ANTIARYTMICKÝ EFEKT AGONISTOV GLP-1 A DUÁLNYCH AGONISTOV GIP/GLP-1

ROBERT HATALA
Klinika arytmológie
NÚSCH a.s. a LF UK Bratislava

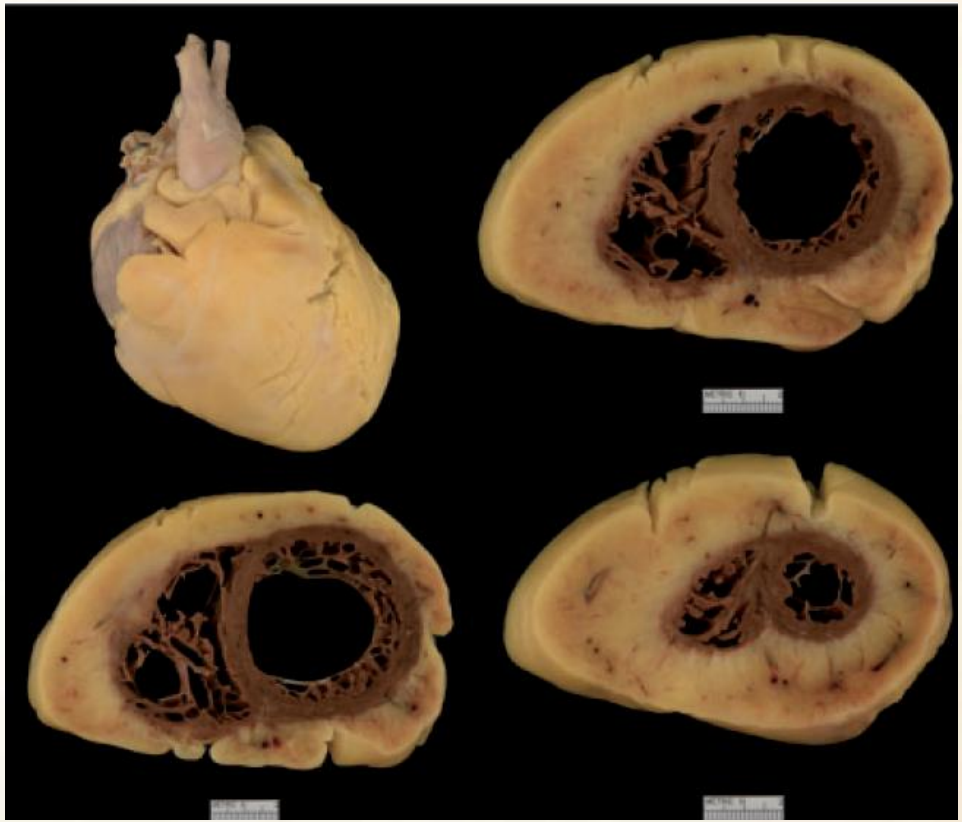
Prečo analyzovať vzťah medzi obezitou a fibriláciou predsiení?

- Oba syndrómy majú charakter pandémie resp. epidémie
- WHO 2022: 2,5 miliardy ľudí má nadváhu, z toho 900 miliónov obezitu (1 z 8)
- > 50% lekárov s BMI >25 kg/m^2
- Klinický význam oboch syndrómov je dlhodobo podceňovaný, pričom oba významne skracujú život

Prevalencia obezity u pacientov s FP

- Databáza 1 625 809 pacientov hospitalizovaných s dg. FP (USA)
  - obezita (BMI>30) u 82% pacientov
  - BMI>40 u 41% pacientov

The heart in cardiometabolic HFpEF with permanent AF
Adipose tissue = 46% of weight



Borlaug BA et al. Eur Heart J. 2020;41(36):3447. doi:10.1093/eurheartj/ehaa478

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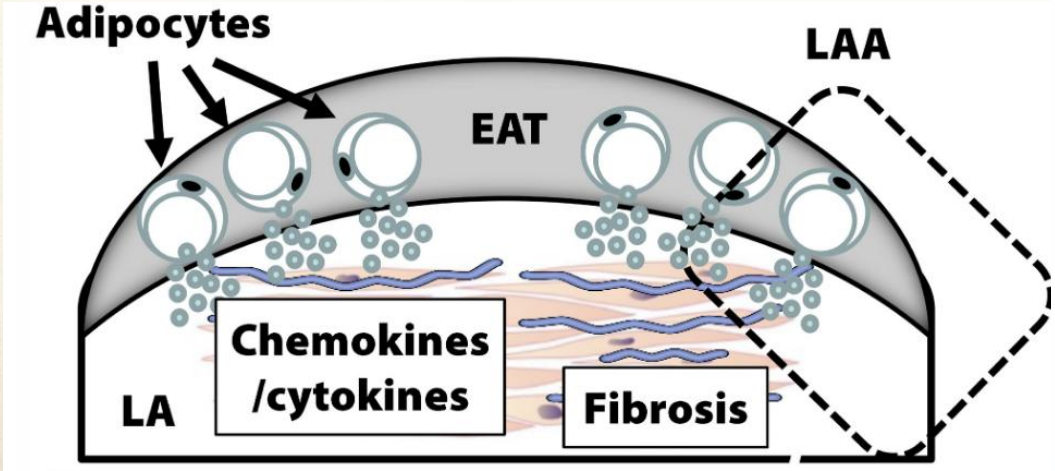
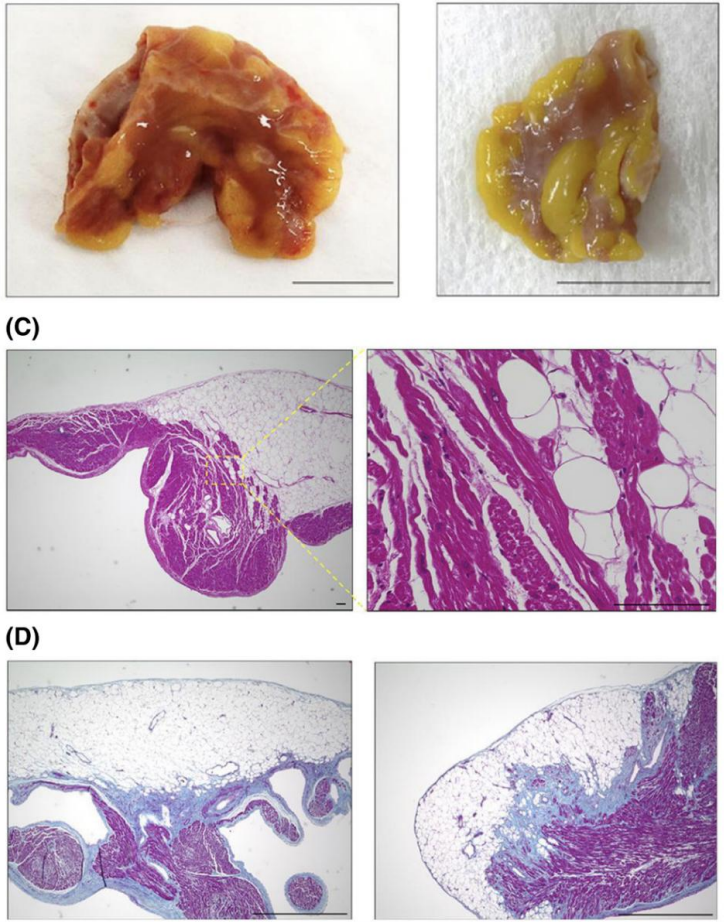
CLINICAL REVIEW

