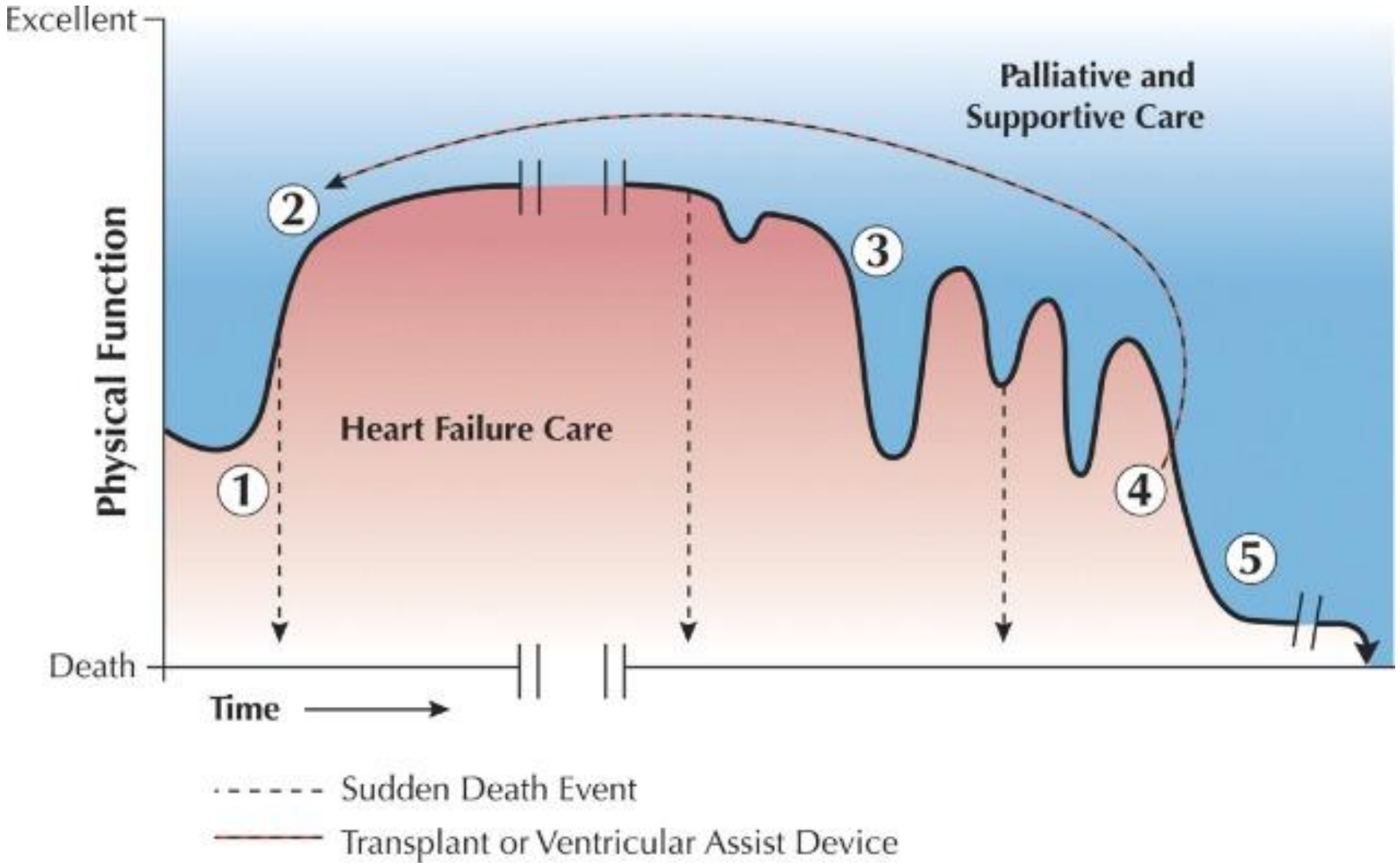
Optimálny manažment pacienta s pokročilým ischemickým srdcovým zlyhávaním

M. Huňavý, P. Murín, M. Gbúr, M. Studenčan

I. kardiologická klinika UPJŠ LF a VÚSCH a.s.

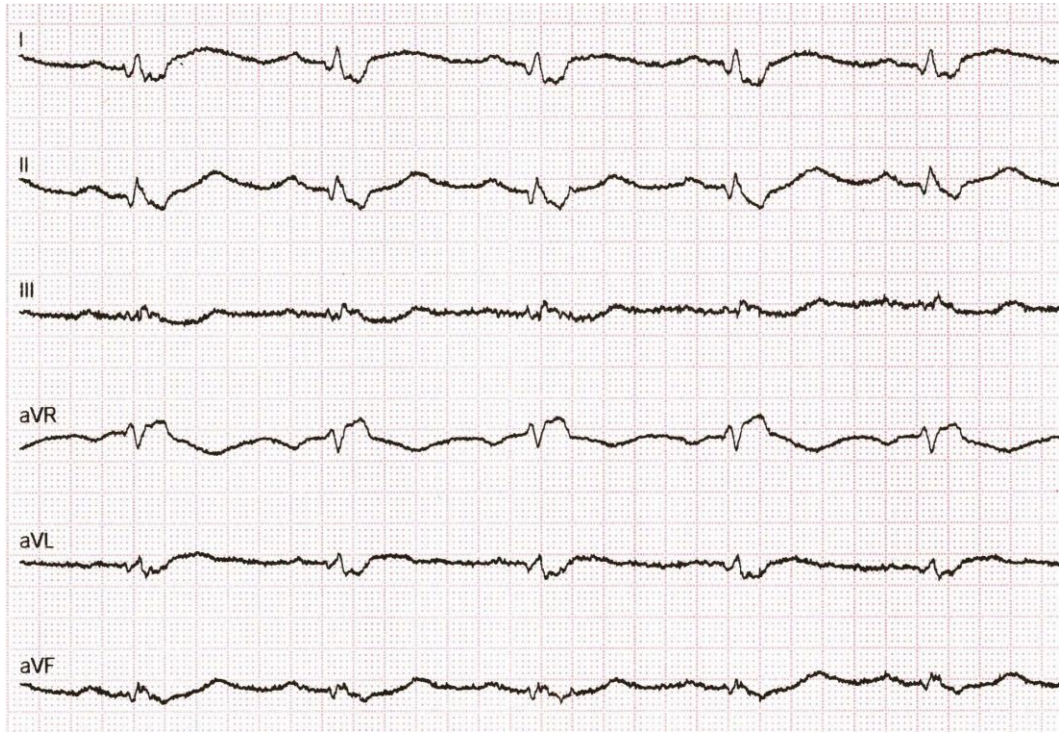
Trajketória srdcového zlyhávania

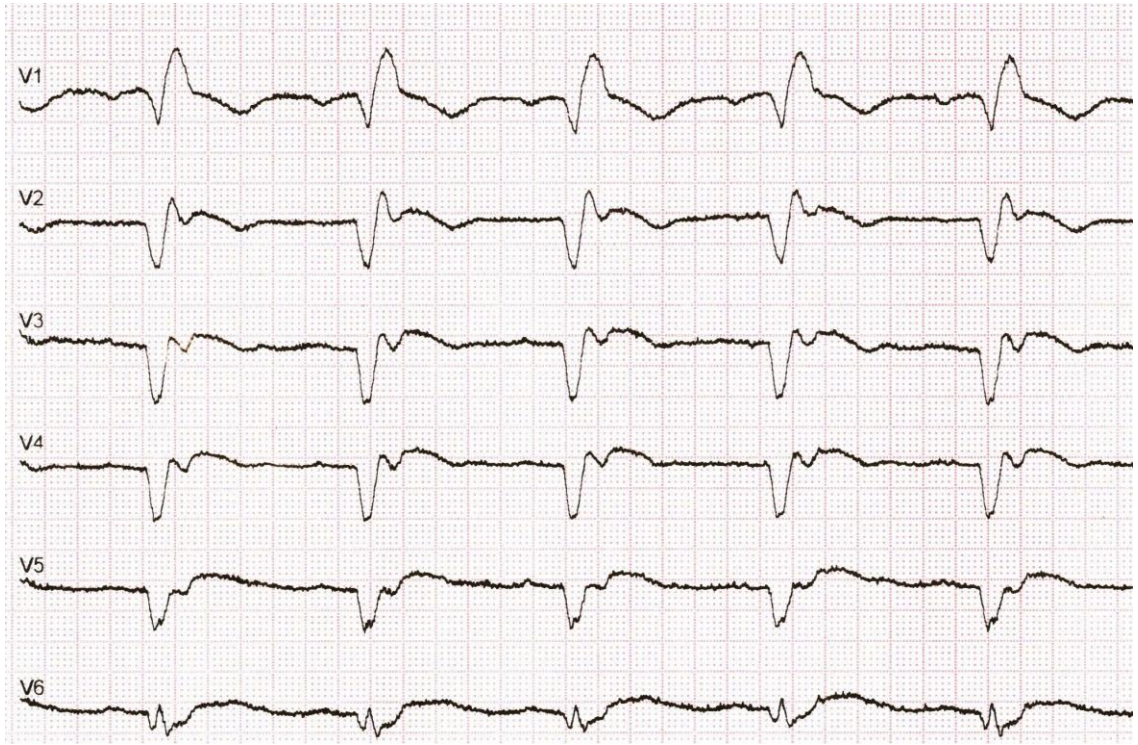


Goodlin et al., JACC 2009

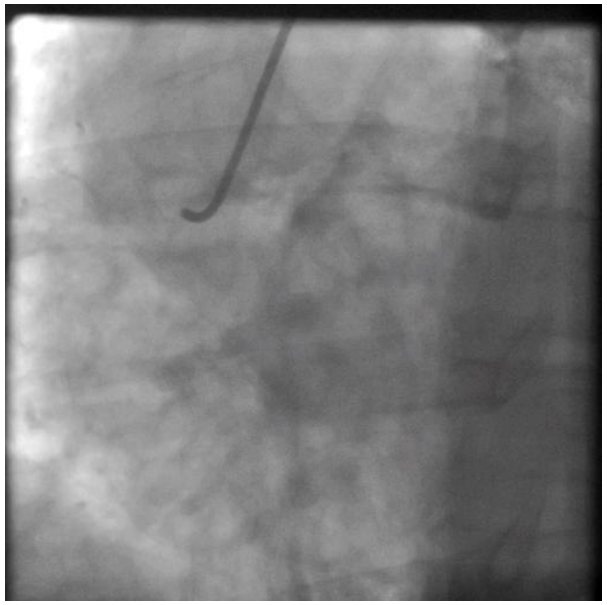
Kazuistika

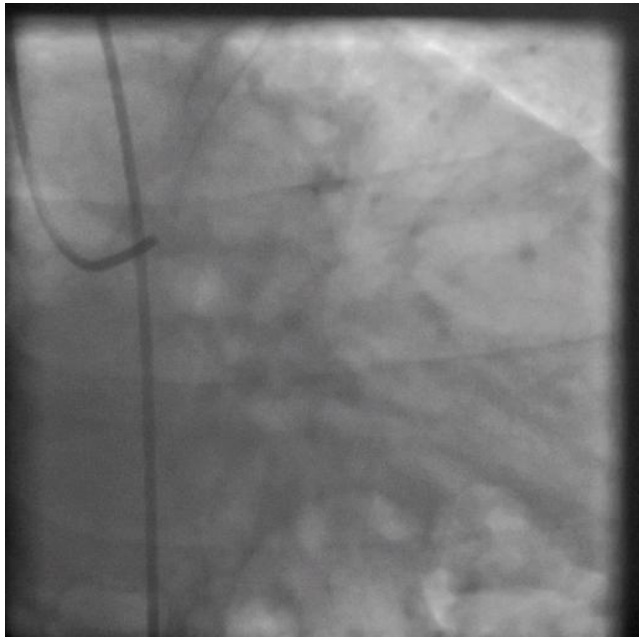
- 53 ročný pacient, 11/2020 prijatý pre 12 hodinové tlakové bolesti na hrudníku
- OA: A. hypertenzia 2. st., Dyslipidémia (LDL-C 3,83 mmol/l), st. p. OP a CHET pre seminóm (1992) – vyradený z onkol. dispenzára
- LA: Amlessa
- SA: pravidelný fajčiar (20 cig. denne)

