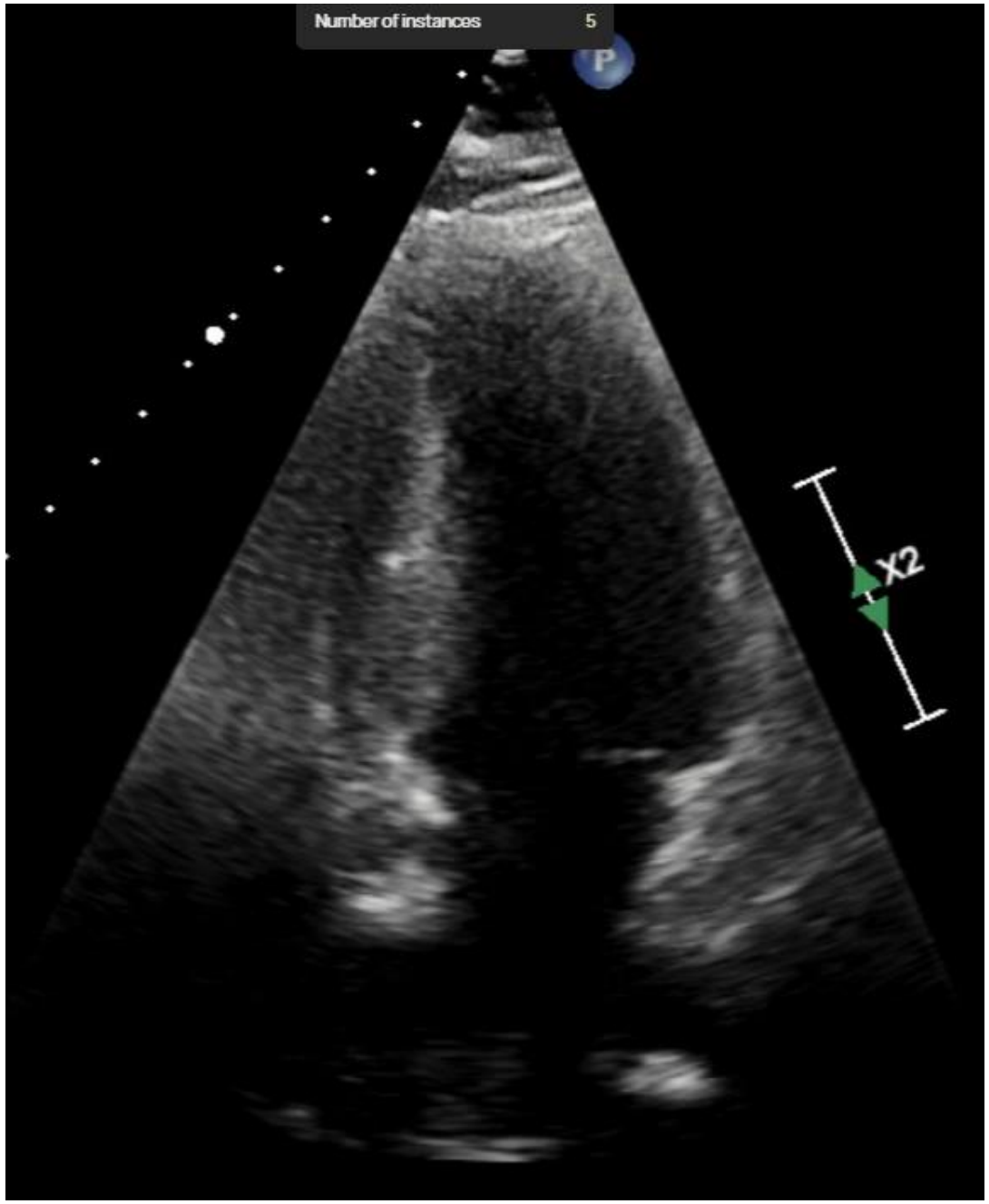


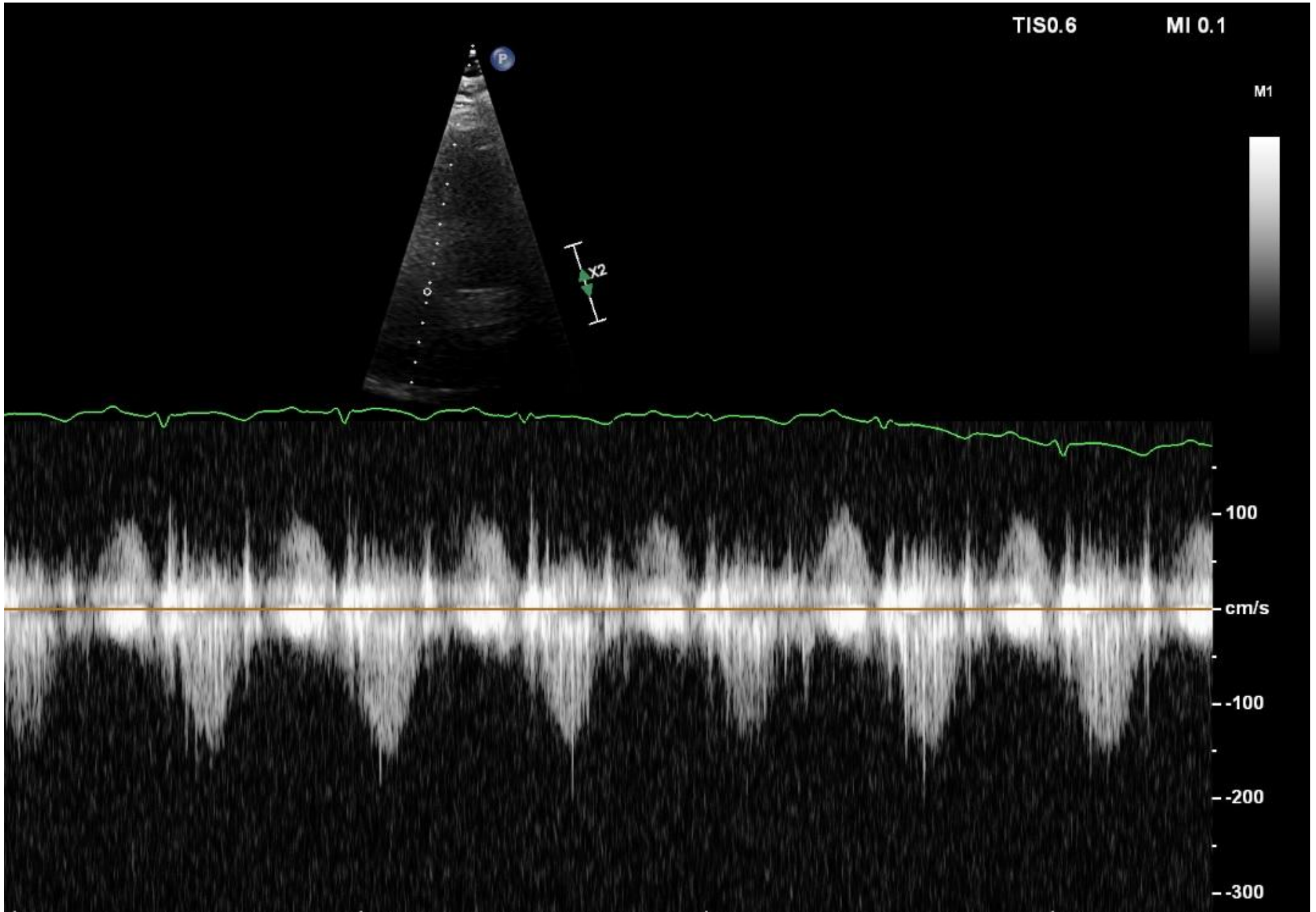
Digitálna databáza FN Motol

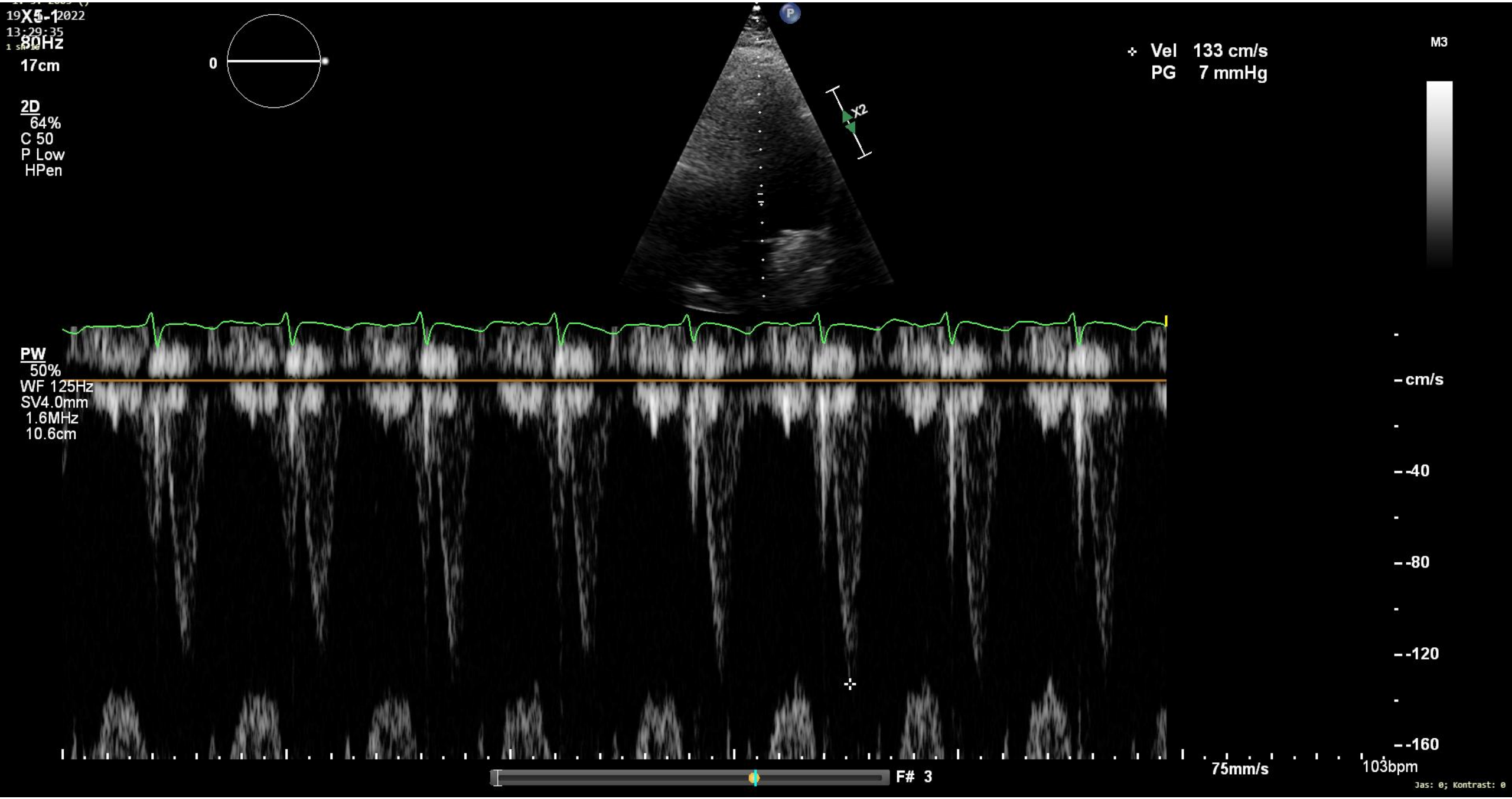

1 L 19.85 mm
V
5
10
15


Dist 1.61 cm
Dist 1.73 cm
Dist 3.06 cm
Dist 1.35 cm
2D
61%
C 50
P Low
HRes
1.6 3.2
M1
F#103
129bpm


Adult Echo
X5-1
50Hz
13cm
2D
63%
C 50
P Low
HGen
0
TIS0.4
MI 1.3
M3
X2
G
P
R
1.6
3.2
120 bpm


Number of instances 5
P
X2

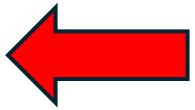

TIS0.6
MI 0.1
M1
X2
100
cm/s
-100
-200
-300


X5-1
80Hz
17cm
2D
64%
C 50
P Low
HPen
Vel 133 cm/s
PG 7 mmHg
M3
PW
50%
WF 125Hz
SV4.0mm
1.6MHz
10.6cm
cm/s
-40
-80
-120
-160
75mm/s
103bpm
F# 3