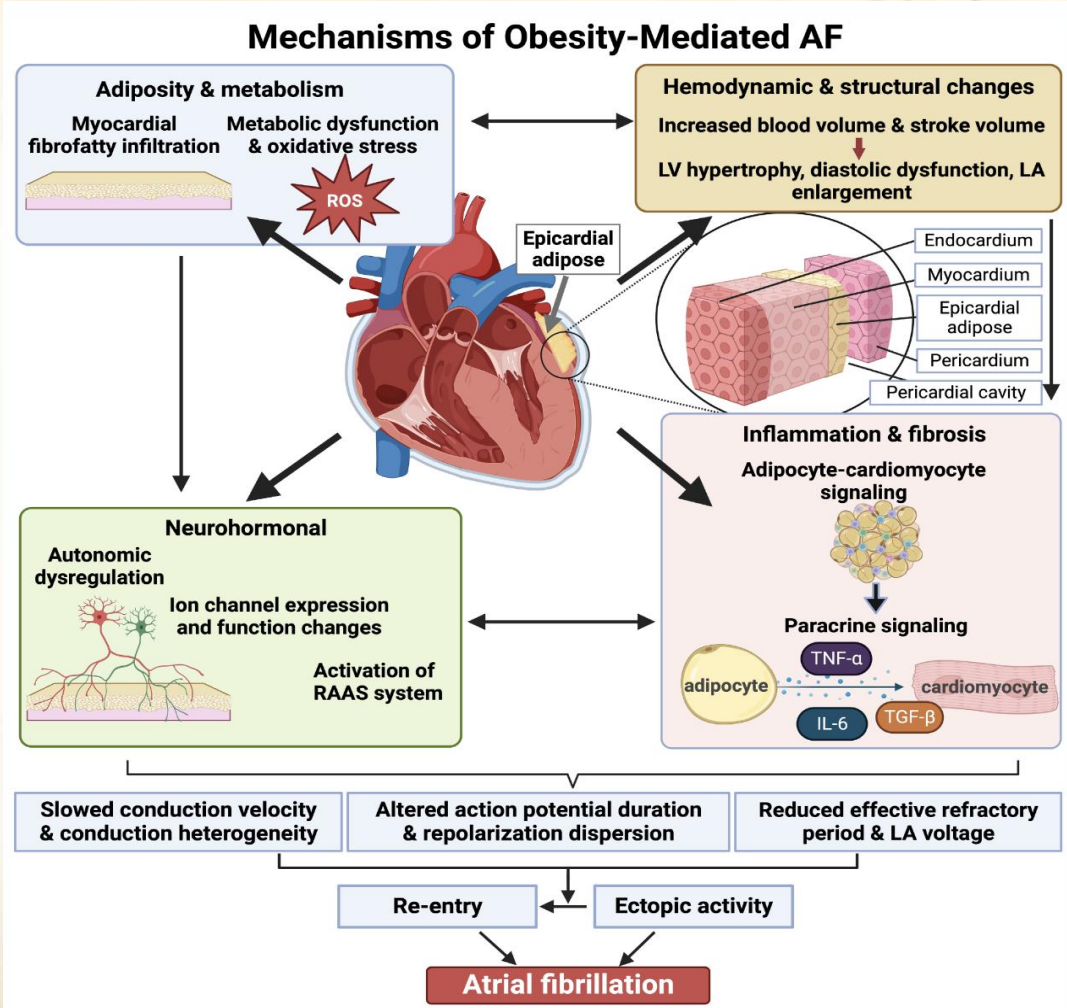
Journal of Arrhythmia WILEY

Role of epicardial adipose tissue in human atrial fibrillation

Naohiko Takahashi MD, PhD | Ichitaro Abe MD, PhD | Shintaro Kira MD, PhD | Yumi Ishii MD, PhD