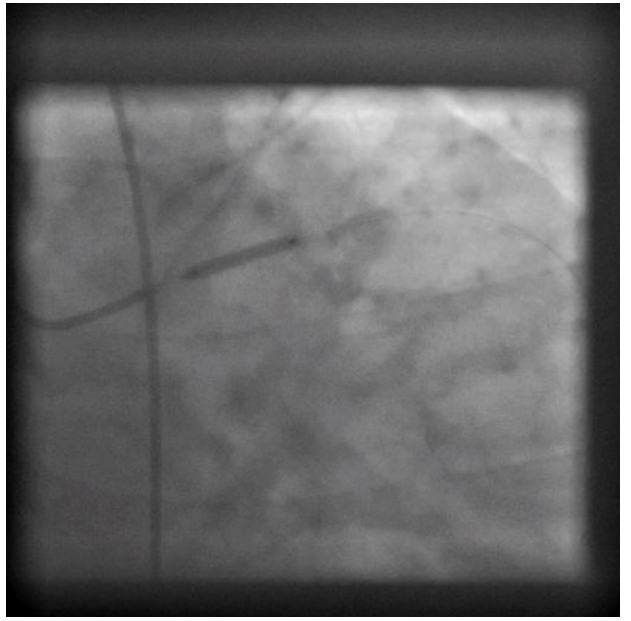


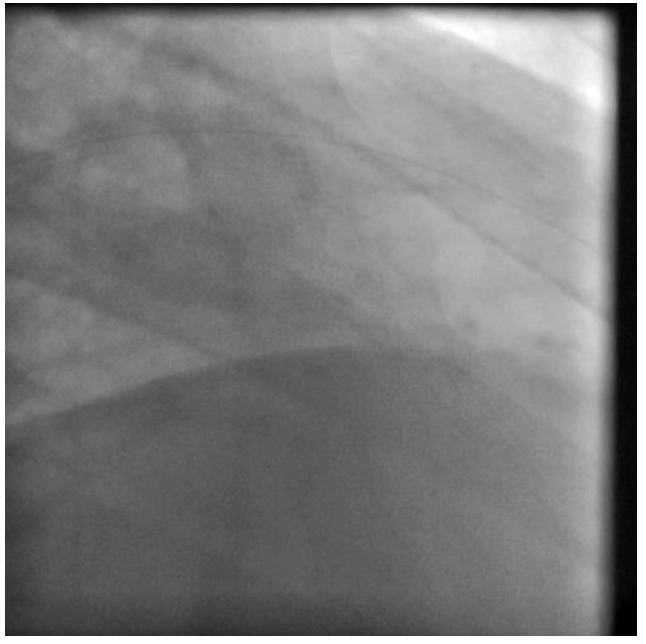


SKG



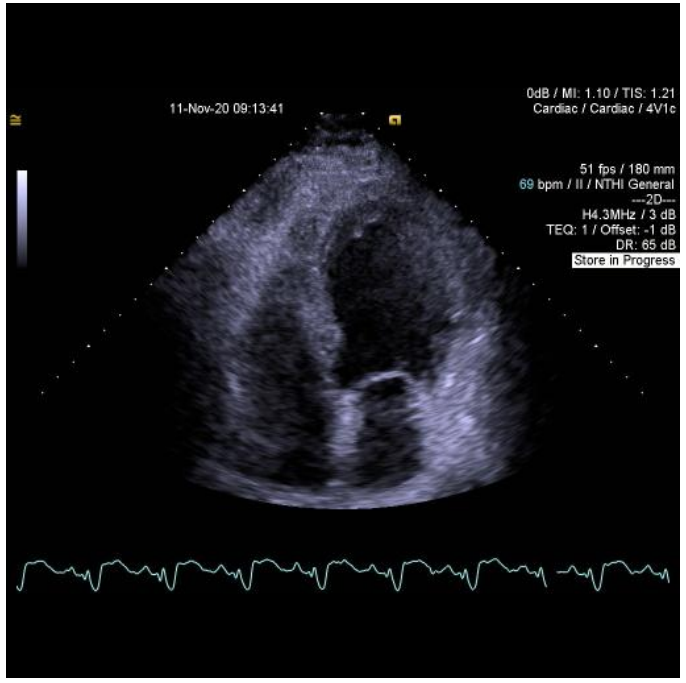


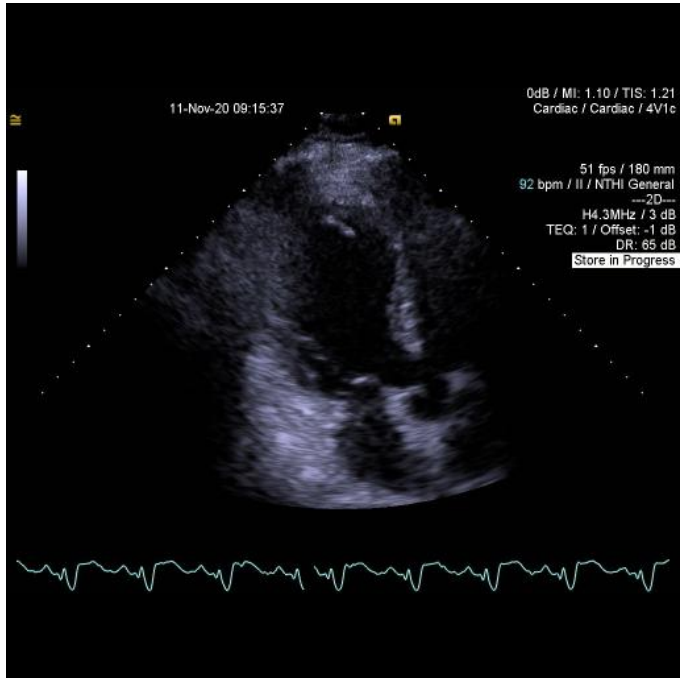


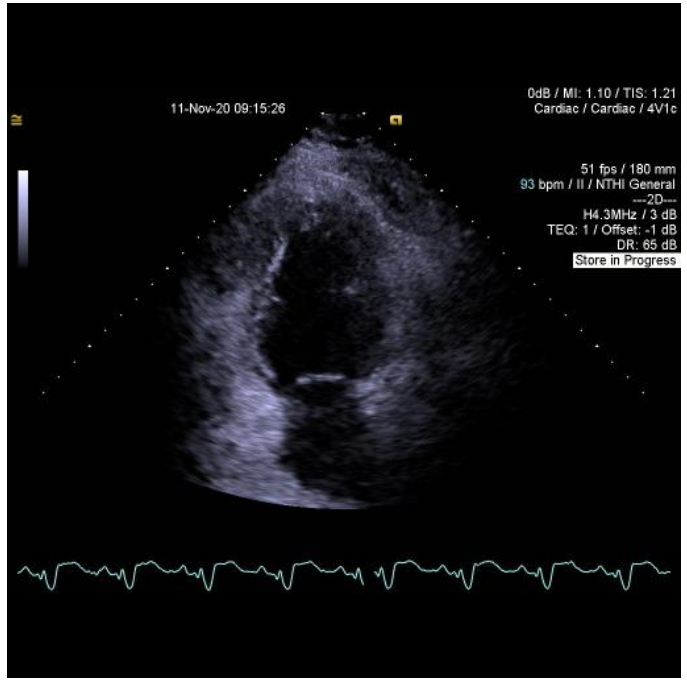


TTE

- EF ĽK Simpson Biplane 30%, akinéza apik. ½ PS, apik. 1/3 SS a BS, ťažká hypokinéza IVS, diast. dysf. II. typu, bez signif. chlopňových chýb, dobrá funkcia PK
- Medikácia: Prasugrel, Kys. acetylosalicylová, Furosemid, Eplerenón, Atorvastatín, Metoprolol, Ramipril

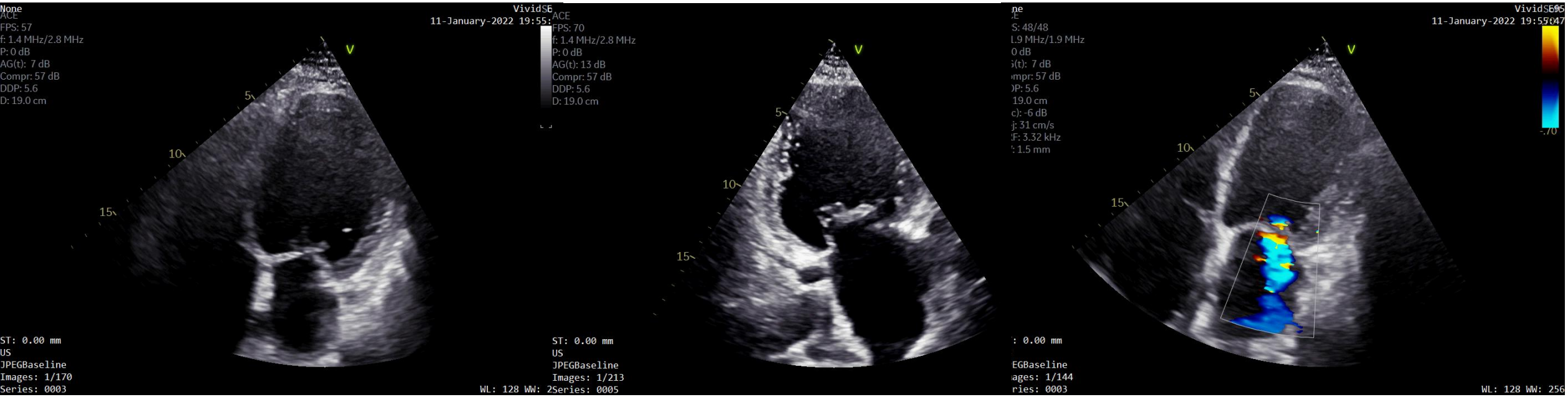






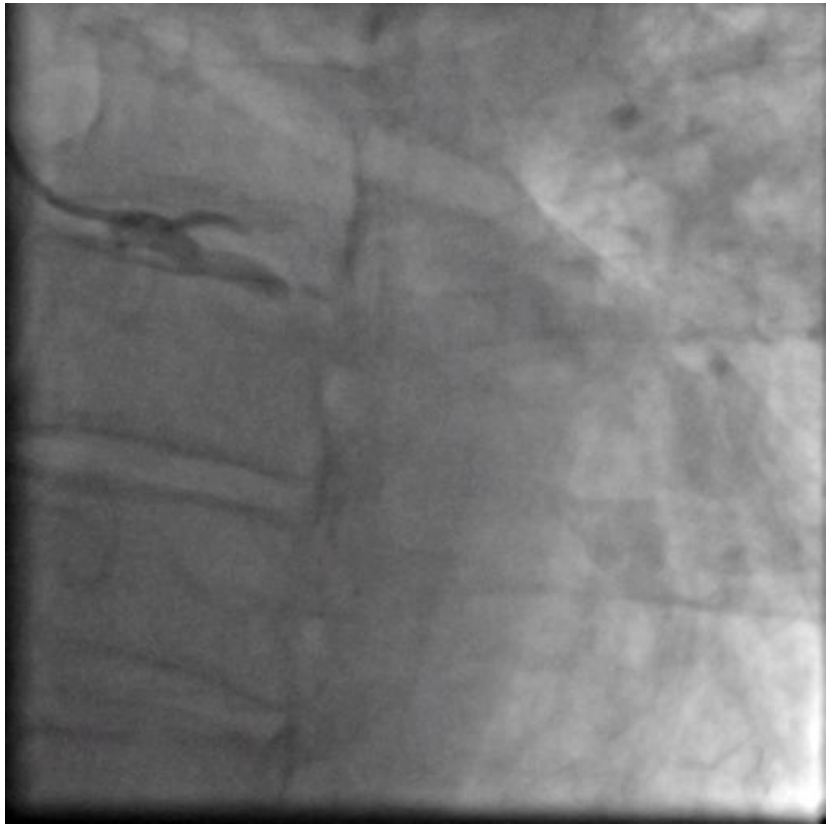
Akútna dekompenzácia SZ

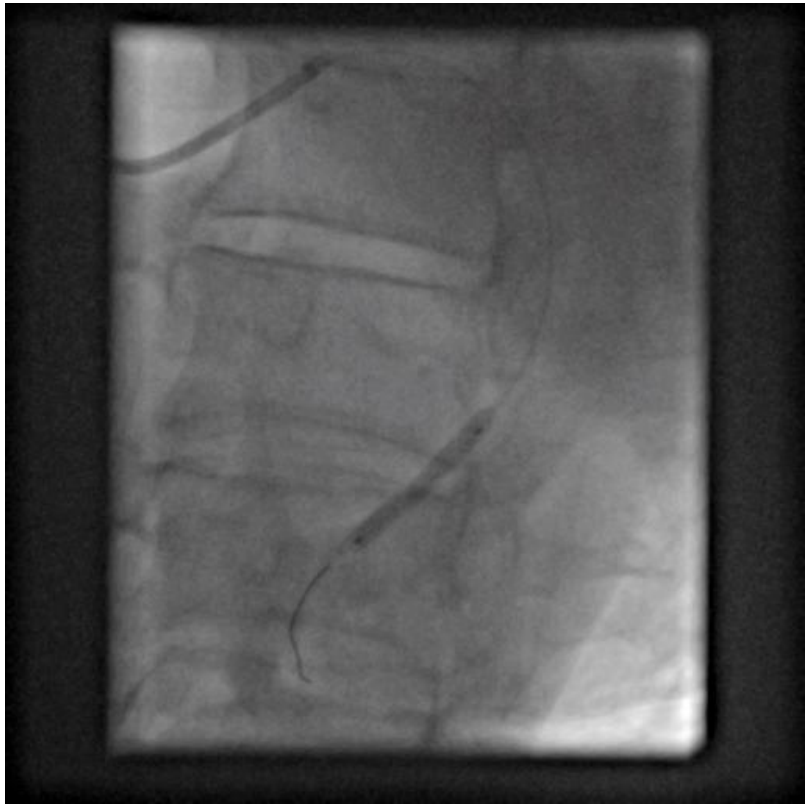
- Hospitalizácia pre ADCHSZ 12/2021
- Známky bilaterálnej dekompenzácie, NT-proBNP 6094 ng/l
- TTE nález po emisii: EFĽK 33%, de novo poruchy kinetiky baz. ½ SS, stredne závažná funkčná MR (EROA 0,25cm2, RV 37ml)
- Zaradenie na rekoronarografiu v zrýchlenom režime