Ciele kardiologickej starostlivosti

Pravidelné kontroly + optimalizácia medikácie

Sledovanie príznakov srdcového zlyhávania

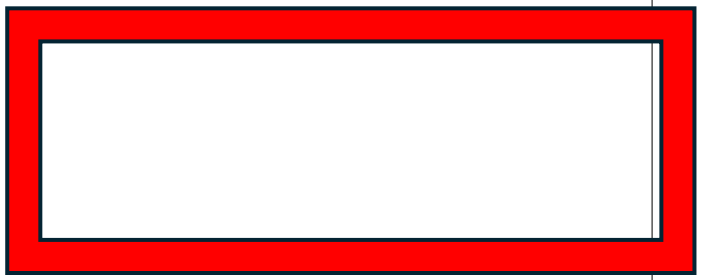
Stratifikácia rizika a prevencia SCD 

Záchyt a liečba arytmií

Multidisciplinárna spolupráca

Recommendations for SCD Risk Assessment in Adults With HCM
Referenced studies that support the recommendations are summarized in the Online Data Supplement.

COR	LOE	Recommendations
1	B-NR	1. In adult patients with HCM, a comprehensive, systematic noninvasive SCD risk assessment at initial evaluation and every 1 to 2 years thereafter is recommended and should include evaluation of these risk factors (Figures 1 and 3, Table 8)[1–25]: a. Personal history of cardiac arrest or sustained ventricular arrhythmias; b. Personal history of syncope suspected by clinical history to be arrhythmic; c. Family history in close relative of premature HCM-related sudden death, cardiac arrest, or sustained ventricular arrhythmias; d. Maximal LV wall thickness, EF, LV apical aneurysm; e. NSVT episodes on continuous ambulatory electrocardiographic monitoring.
1	B-NR	2. For adult patients with HCM who are not otherwise identified as high risk for SCD, or in whom a decision to proceed with ICD placement remains uncertain after clinical assessment that includes personal/family history, echocardiography, and ambulatory electrocardiographic monitoring, CMR imaging is beneficial to assess for maximum LV wall thickness, EF, LV apical aneurysm, and extent of myocardial fibrosis with LGE (Table 8).[1,11,12,15–20]
2a	B-NR	3. For patients who are ≥16 years of age with HCM, it is reasonable to obtain echocardiography-derived left atrial diameter and maximal LVOT gradient to aid in calculating an estimated 5-year sudden death risk that may be useful during shared decision-making for ICD placement (Table 8).[2,22]



Ommen S, et al., JACC 2024; 83:2324–2405

Original Investigation

A 22-Year Follow-up Study of Long-term Cardiac Outcome and Predictors of Survival in Friedreich Ataxia

Francoise Pousset, MD; Lise Legrand, MD; Marie-Lorraine Monin, MD; Claire Ewenczyk, MD; Perrine Charles, MD, PhD; Michel Komajda, MD; Alexis Brice, MD; Massimo Pandolfo, MD; Richard Isnard, MD, PhD; Sophie Tezenas du Montcel, MD, PhD; Alexandra Durr, MD, PhD

IMPORTANCE Friedreich ataxia (FRDA) is the most common genetic sensory ataxia, and myocardial involvement is a major determinant of survival.

OBJECTIVE To assess FRDA survival and cardiac outcome to adapt future therapeutic trials.

DESIGN, SETTING, AND PARTICIPANTS In a longitudinal follow-up study, all patients with genetically confirmed FRDA seen in the reference center and referred for cardiac evaluation (standard 12-lead electrocardiogram and transthoracic echocardiography) to the cardiology department were enrolled and followed up from April 27, 1990, to July 31, 2013. The setting was the French National Reference Center for Rare Diseases and the Department of Cardiology, Salpêtrière University Hospital, Paris, France. In total, 138 patients with FRDA were followed up. Among 133 patients homozygous for expanded GAA repeats, the mean (SD) age was 31 (10) years (age range, 11-62 years), with a mean (SD) age at disease onset of 16 (8) years (age range, 3-50 years) and a mean (SD) age at first wheelchair use of 26 (9) years (age range, 11-64 years). Cardiac hypertrophy was present in 57.9% (77 of 133), and electrocardiography was normal in 6.8% (9 of 133).