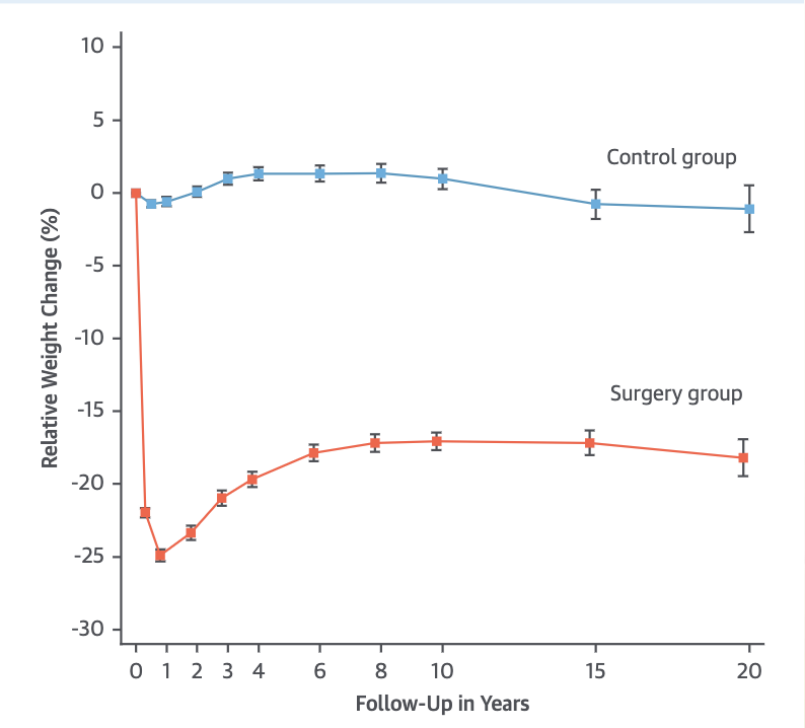


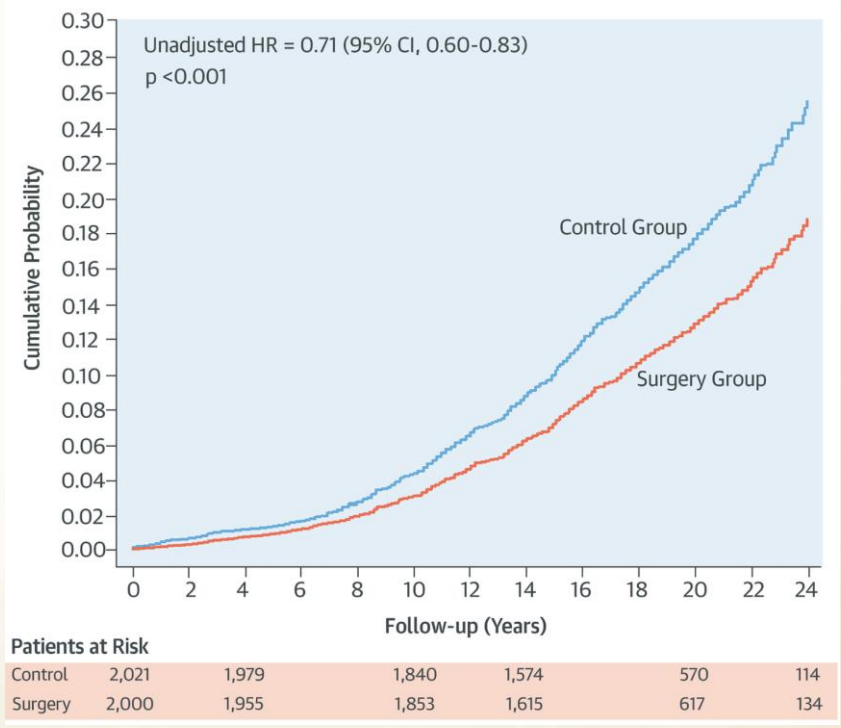




Sha R et al. J Am Heart Assoc. 2024;13(1):e032277. doi:10.1161/JAHA.123.032277

Znižuje redukcia hmotnosti riziko vzniku FP u obéznych pacientov? (SOS štúdia)

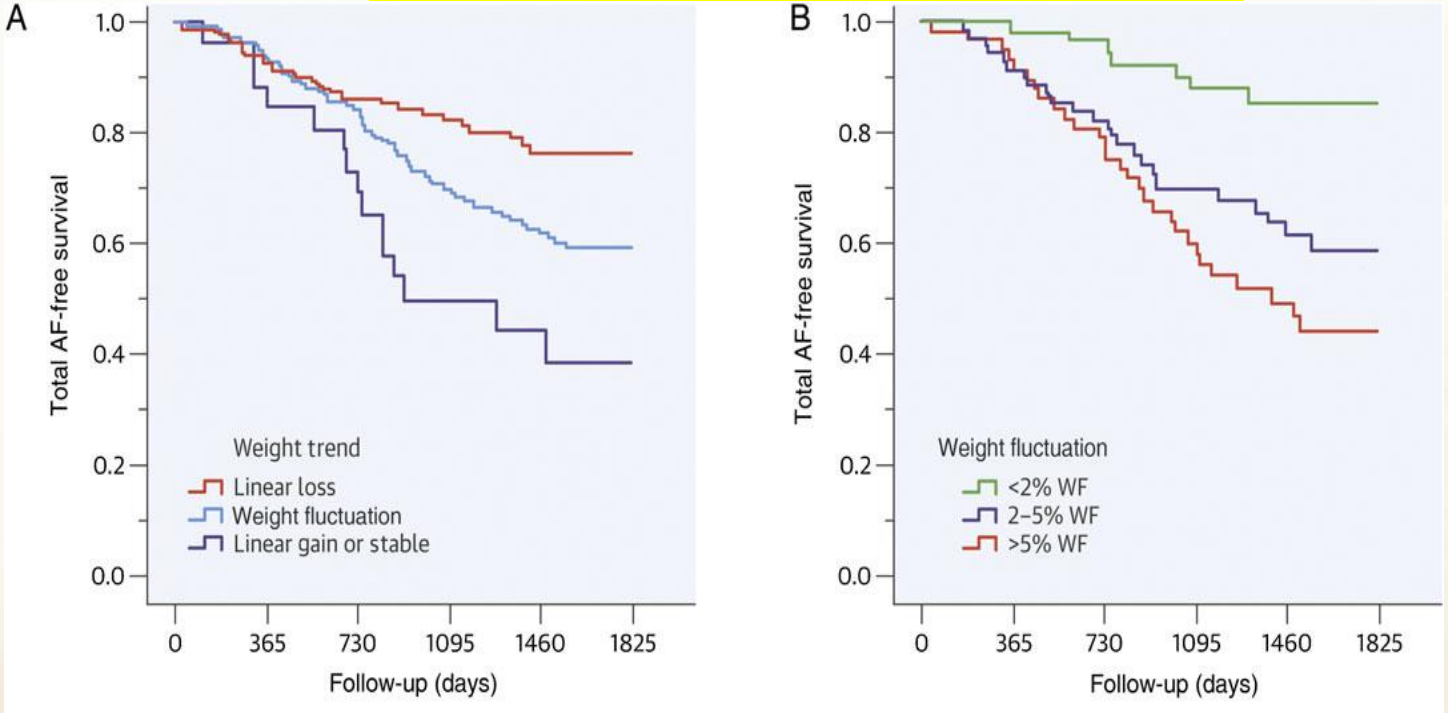




Jamaly S et al. J Am Coll Cardiol. 2016;68(23):2497-2504. doi:10.1016/j.jacc.2016.09.940

Prežívanie bez FP pri stratégii kontroly rytmu (katétrová ablácia, AA liečba) v závislosti od dlhodobého trendu hmotnosti a fluktuácie hmotnosti (RKŠ LEGACY)