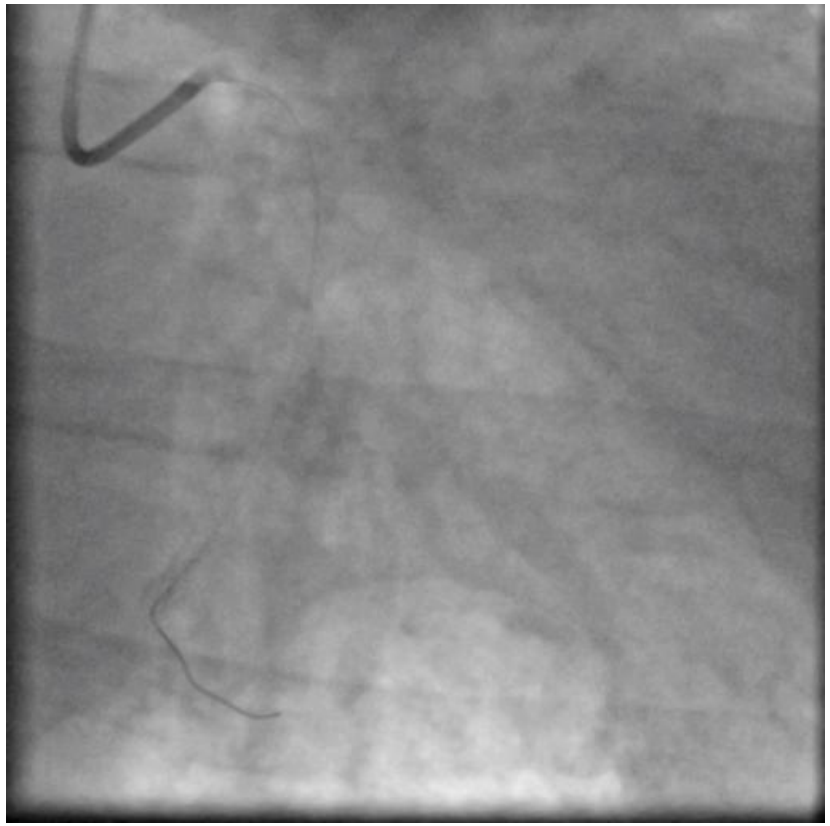


Rekoronarografia

- reSKG 01/2021 – RIA bez ISR, pred stentom 30% stenóza, subtotálny uzáver v periférii RCx
- PCI RCx + 1x DES

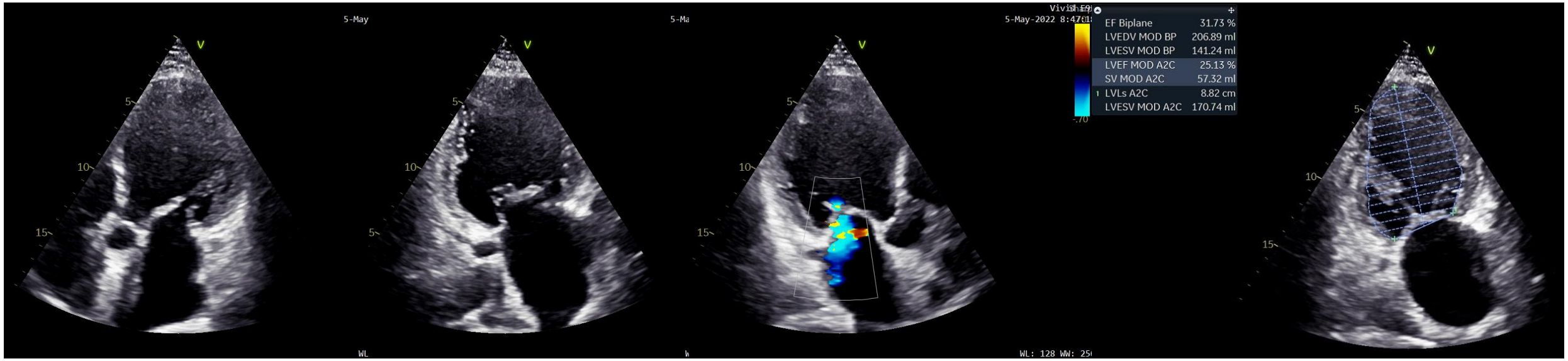






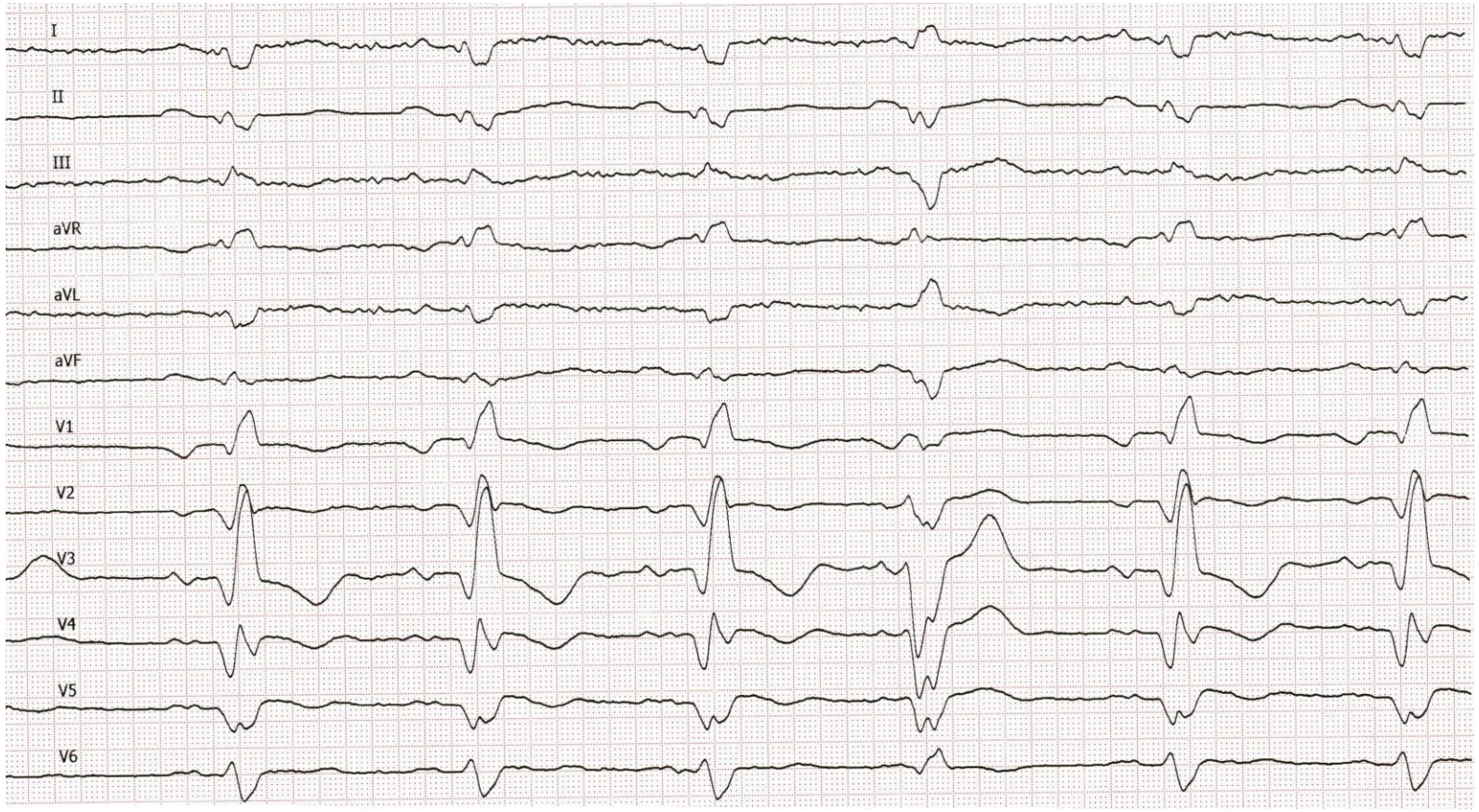
Kontrolné echokardiografické vyšetrenie

- Ambulantná kontrola 05/2022 – pretrvávanie dysfunkcie ĽK
- TTE EF 31%, akinéza baz. ½ SS, hrotu s aneudeformáciou, apik. ½ PS, IVS a apik. 1/3 BS, pretrvávanie stredne závažnej MR
- Vyťažená OMT srdcového zlyhávania (Furosemid, ACEi, MRA, BB, Ivabradín)
- Odoslaný na arytmologickú ambulanciu – indikácia ICD/CRT-D



Implantácia CRT-D

- BPTR – QRS 160ms, AVB 1. st. s PQ 210ms



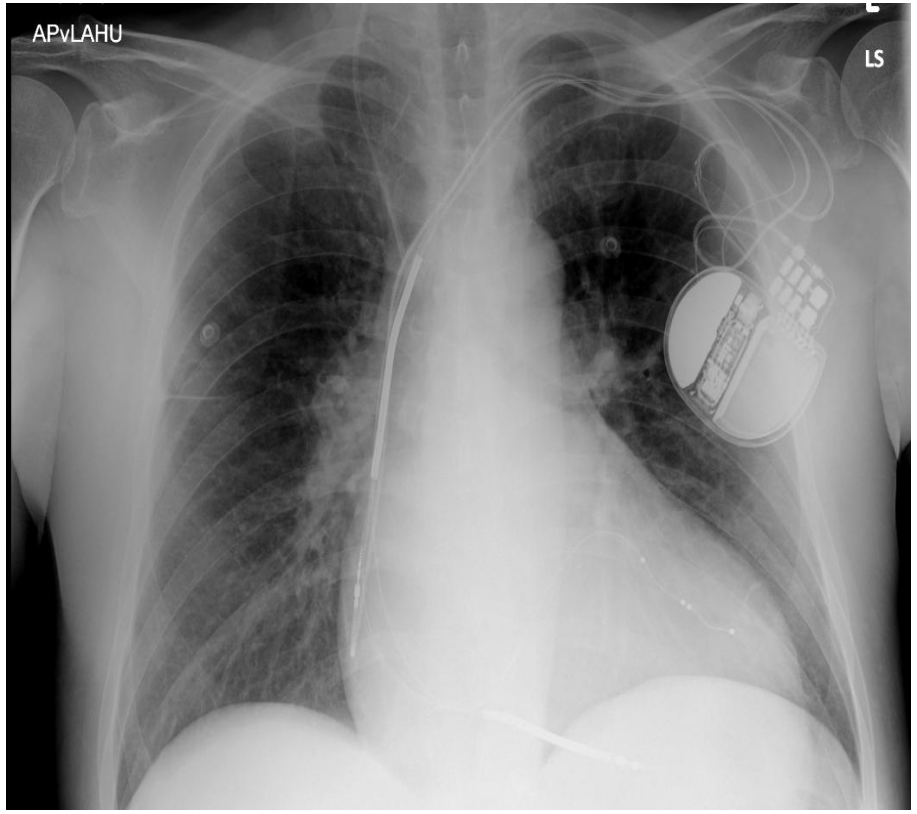
Recommendations for cardiac resynchronization therapy in patients in sinus rhythm