Supplemental content at jamaneurology.com

Pousset et al., JAMA Neurol. 2015;72(11):1334-1341

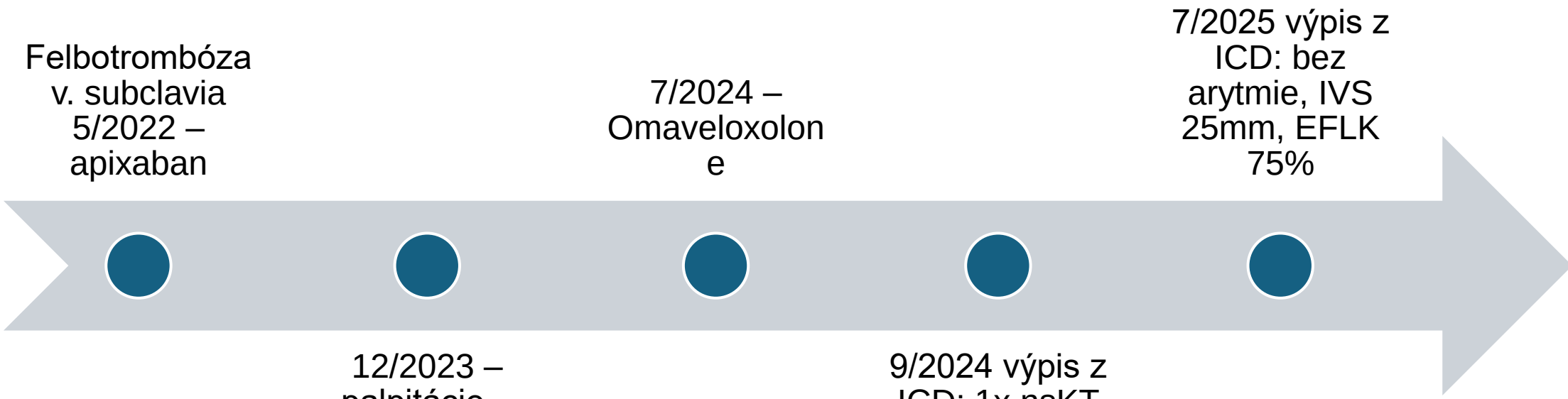
Survival Analysis

Among 133 patien… 39 (10) years (age ran… -up of 10.5 (5.5) years… pa- tients died of car… ge, 27-49 years) died … rial fibrillation and pr… io- embolic stroke at ages 32 and 43 years. Two patients died of noncardiac causes and one of respiratory disease (at age 33 years), while the death of the other was from suicide (at age 28 years). Five deaths (age range, 33-61 years) were of unknown origin, but 4 of these 5 patients were known to have atrial fibrillation.

53 % zomrelo na KV komplikácie, ďalších **33 %** zomrelo z neznámych příčin – mohlo sa jednať o SCD?

Pousset et al., JAMA Neurol. 2015;72(11):1334-1341

Follow up


Felbotrombóza v. subclavia 5/2022 – apixaban
12/2023 – palpitácie – akútne vyšetrená, výpis z ICD. bez arytmií, IVS 30mm, EFLK 85%, predpísaný BB
7/2024 – Omaveloxolone
9/2024 výpis z ICD: 1x nsKT bez udelenej terapie
7/2025 výpis z ICD: bez arytmie, IVS 25mm, EFLK 75%

Mesiac/rok	NTproBNP (ng/l)	hsTnI (ng/l)
3/2022	170,7	498,6
9/2022	351	391,5
9/2023	96,7	-
12/2023	689,6	920,2
3/2024	174,1	769,3
8/2024	355	770,4
9/2024	194,1	391
1/2025	53,6	489
7/2025	311,2	864

Zhrnutie

- Postihnutie srdca môže byť prvým prejavom FA
- Pacienti s FA zomierajú najčastejšie na kardiovaskulárne komplikácie
- Stratifikácia rizika SCD u pacientov s FA - náročná úloha? – málo evidencie
- Nová liečba - omaveloxolone – vyžaduje MDT follow up a dobrú spoluprácu pacienta

Ďakujem za Vašu pozornosť.