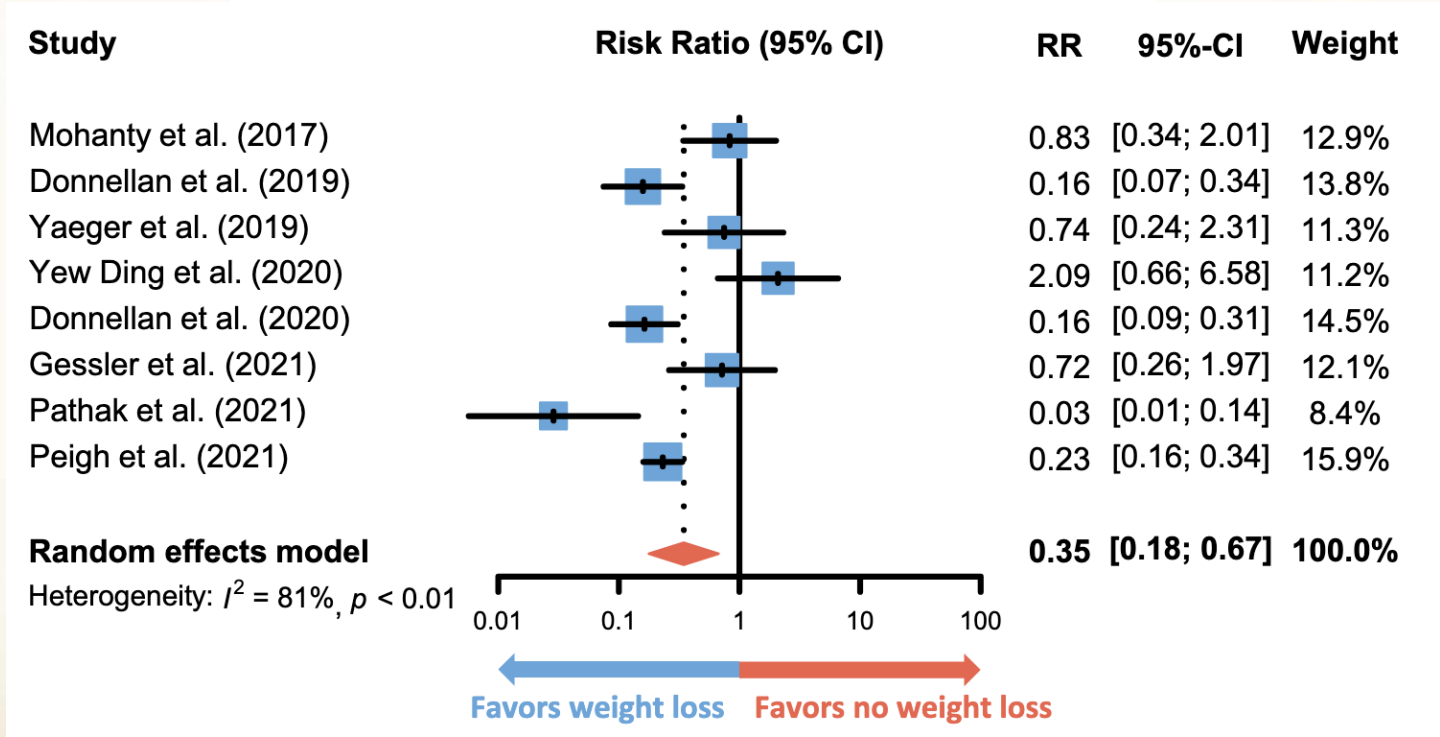
355 pacientov s FP a BMI >27 kg/m^2



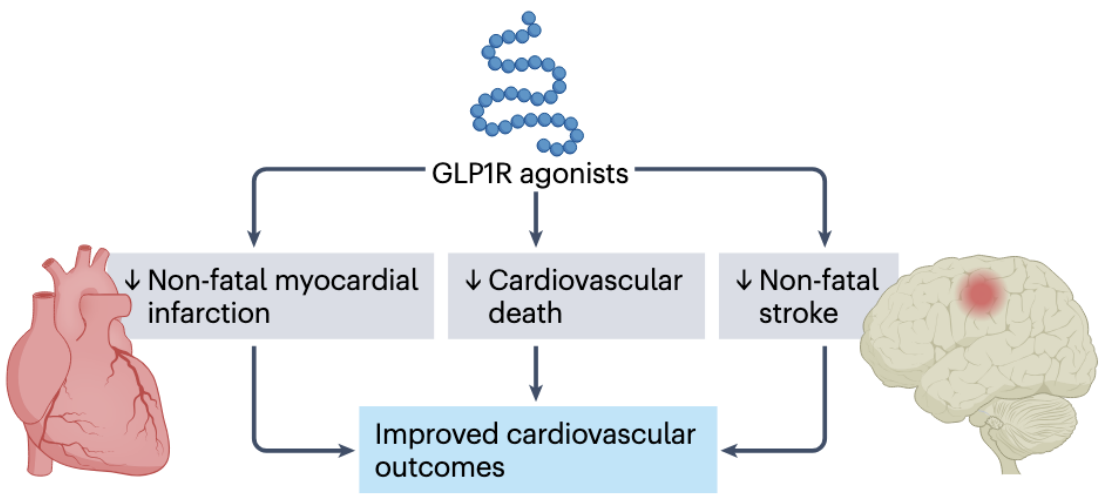
Pathak RK J Am Coll Cardiol 2015;65:2159–69

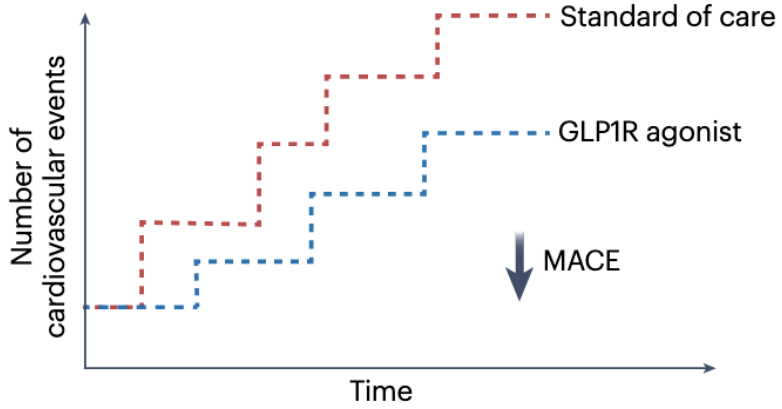
Journal of Interventional Cardiac Electrophysiology (2022) 64:763–771
https://doi.org/10.1007/s10840-022-01168-2

Effect of weight loss on recurrence of atrial fibrillation after ablative therapy: a systematic review and meta-analysis



Park DY et al. J Interv Card Electrophysiol. 2022;64(3):763-771. doi:10.1007/s10840-022-01168-2