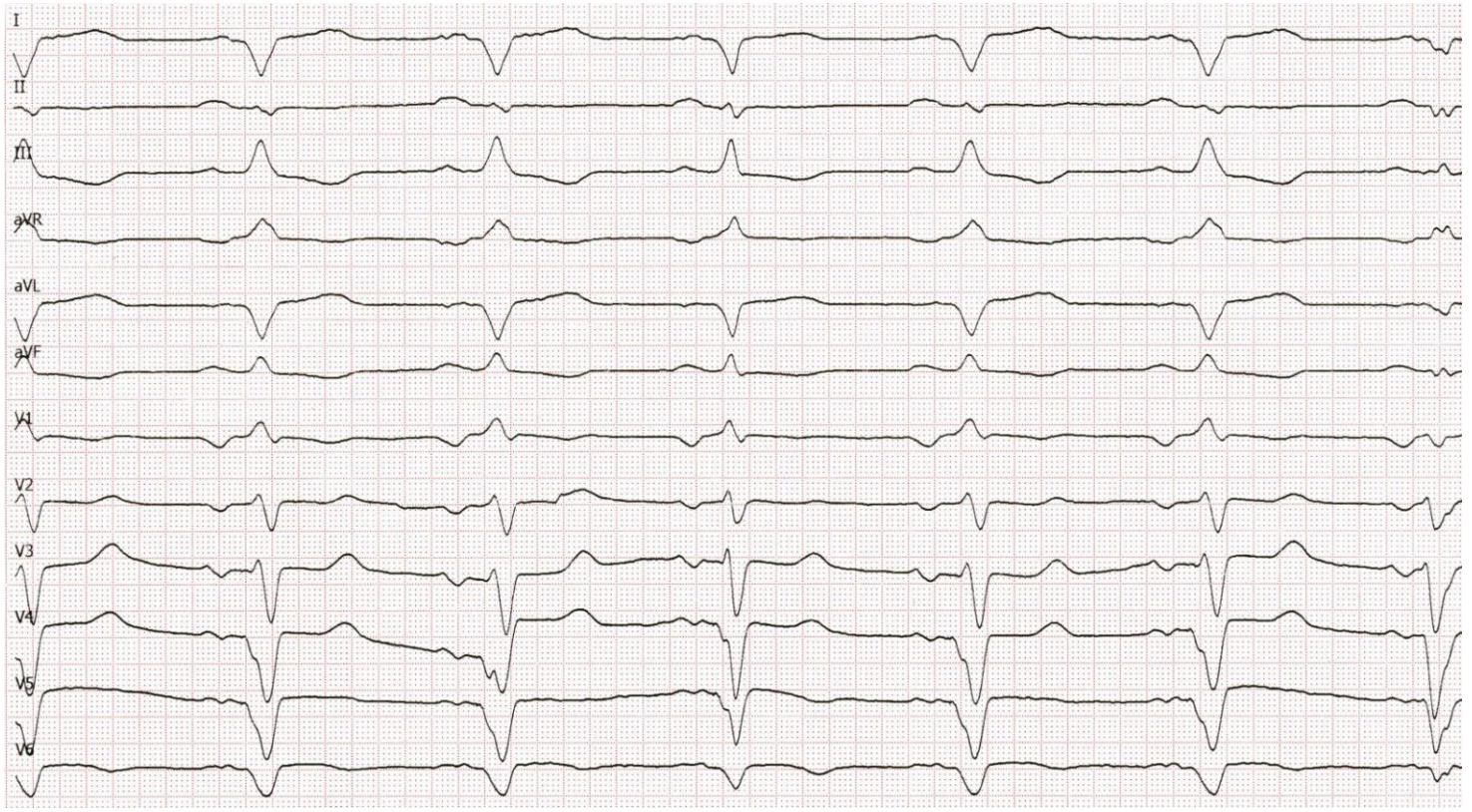
Recommendations	Class[a]	Level[b]
LBBB QRS morphology		
CRT is recommended for symptomatic patients with HF in SR with LVEF ≤35%, QRS duration ≥150 ms, and LBBB QRS morphology despite OMT, in order to improve symptoms and reduce morbidity and mortality.[37,39,40,254–266,283,284]	I	A
CRT should be considered for symptomatic patients with HF in SR with LVEF ≤35%, QRS duration 130–149 ms, and LBBB QRS morphology despite OMT, in order to improve symptoms and reduce morbidity and mortality.[37,39,40,254–266,283,284]	IIa	B
Non-LBBB QRS morphology		
CRT should be considered for symptomatic patients with HF in SR with LVEF ≤35%, QRS duration ≥150 ms, and non-LBBB QRS morphology despite OMT, in order to improve symptoms and reduce morbidity.[37,39,40,254–266,283,284]	IIa	B
CRT may be considered for symptomatic patients with HF in SR with LVEF ≤35%, QRS duration 130–149 ms, and non-LBBB QRS morphology despite OMT, in order to improve symptoms and reduce morbidity.[273–278,281]	IIb	B
QRS duration		
CRT is not indicated in patients with HF and QRS duration <130 ms without an indication for RV pacing.[264,282]	III	A

Glikson et al., EHJ 2021

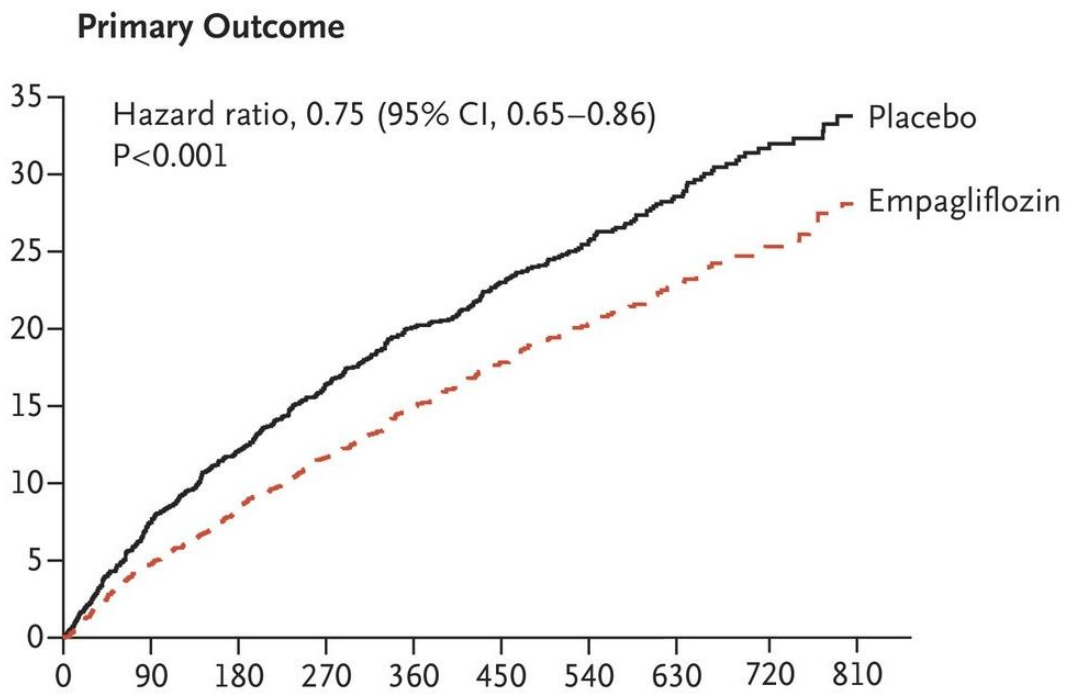
Implantácia CRT-D

- Biv. ICD - DDDR
- QRS 130ms, optimalizovaný AV delay
- Do liečby ambulantne pridaný empagliflozín a vericiguat

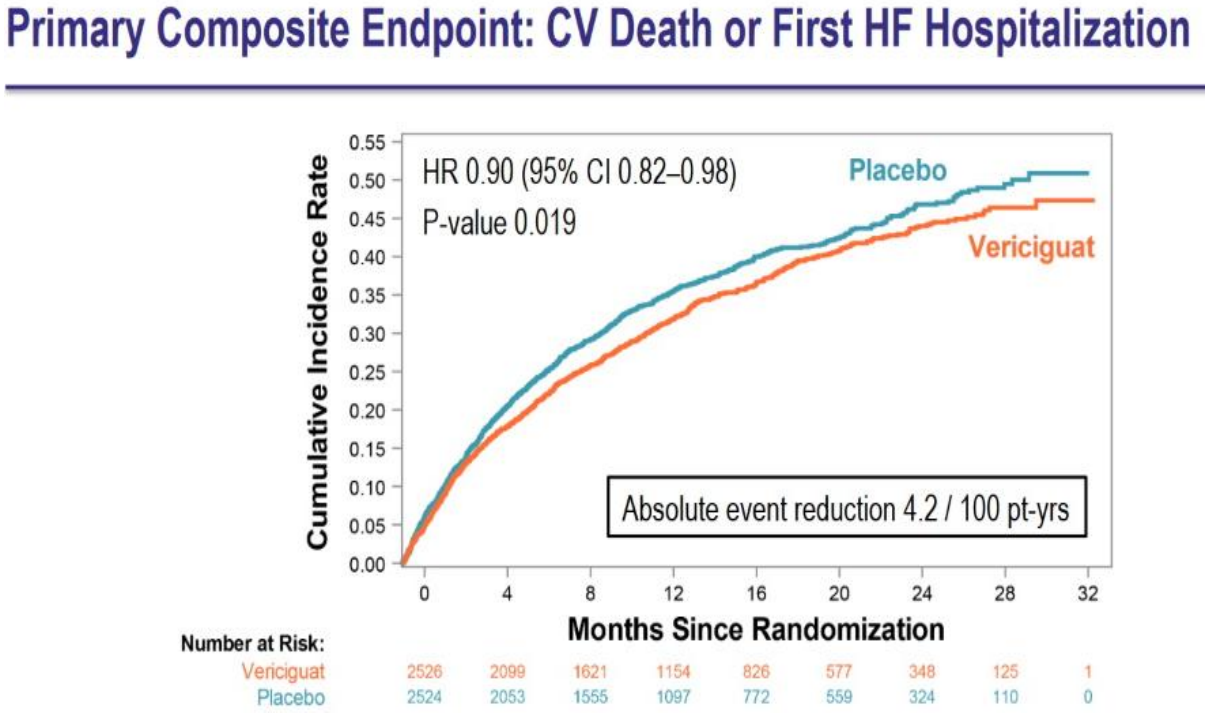




Emperor Reduced a Victoria TRIAL



Packer M et al., NEJM 2020



Armstrong PW et al., NEJM 2020

Pharmacological treatments indicated in patients with (NYHA class II–IV) heart failure with reduced ejection fraction (LVEF ≤40%)

Recommendations	Class[a]	Level[b]
Dapagliflozin or empagliflozin are recommended for patients with HFrEF to reduce the risk of HF hospitalization and death.[108,109]	I	A

McDonagh TA et al., EHJ 2021

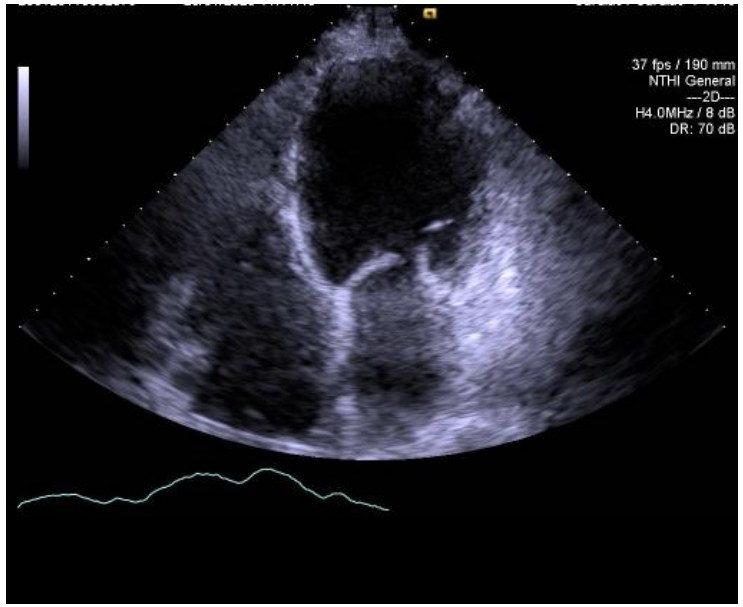
Other pharmacological treatments indicated in selected patients with NYHA class II–IV heart failure with reduced ejection fraction (LVEF ≤40%)