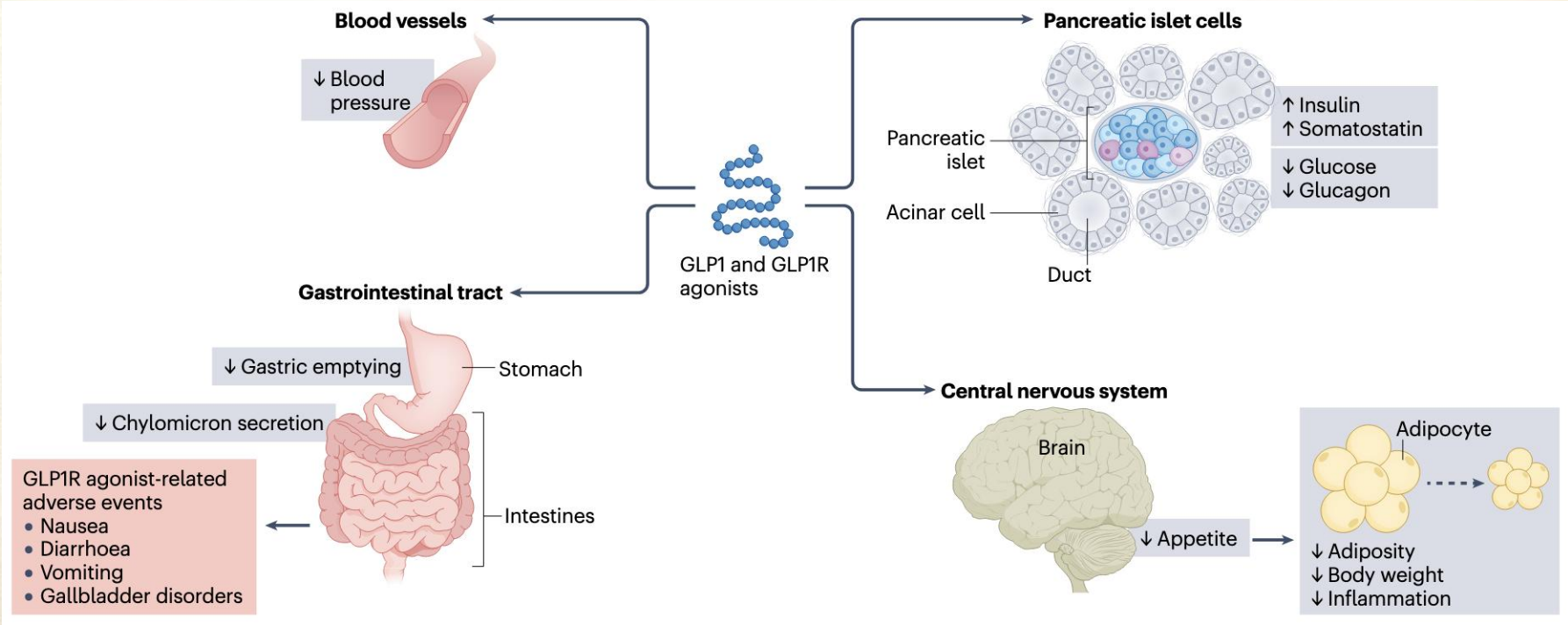




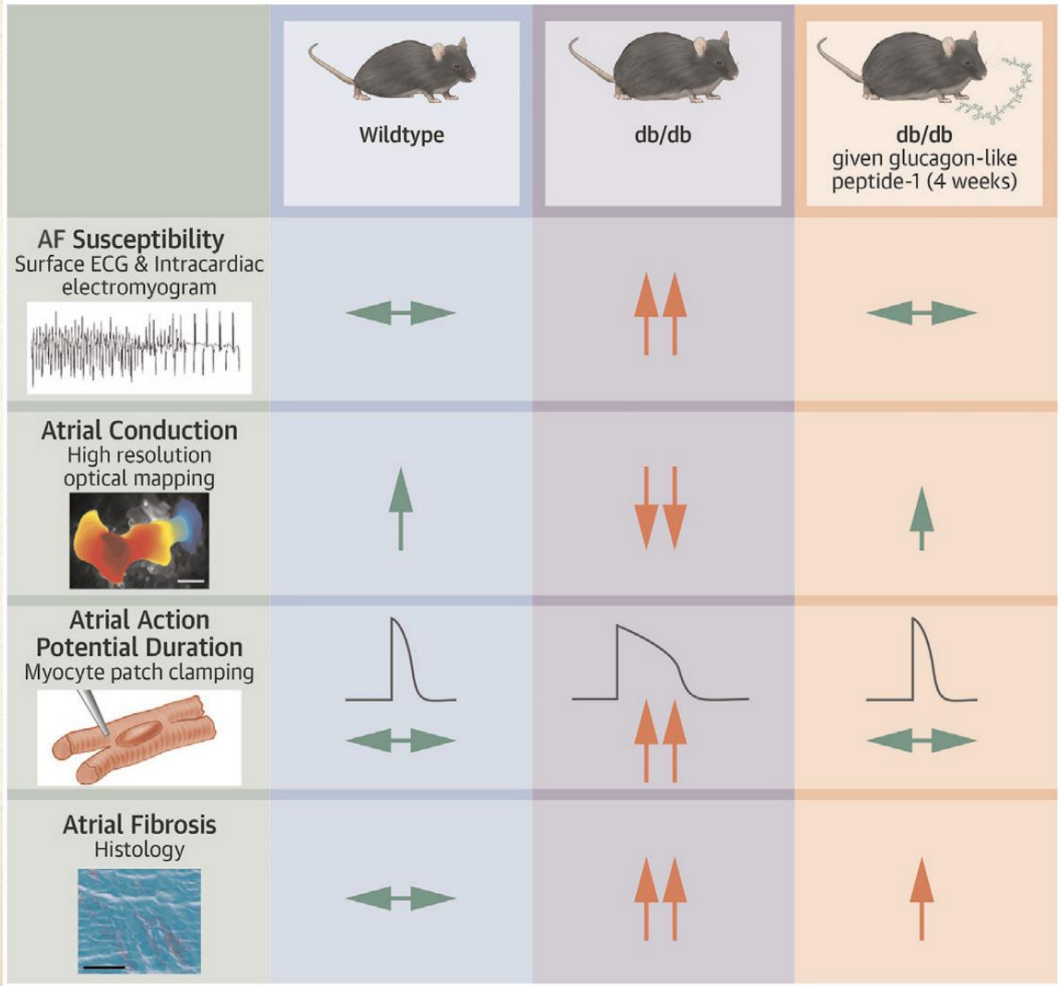
RKŠ:
GLP1-RA znižujú riziko závažných KV príhod u pacientov s T2DM

Ussher JR, Drucker DJ. Nat Rev Cardiol. 2023;20(7):463-474. doi:10.1038/s41569-023-00849-3

Kardiometabolické účinky GLP1-RA



Ussher JR, Drucker DJ. Nat Rev Cardiol. 2023;20(7):463-474. doi:10.1038/s41569-023-00849-3

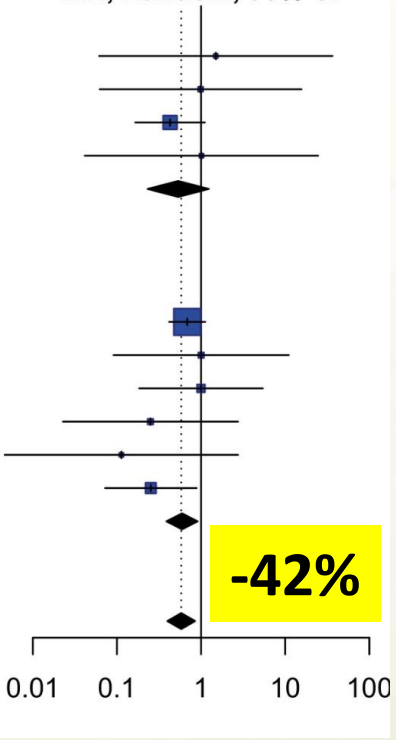


GLP1 a jeho agonista liraglutide zabraňujú v experimente (T2DM myši) vzniku AF a atriálnej remodelácii

Bohne LJ et al. JACC Basic Transl Sci. 2023;8(8):922-936. doi:10.1016/j.jacbts.2023.01.005

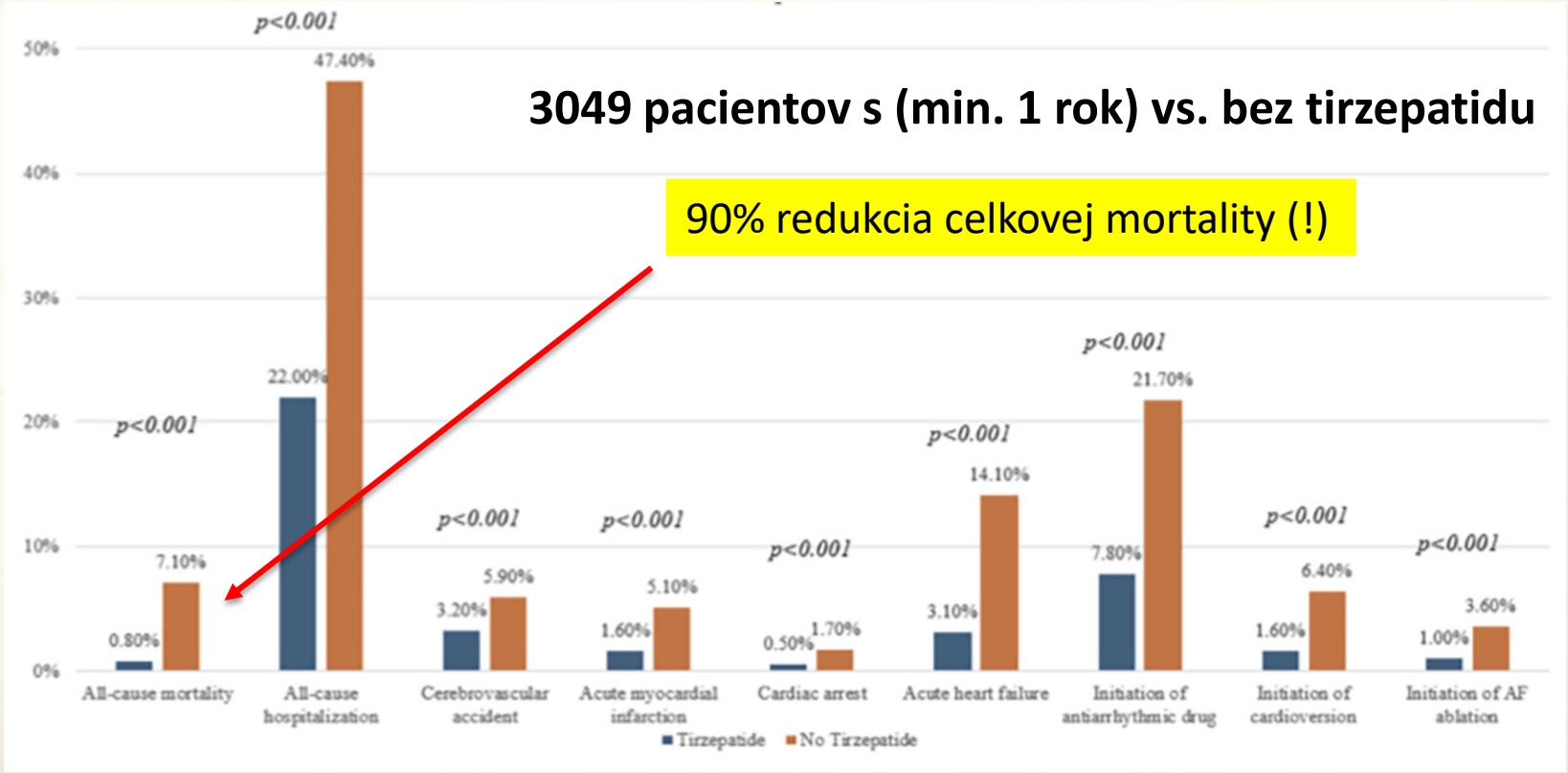
Incidencia AF pri liečbe pacientov semaglutidom (metaanalýza)

Study or Subgroup	Experimental Events	Experimental Total	Control Events	Control Total	Weight	Risk Ratio MH, Random, 95% CI
Administration = Oral						
PIONEER 4	1	285	0	142	1.4%	1.50 [0.06; 36.53]
PIONEER 5	1	163	1	161	1.9%	0.99 [0.06; 15.66]
PIONEER 6	6	1591	14	1591	15.8%	0.43 [0.17; 1.11]
PIONEER 11	1	390	0	131	1.4%	1.01 [0.04; 24.65]
Total (95% CI)		2429		2025	20.5%	0.53 [0.23; 1.24]
Heterogeneity: $Tau^2 = 0$; $Chi^2 = 0.95$, df = 3 (P = 0.81); $I^2 = 0\%$						
Administration = Sc						
SUSTAIN 6	26	1648	38	1649	58.9%	0.68 [0.42; 1.12]
STEP 1	2	1306	1	655	2.5%	1.00 [0.09; 11.04]
STEP 2	4	805	2	402	5.0%	1.00 [0.18; 5.43]
STEP 4	1	535	2	268	2.5%	0.25 [0.02; 2.75]
STEP 6	0	299	1	101	1.4%	0.11 [0.00; 2.75]
STEP HFpEF	3	263	12	266	9.2%	0.25 [0.07; 0.89]
Total (95% CI)		4856		3341	79.5%	0.59 [0.39; 0.91]
Heterogeneity: $Tau^2 = 0$; $Chi^2 = 4.2$, df = 5 (P = 0.52); $I^2 = 0\%$						
Total (95% CI)		**7285**		**5366**	**100.0%**	**0.58 [0.40; 0.85]**
Heterogeneity: $Tau^2 = 0$; $Chi^2 = 5.19$, df = 9 (P = 0.82); $I^2 = 0\%$						
Residual heterogeneity: Tau^2 = NA; $Chi^2 = 5.15$, df = 8 (P = 0.74); $I^2 = 0\%$						
Test for subgroup differences: $Chi^2 = 0.05$, df = 1 (P = 0.83)						



Saglietto A et al. Eur J Clin Invest. 2024;54(12):e14292. doi:10.1111/eci.14292meta-analysis.