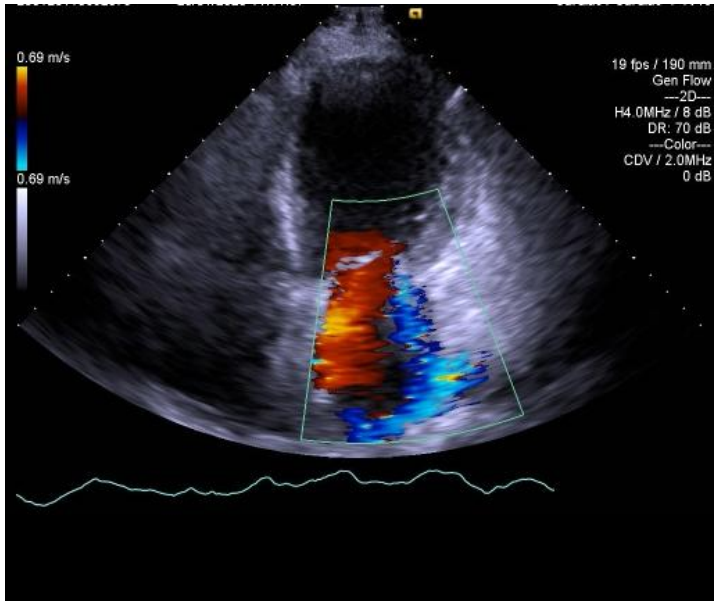
Soluble guanylate cyclase receptor stimulator		
Vericiguat may be considered in patients in NYHA class II–IV who have had worsening HF despite treatment with an ACE-I (or ARNI), a beta-blocker and an MRA to reduce the risk of CV mortality or HF hospitalization.[141]	IIb	B

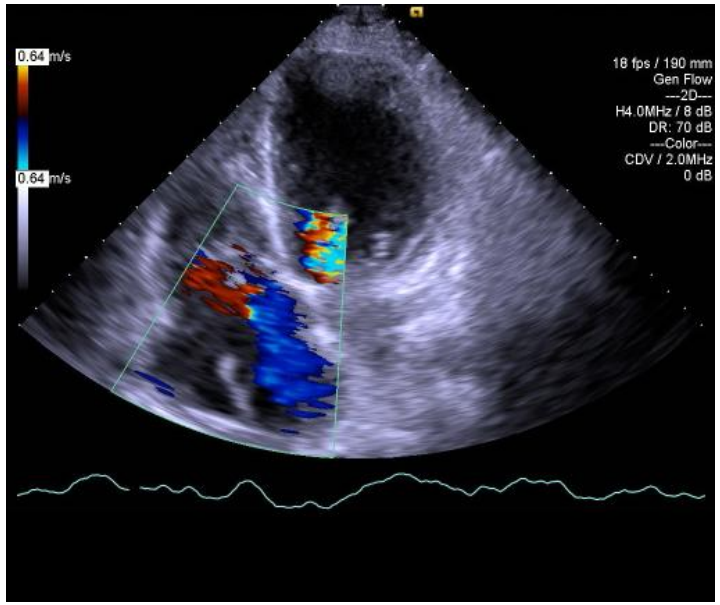
McDonagh TA et al., EHJ 2021

Hospitalizácia pre ADCHSZ

- Hospitalizácia 12/2022 – akútna obojstranná dekompenzácia SZ
- NT-proBNP 11840 ng/l
- TTE EF ĽK 24%, LVEDD 67mm, závažná funkčná MR pri rešt. ZC a dilatovanom ringu (EROA 0,47cm2, R Vol 62ml, MV ring AP 40mm, CC 43mm), Tapse 16,5mm, FAC 31,5%
- Levosimendan, Furosemid i.v.





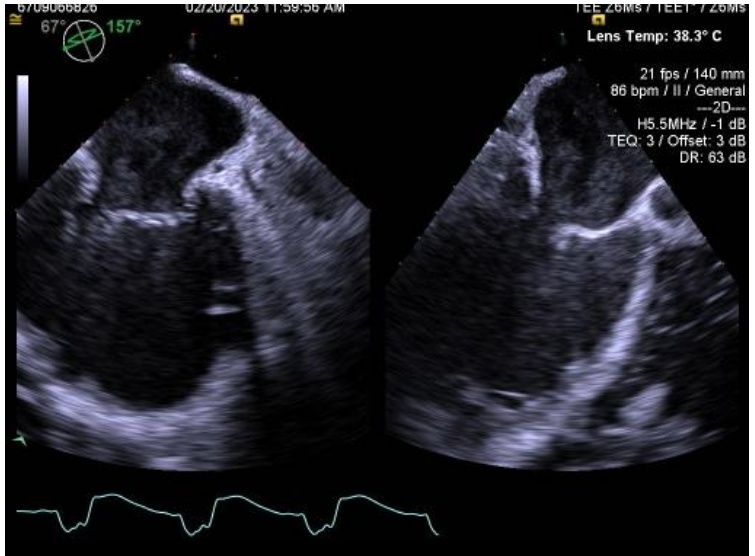


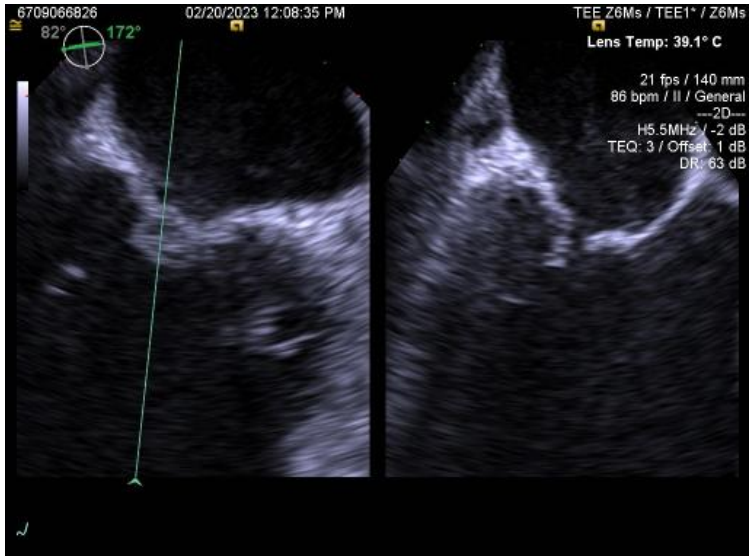
- TEE – LVEDV 226ml, MR EROA 0,58cm2, RV 70ml
- MVA 4,1cm2
- EROA/LVEDD = 0,26cm2/100ml LVEDV (disproporčná MR)

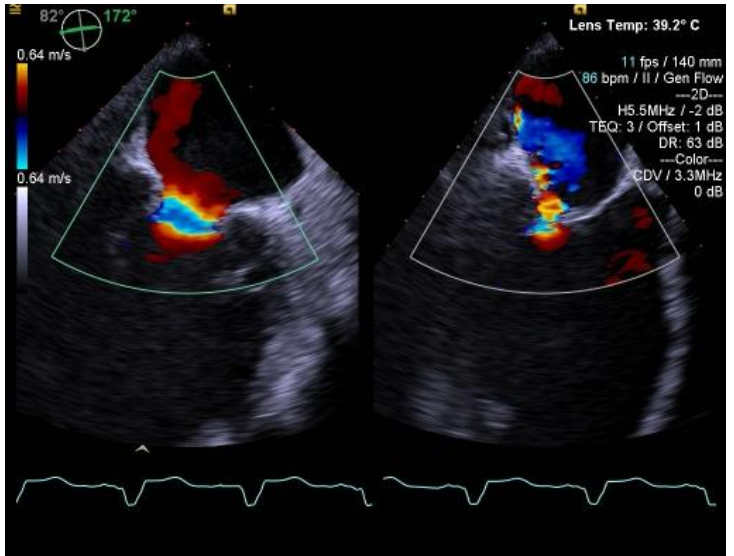
Recommendations on indications for mitral valve intervention in chronic severe secondary mitral regurgitation

Patients without concomitant coronary artery or other cardiac disease requiring treatment		
TEER should be considered in selected symptomatic patients, not eligible for surgery and fulfilling criteria suggesting an increased chance of responding to the treatment.[337,338,356,357 e]	IIa	B
Valve surgery may be considered in symptomatic patients judged appropriate for surgery by the Heart Team.	IIb	C
In high-risk symptomatic patients not eligible for surgery and not fulfilling the criteria suggesting an increased chance of responding to TEER, the Heart Team may consider in selected cases a TEER procedure or other transcatheter valve therapy if applicable, after careful evaluation for ventricular assist device or heart transplant.[e]	IIb	C

McDonagh TA et al., EHJ 2021

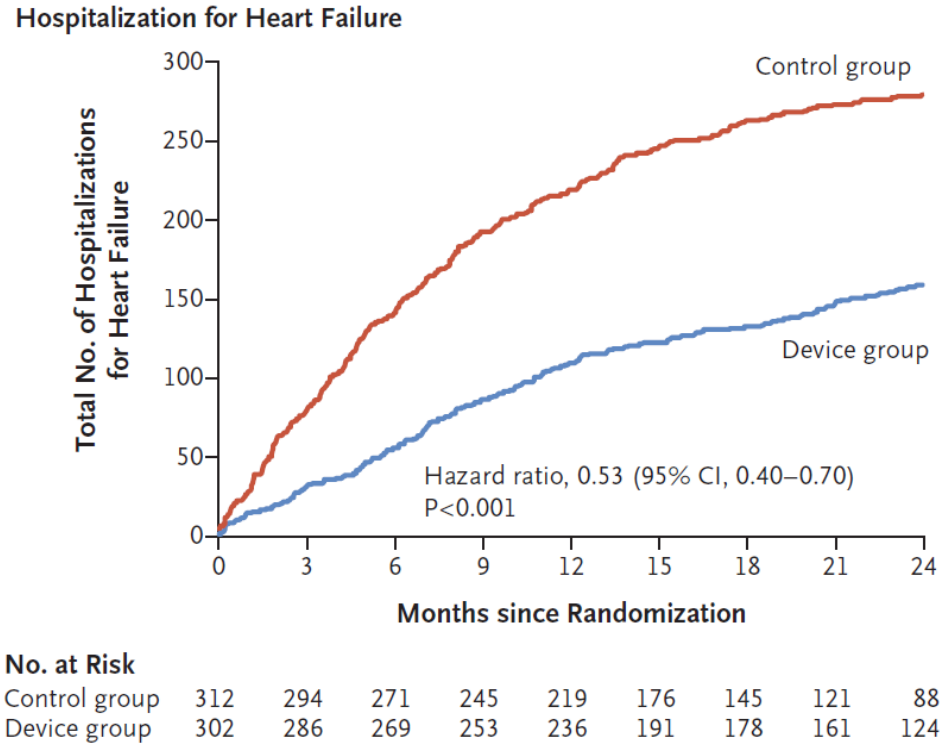


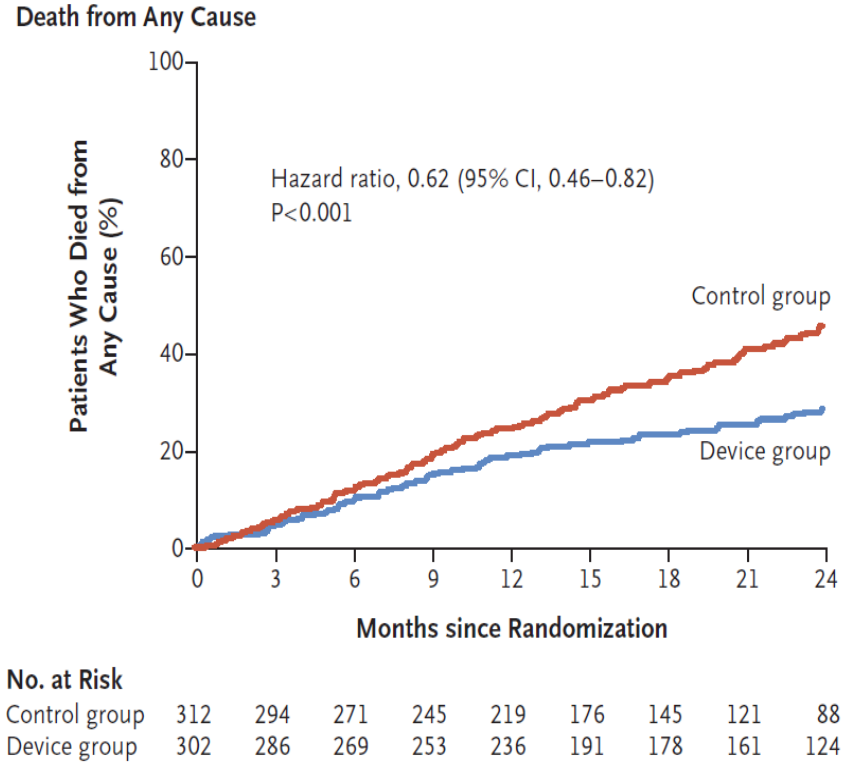




Štúdia COAPT

- 614 pacientov so stredne závažnou až závažnou MR
- Mitraclip + OMT vs. OMT; primárny cieľ – hospitalizácia pre SZ počas 2 rokov
- Ročný pomer hospit. pre SZ 35,8% (Mitraclip) vs. 67,9% (kontrolná skupina) (p<0,001)