Tirzepatide v liečbe pacientov s T2DM / obezitou a AF



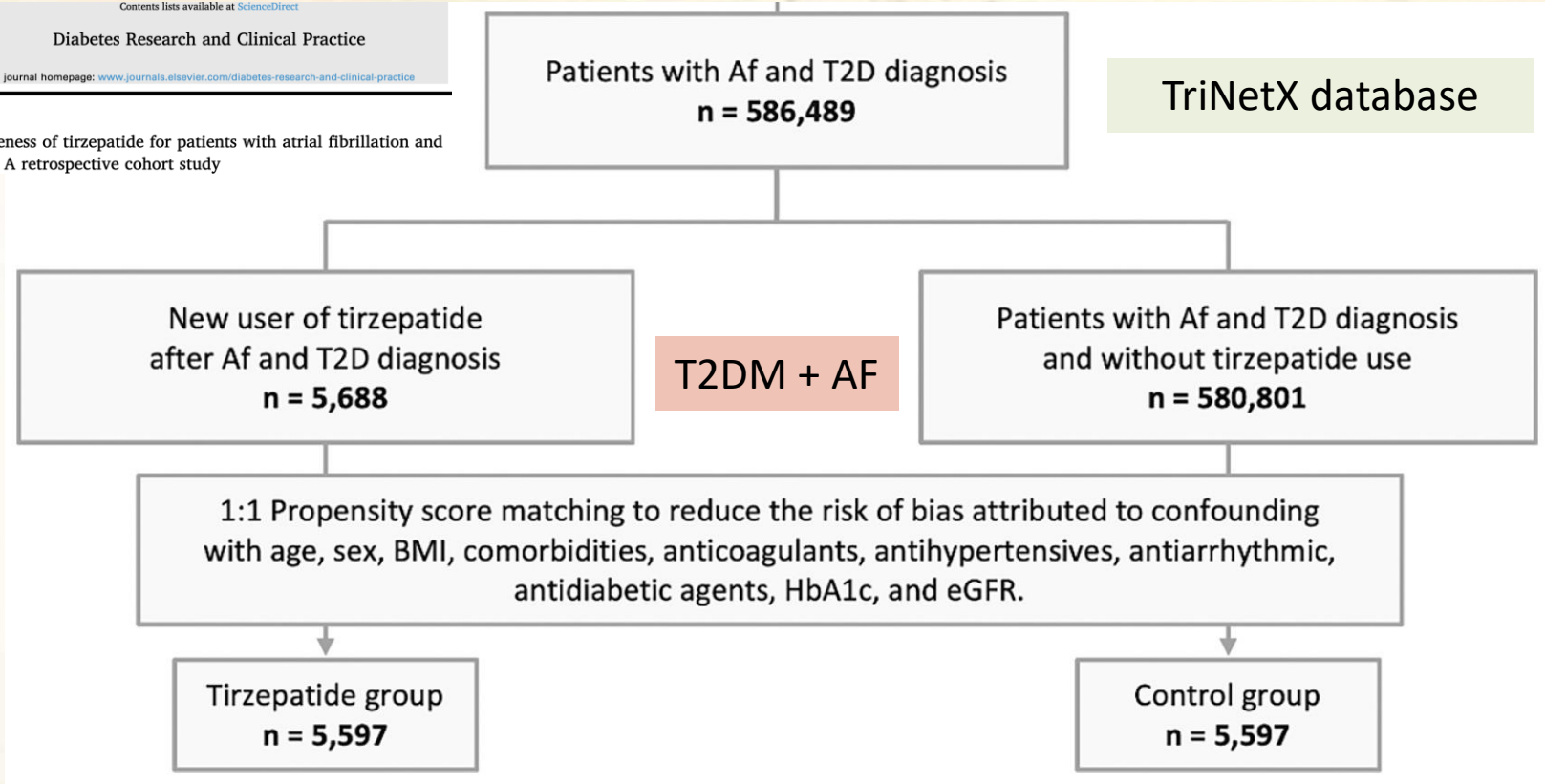
Tan MCH et al. Heart Rhythm 2025, Volume 22, Issue 4, S103

Contents lists available at ScienceDirect

Diabetes Research and Clinical Practice

journal homepage: www.journals.elsevier.com/diabetes-research-and-clinical-practice

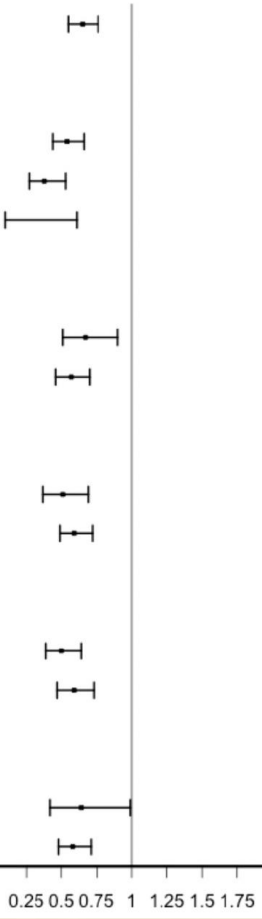
Clinical effectiveness of tirzepatide for patients with atrial fibrillation and type 2 diabetes: A retrospective cohort study



The **primary outcome** was a composite of cardioversion, intravenous AA drugs use, and AF ablation

Wu JY et al. Diabetes Res Clin Pract. 2025;225:112279. doi:10.1016/j.diabres.2025.112279

Subgroup	Tirzepatide group, n (%)	Control group, n (%)	Hazard Ratio (95% CI)	p-value
Overall	218 (3.89)	469 (8.38)	0.65 (0.55, 0.76)	<0.001
Types of Atrial Fibrillation				
Paroxysmal	131 (3.88)	329 (9.75)	0.54 (0.44, 0.66)	<0.001
Persistent	46 (4.85)	150 (15.81)	0.38 (0.27, 0.53)	<0.001
Permanent	10 (3.73)	26 (9.70)	21 (0.1, 0.61)	<0.001
CAD				
(+)	72 (3.74)	148 (7.69)	0.67 (0.51, 0.9)	<0.001
(-)	121 (3.30)	292 (7.97)	0.57 (0.46, 0.7)	<0.001
Heart failure				
(+)	58 (3.68)	147 (9.33)	0.51 (0.37, 0.69)	<0.001
(-)	145 (3.20)	334 (7.38)	0.59 (0.49, 0.72)	<0.001
Obesity				
(+)	89 (3.39)	222 (8.45)	0.5 (0.39, 0.64)	<0.001
(-)	119 (3.27)	268 (7.37)	0.59 (0.47, 0.73)	<0.001
CKD				
(+)	31 (3.36)	62 (6.72)	0.64 (0.42, 0.99)	0.046
(-)	320 (231.88)	63 (45.65)	0.58 (0.48, 0.71)	<0.001



Podávanie tirzepatidu bolo spojené s významným poklesom celkovej fibrilačnej záťaže u chorých s HFpEF

Wu JY et al. Diabetes Res Clin Pract. 2025;225:112279. doi:10.1016/j.diabres.2025.112279