Stone GW et al., NEJM 2018

Main inclusion/exclusion criteria suggesting an increased chance of responding to TEER in patients with SMR

Inclusion criteria:

- Severe SMR
- Symptomatic heart failure (NYHA class II, III or ambulatory IV) despite optimized GDMT
- LVEF 20–50%
- LV end-systolic diameter ≤70 mm
- At least one heart failure hospitalization within the previous year or increased natriuretic peptide levels
- Anatomy judged suitable for TEER

Exclusion criteria:

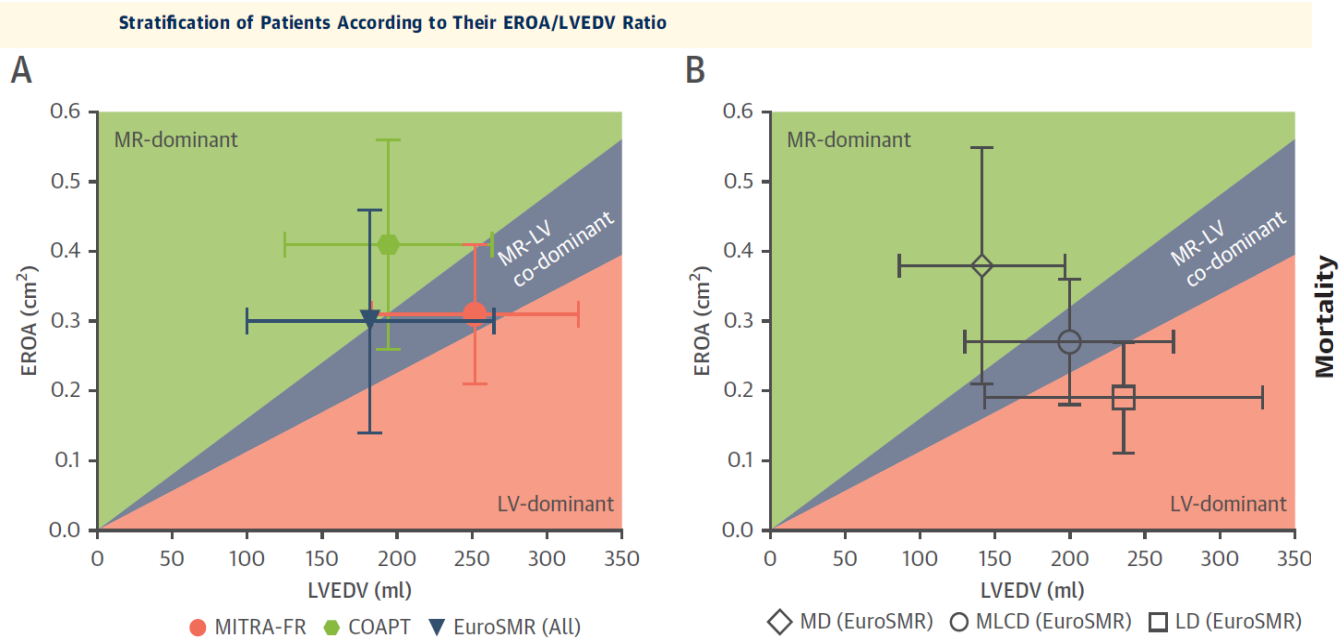
- Severe disability/frailty
- Hypertrophic cardiomyopathy, restrictive cardiomyopathy, constrictive pericarditis, or any other structural heart disease causing heart failure other than dilated cardiomyopathy of either ischemic or non-ischaemic etiology
- Infiltrative cardiomyopathies (e.g. amyloidosis, haemochromatosis, sarcoidosis)
- Estimated SPAP >70 mmHg assessed by echocardiography or right heart catheterization
- Haemodynamic instability defined as systolic pressure <90 mmHg with or without afterload reduction, cardiogenic shock or the need for inotropic support or intra-aortic balloon pump or other haemodynamic support device
- Physical evidence of right-sided congestive heart failure with echocardiographic evidence of moderate or severe RV dysfunction
- Mitral valve orifice area <4.0 cm^2 by site-assessed TTE
- Coronary, aortic or tricuspid valve disease requiring surgery

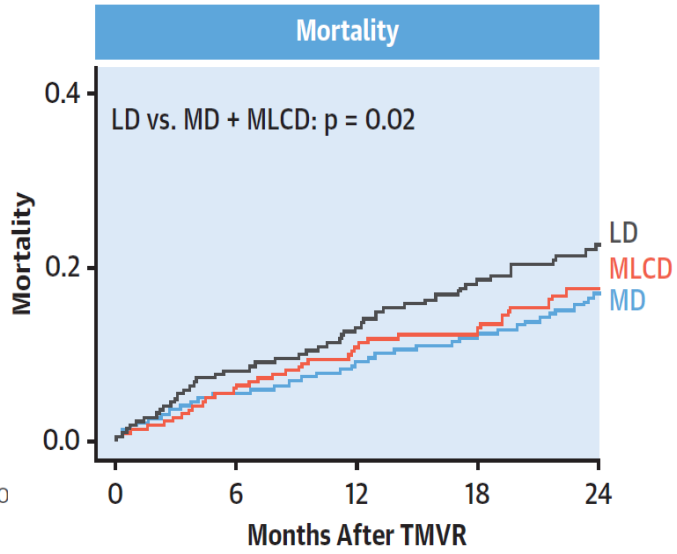
EuroSMR a proporcionalita mitrálnej regurgitácie

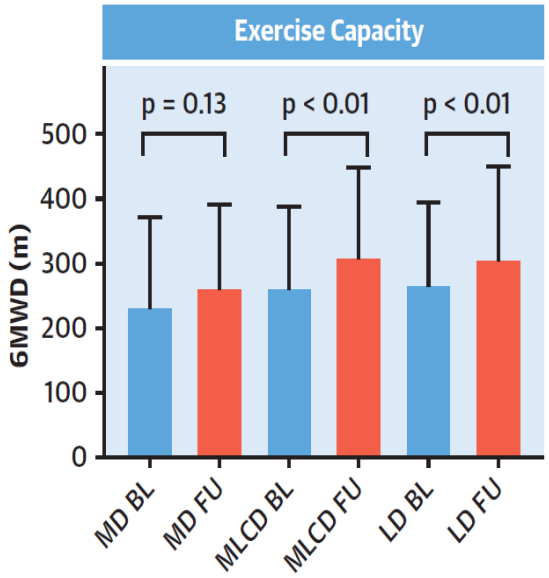
- 1016 pacientov so sekundárnou závažnou MR podstupujúcich TEER

Rozdelenie na základe proporcionality MR:

- MR dominantná (tzv. MD) - EROA/LVEDV ≥ 0,165cm2/100ml LVEDV (tzv. disproporčná MR) - / 0,26cm2/100ml LVEDV/
- MR-LV kodominantná (tzv. MLCD)- EROA/LVEDV < 0,165cm2 a ≥ 0,115cm2/100ml LVEDV
- LV dominantná (tzv. LD) - EROA/LVEDV < 0,115cm2/100ml LVEDV



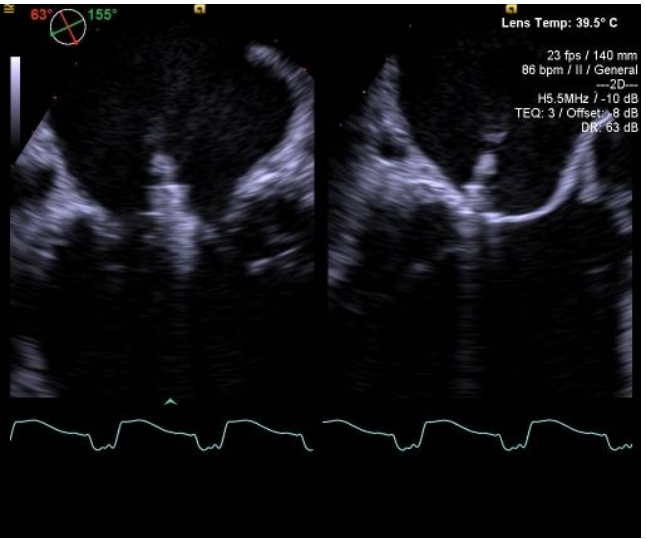


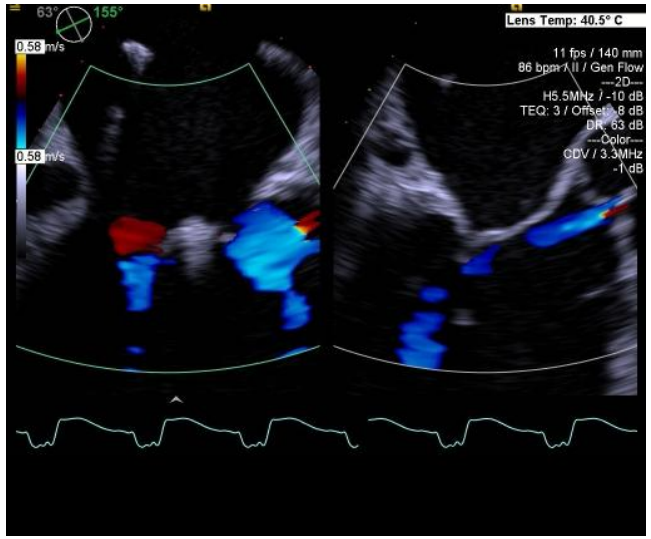


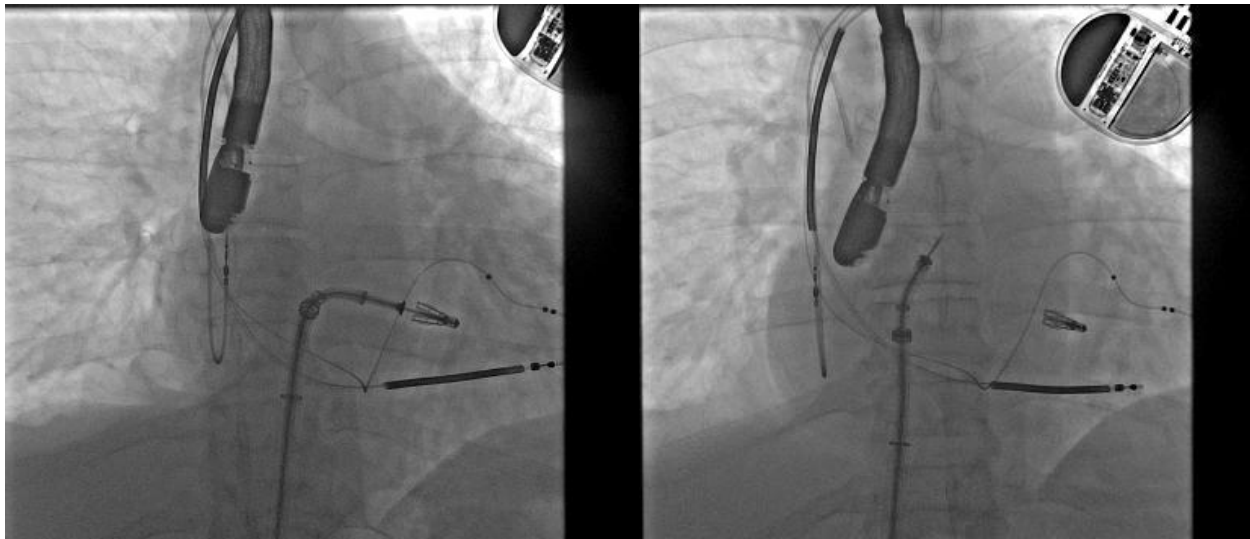
Orban M, et al., JACC CI 2021;14(4)

MITRA-Clip

- 02/2023 – Hospitalizácia za účelom implantácie MitraClip
- Implantácia 1x Clip PXTW medzi A2-P2 skalop
- TEE – reziduálna MR, MG 3,4 mmHg, Iatrogénny DPS s ĽP skratom