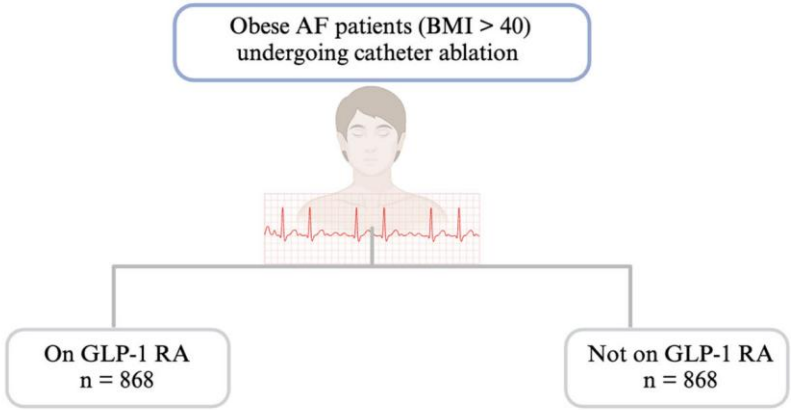
Journal of Cardiovascular Electrophysiology

WILEY

ORIGINAL ARTICLE

Long-Term Impact of GLP-1 Receptor Agonists on AF Recurrence After Ablation in Obese Patients

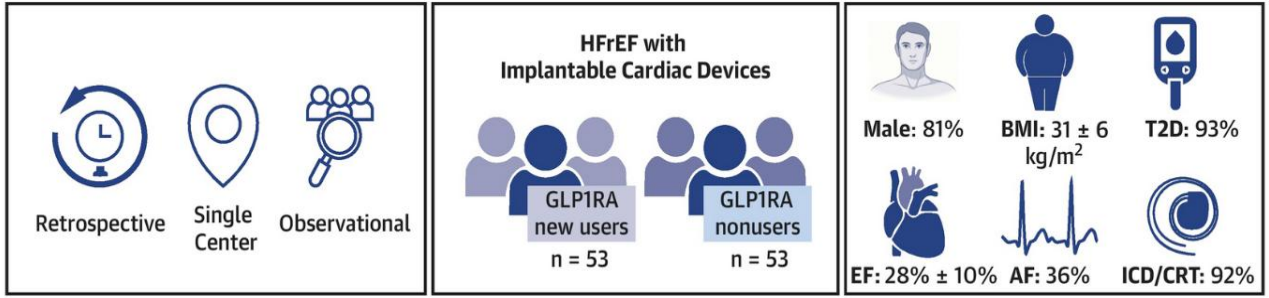
TriNetX database



	GLP1-RA	Bez GLP1-RA
Primary composite outcome	↓	HR 0.69, 95% CI: 0.60-0.78, p < 0.002 ↑
AF readmissions	↓	HR 0.70, 95% CI: 0.61-0.82, p = 0.0004 ↑
HF readmissions	↓	HR 0.65, 95% CI: 0.44-0.96, p < 0.01 ↑
Ischemic stroke readmissions	↔	HR 0.87, 95% CI: 0.33-2.2, p = 0.40 ↔
All cause mortality	↔	HR 0.82, 95% CI: 0.45-1.48, p = 0.77 ↔

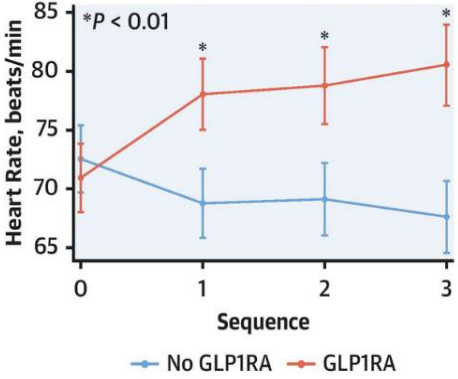
Patel H et al. J Cardiovasc Electrophysiol. 2025;36(8):1808-1816. doi:10.1111/jce.16737

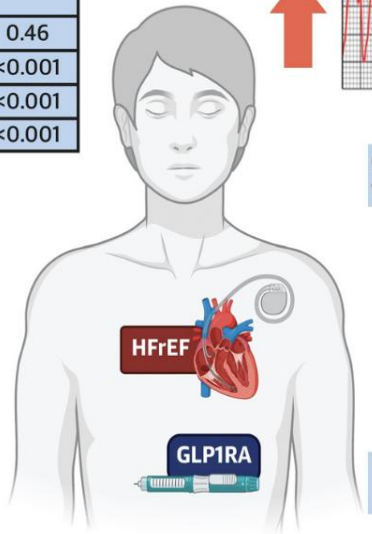
Vplyv GLP-1 RA na SF a komorové arytmie u HFrEF pacientov s ICD



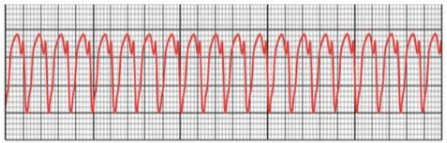
HEART RATE

Sequence	GLP1RA vs No GLP1RA Heart Rate Difference, Mean (95% CI)	*P*-Value
Baseline	−2 (−6 to +2) beats/min	0.46
1-3 mo	+9 (+5 to +14) beats/min	<0.001
3-6 mo	+10 (+5 to +14) beats/min	<0.001
9-12 mo	+13 (+8 to +18) beats/min	<0.001



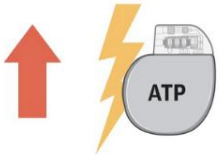


VENTRICULAR ARRHYTHMIAS



Total ventricular events

GLP1RA-users vs nonusers NSVT: 3,372 vs 399, *P* < 0.01; VT/VF: 13 vs 2, *P* = 0.07



ICD/CRT-D shocks/ATP therapies

GLP1RA-users vs nonusers Shocks/ATP therapies: 33 vs 3, *P* < 0.01

Marques P et al. JACC Heart Fail. 2025;13(11):102573. doi:10.1016/j.jchf.2025.102573

GLP1-RA / GIP a arytmie

- **Klinické údaje: v populácii s obezitou (s/bez T2DM) podávanie GLP1-RA /GIP**
  - **Znižuje incidenciu AF**
  - **Znižuje rekurencie AF po katétrovej ablácii**
- Experiment: **znížený arytmogénny potenciál je mediovaný najmä redukciou fibrózy a zápalu**
- Elektrofyziologické zmeny na celulárnej úrovni v pľúcnych žilách ? (Ca homeostáza, Na^{+}/Ca^{2+} výmenník - NCX)
- ALE: zvyšujú SF (+10 bpm), potenciálne proarytmia u HFrEF
- Observačné štúdie, post-hoc analýzy - **chýbajú RKŠ**

Obezita - klinicky významný reverzibilný rizikový faktor vzniku AP

- Obezita predstavuje cestou početných neurohumorálnych a štrukturálnych interakcií s myokardom klinicky významný no podceňovaný **atriálny proarytmogénny syndróm**
- Cca 5% vzostup rizika vzniku FP na jednotku BMI
- **Suboptimálna až marginálna účinnosť kardioverzie a katétrovej liečby FP u obéznych pacientov !**

Redukcia hmotnosti facilitovaná GLP1-RA / GIP– efektívna stratégia dlhodobej kontroly rytmu u obéznych pacientov s AF

ĎAKUJEM ZA POZORNOSŤ!