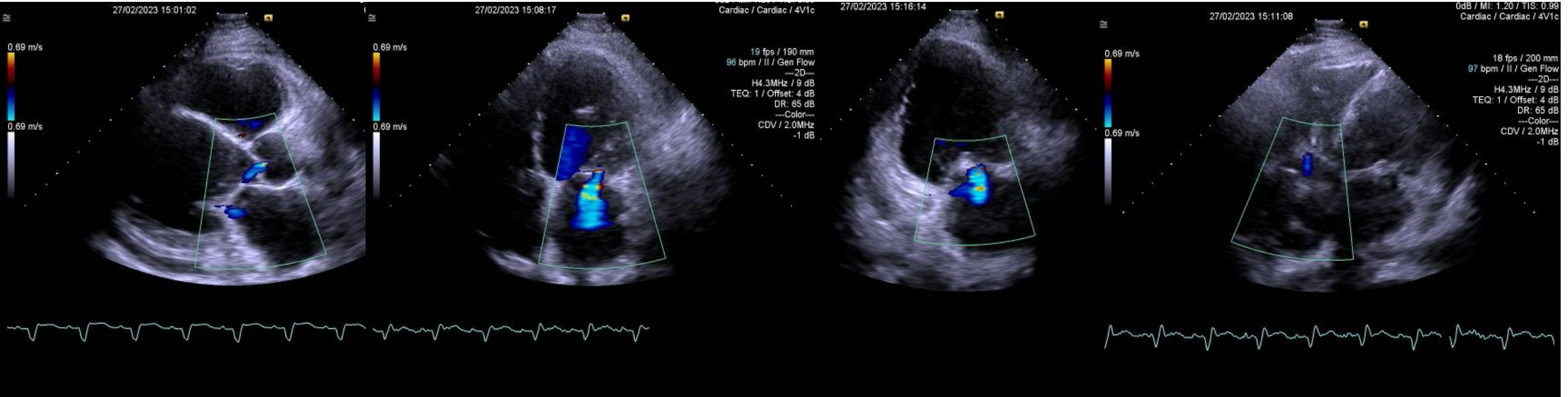






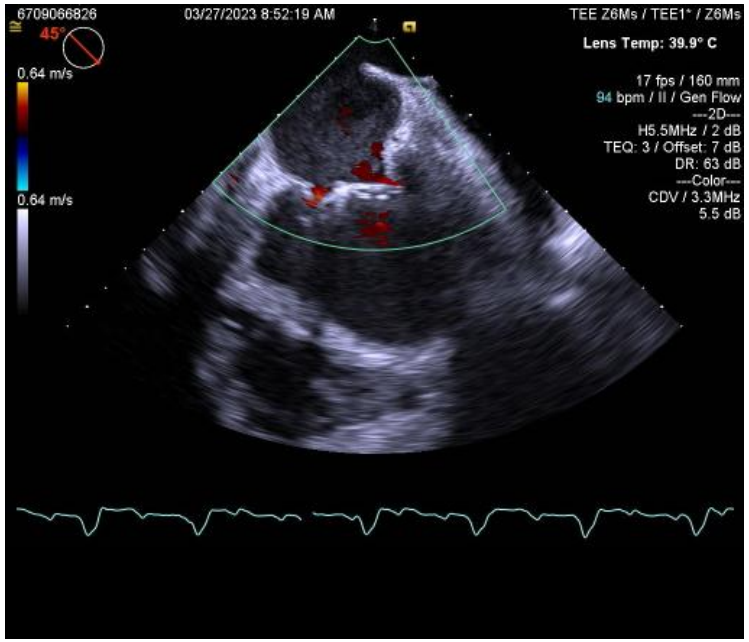
Kontrolné TTE

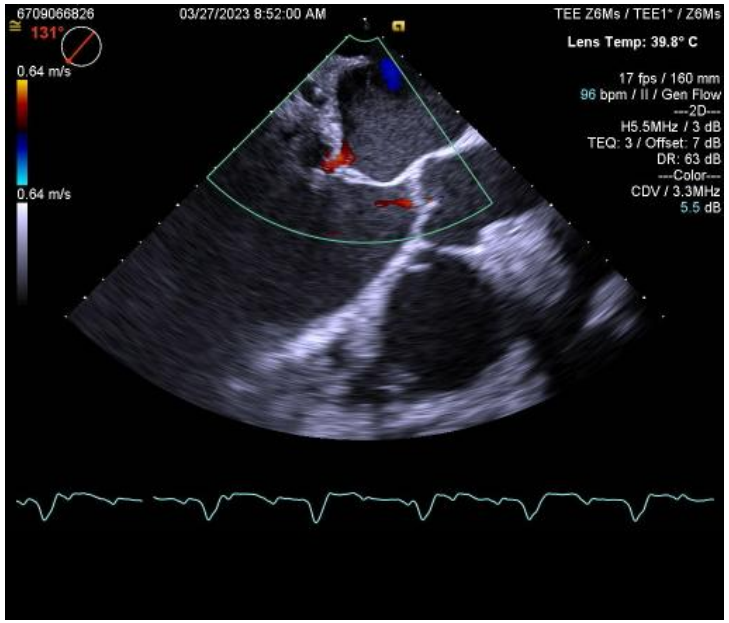
- Emisia 7. deň
- TTE reziduálna MR CFM 1-2+, stredne záv. až závažná TR, malá perik. efúzia
- Vyťažená OMT (Furosemid, Eplerenón, Ramipril, Metoprolol, Empagliflozín, Amiodaron, Atorvastatín, ASA, Ivabradín)

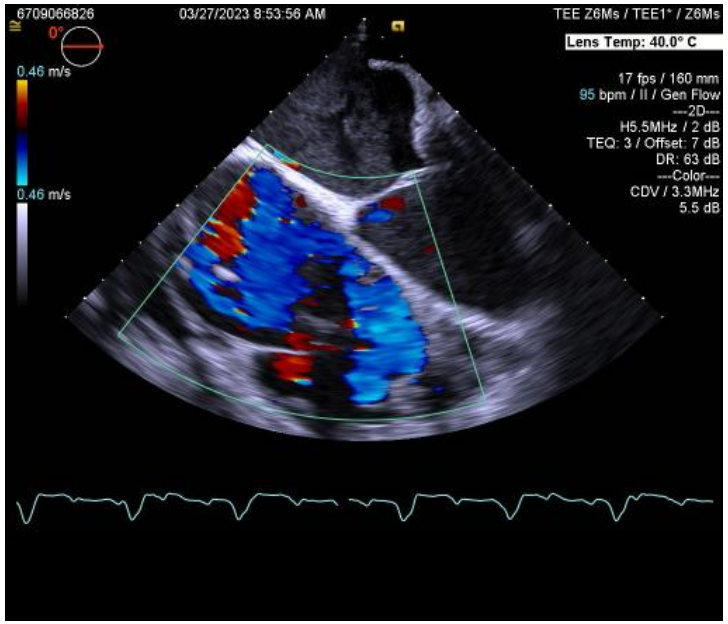


Rehospitalizácia pre dekompenzáciu SZ

- 03/2023 – rehospitalizácia pre akútnu ľavostrannú dekompenzáciu pri atypickom flutteri predsiení
- TEE guided EKV s navodením SR, zahájenie AKL – Warfarín
- MR 1+ CFM, závažná trik. regurgitácia, dysfunkcia PK

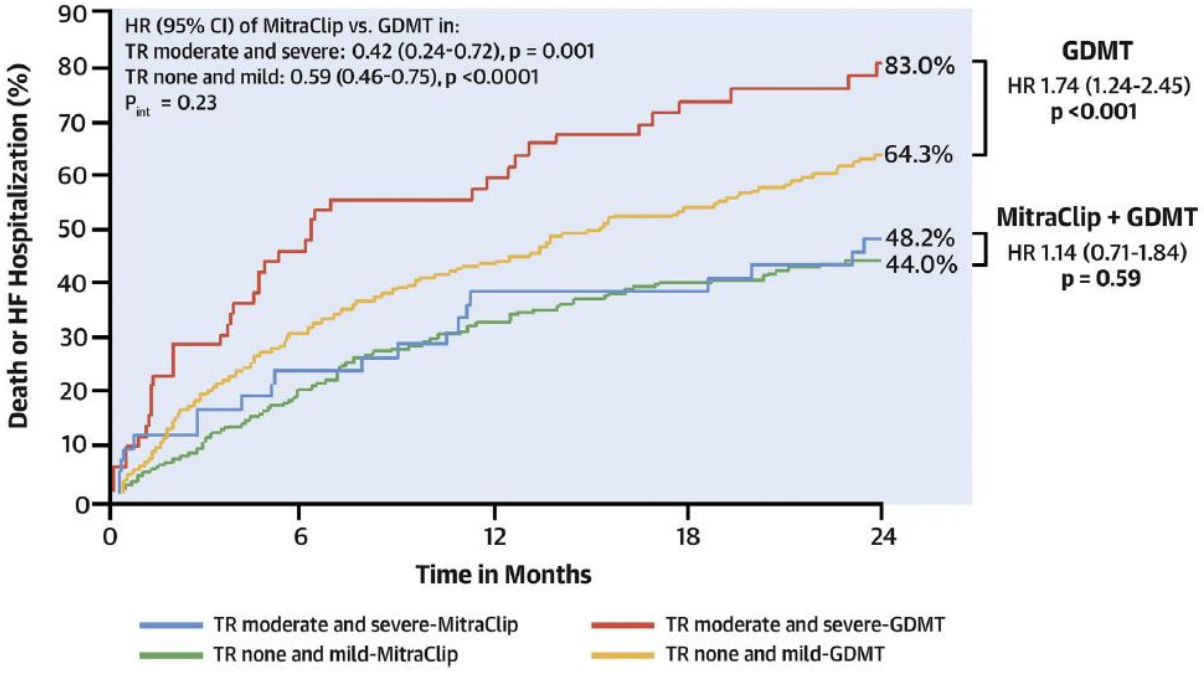






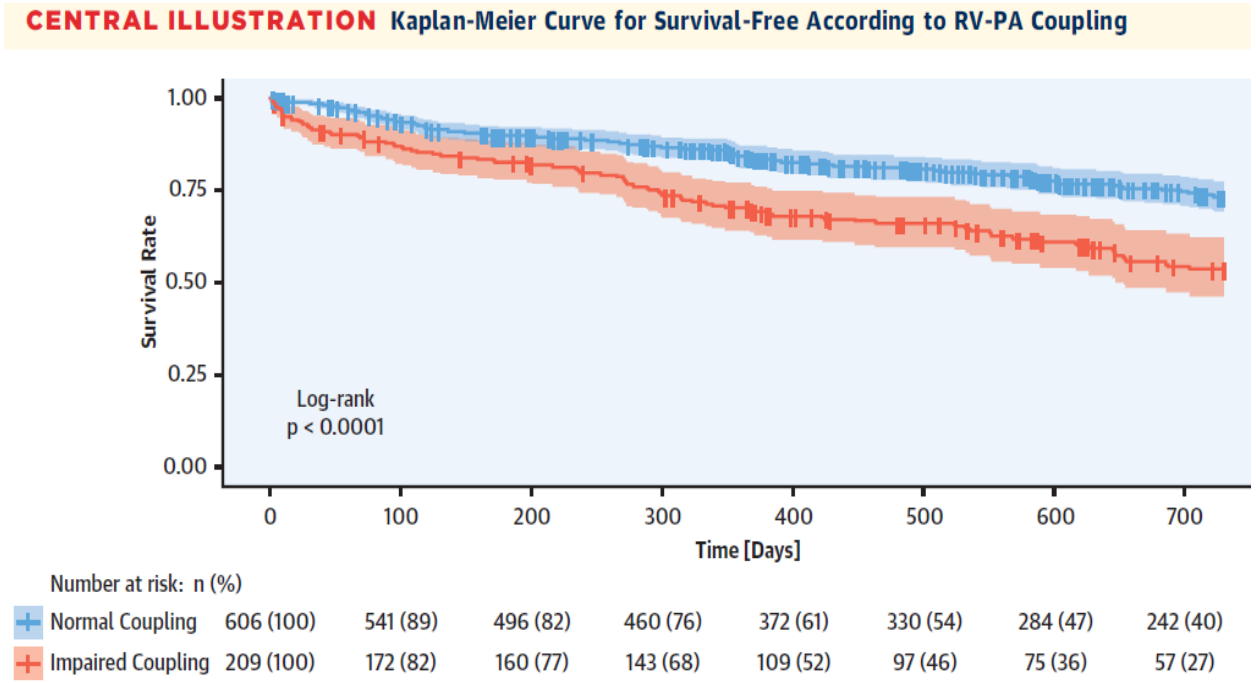
Trikuspidálna regurgitácia a dysfunkcia pravej komory

- 599 pacientov zo štúdie COAPT
- Pacienti bez a ľahkou TR (n=501) a stredne závažnou až závažnou TR (n=98)
- OMT vs. MitraClip + OMT



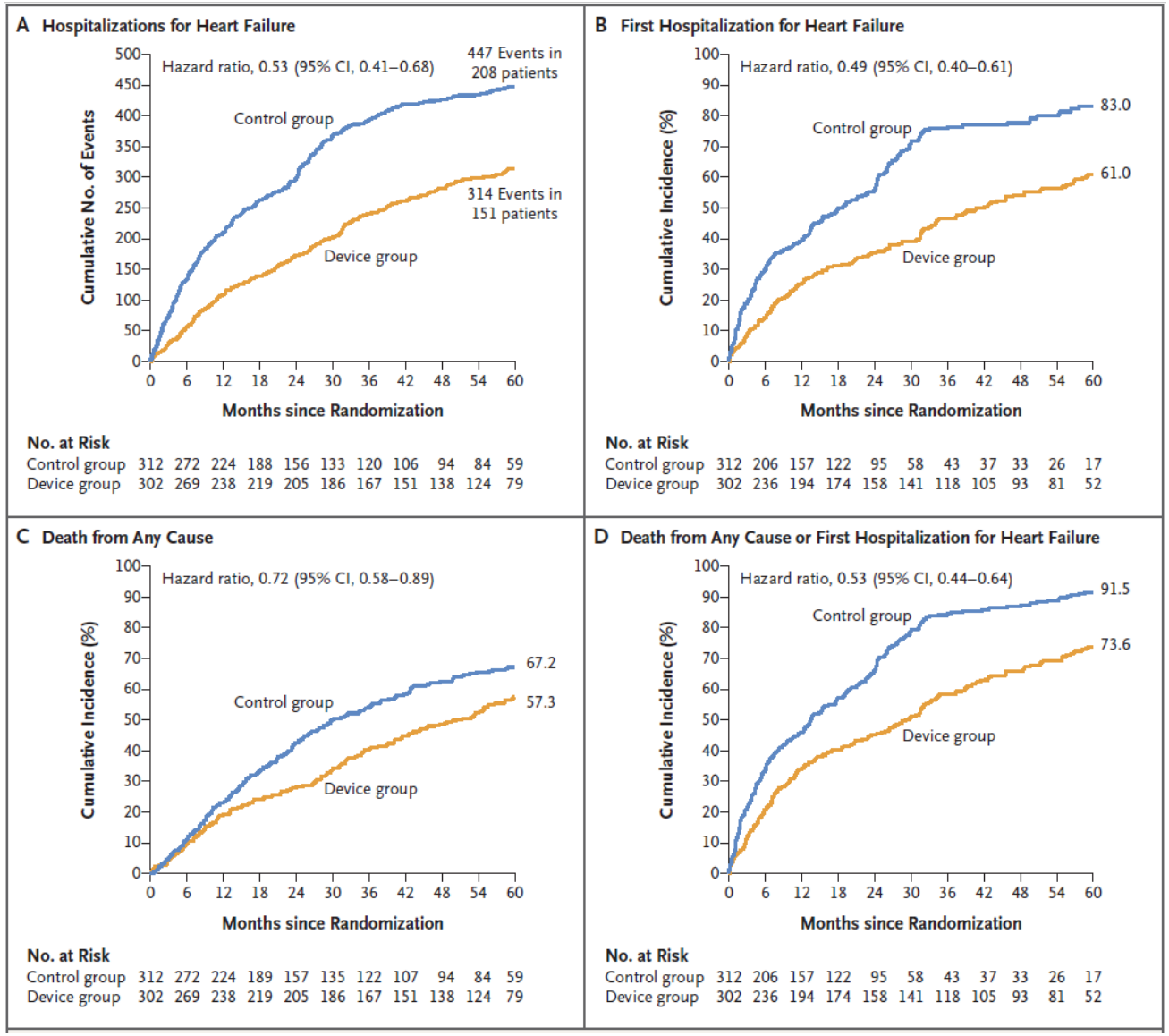
Hahn, RT et al., JACC 2020;76(11)

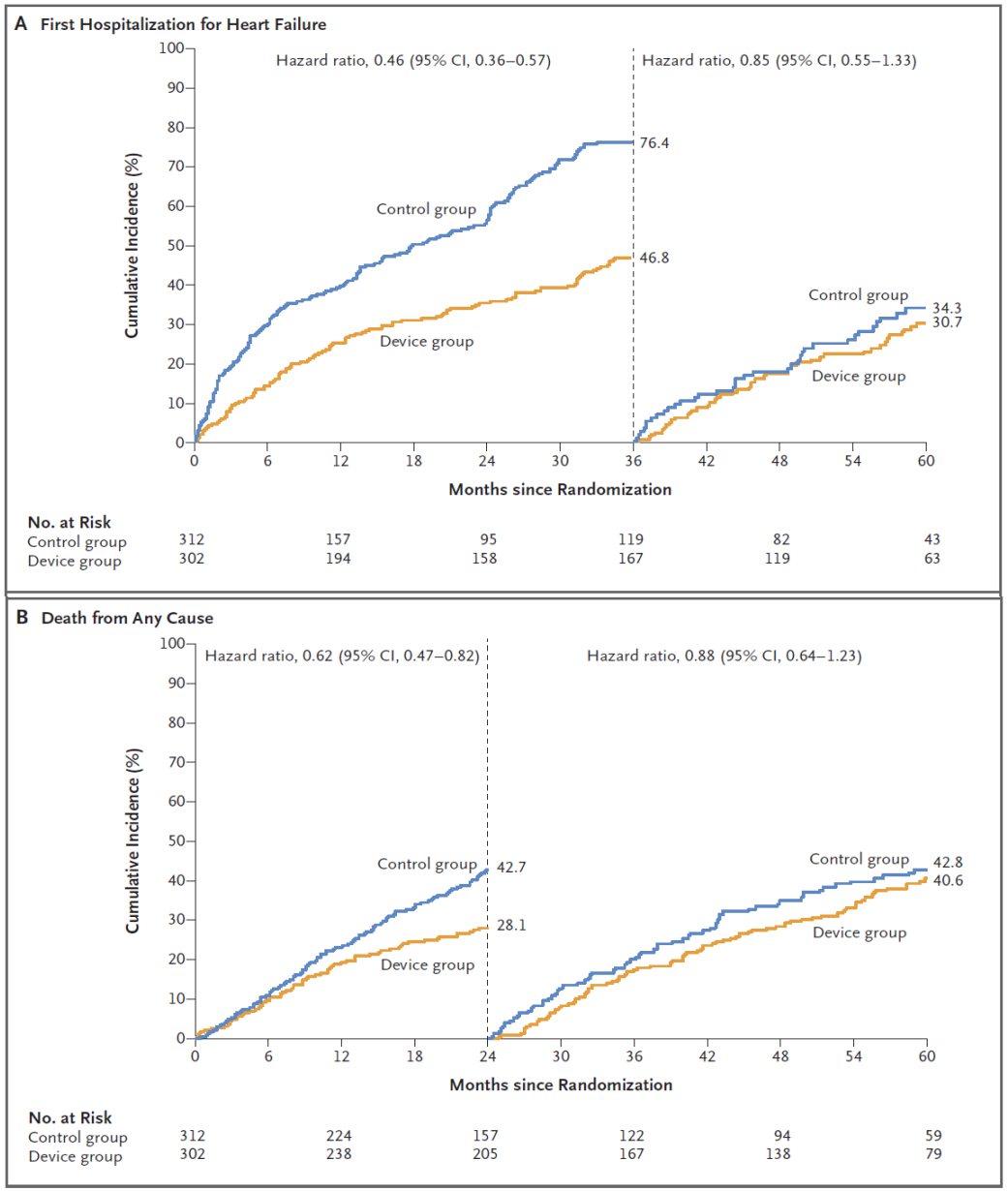
- 817 pac. so závažnou sekundárnou MR (SMR register)
- 211 pac. s dysfunkciou PK = Tapse/sPAP < 0,274mm/mmHg (0,34 mm/mmHg)
- 2-ročné prežívanie pri dysfunkčnej PK 53,4% vs. 73,1% (p<0,001)



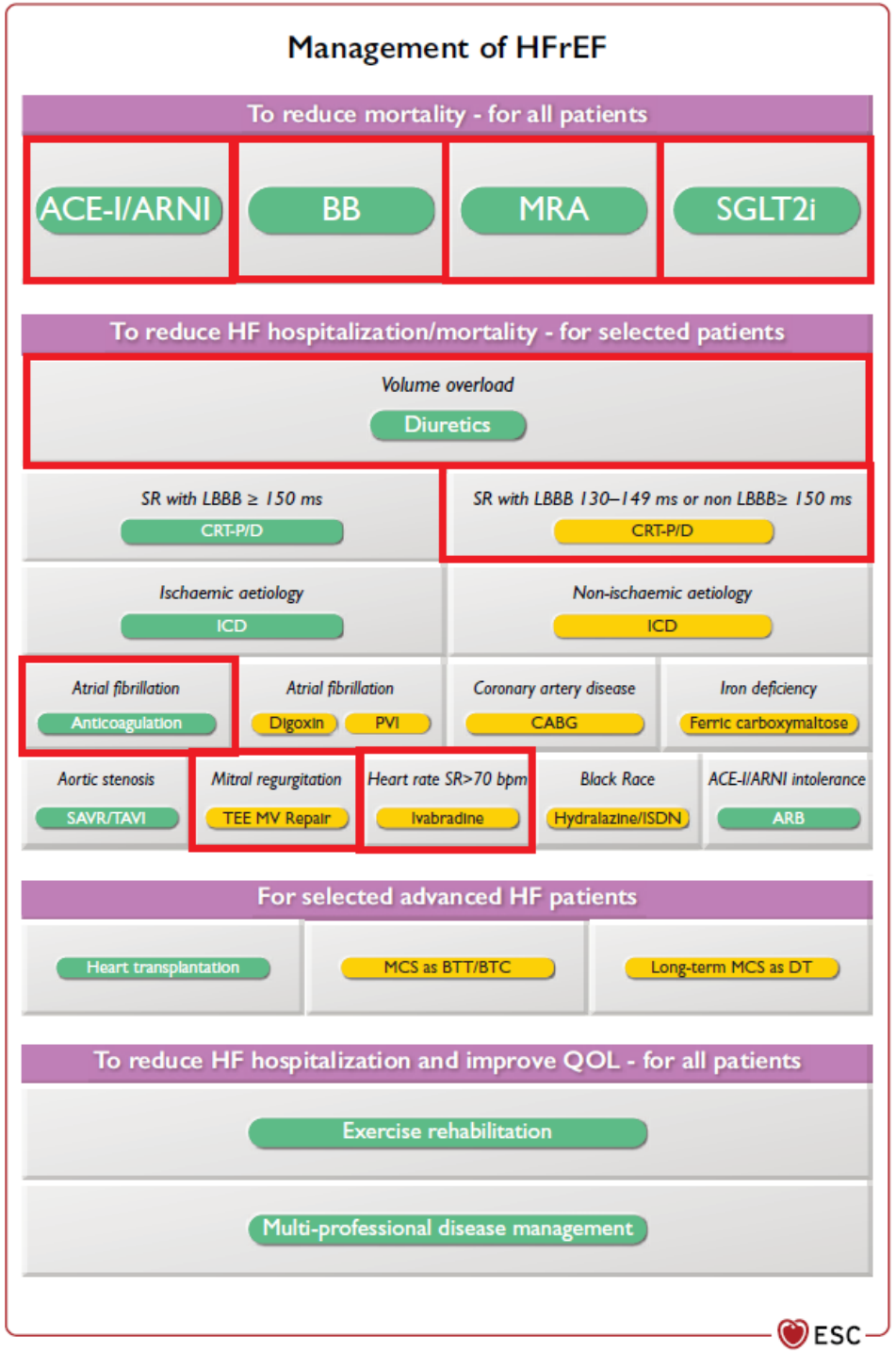
Karam, N. et al. J Am Coll Cardiol Img. 2021;14(4):768-78.

COAPT-TRIAL – 5 ročné sledovanie





Stone GW et al., NEJM 2023



McDonagh TA et al., EHJ 2021

Záver

- Prognóza pacientov so SZ-rEF a závažnou mitrálnou regurgitáciou ostáva nepriaznivá
- Pred zaradením na LVAD/HTx nutné vždy optimalizovať manažment pacienta a liečbu (farmakologickú/nefarmakologickú)
- Transkatétrová liečba mitrálnej regurgitácie môže oddialiť nutnosť zaradenia na HTx (pri starostlivom posúdení splnenia inklúznych a exklúznych kritérií) a zlepšiť symptómy a prognózu pacienta