

Incidence, risk factors and outcomes of new-onset atrial fibrillation in patients with sepsis: a systematic review

Critical Care 2014, 18:688 doi:10.1186/s13054-014-0688-5

Clinical review: Treatment of new-onset atrial fibrillation in medical intensive care patients – a clinical framework

Mengalvio E Sleeswijk¹, Trudeke Van Noord², Jaap E Tulleken², Jack JM Ligtenberg³, Armand RJ Girbes³ and Jan G Zijlstra²

Critical Care 2007, 11:233 (doi:10.1186/1365-3050-11-233)

SV arytmie jako nejčastější spouštěč diastolického srdečního selhání

Intenzivní péče

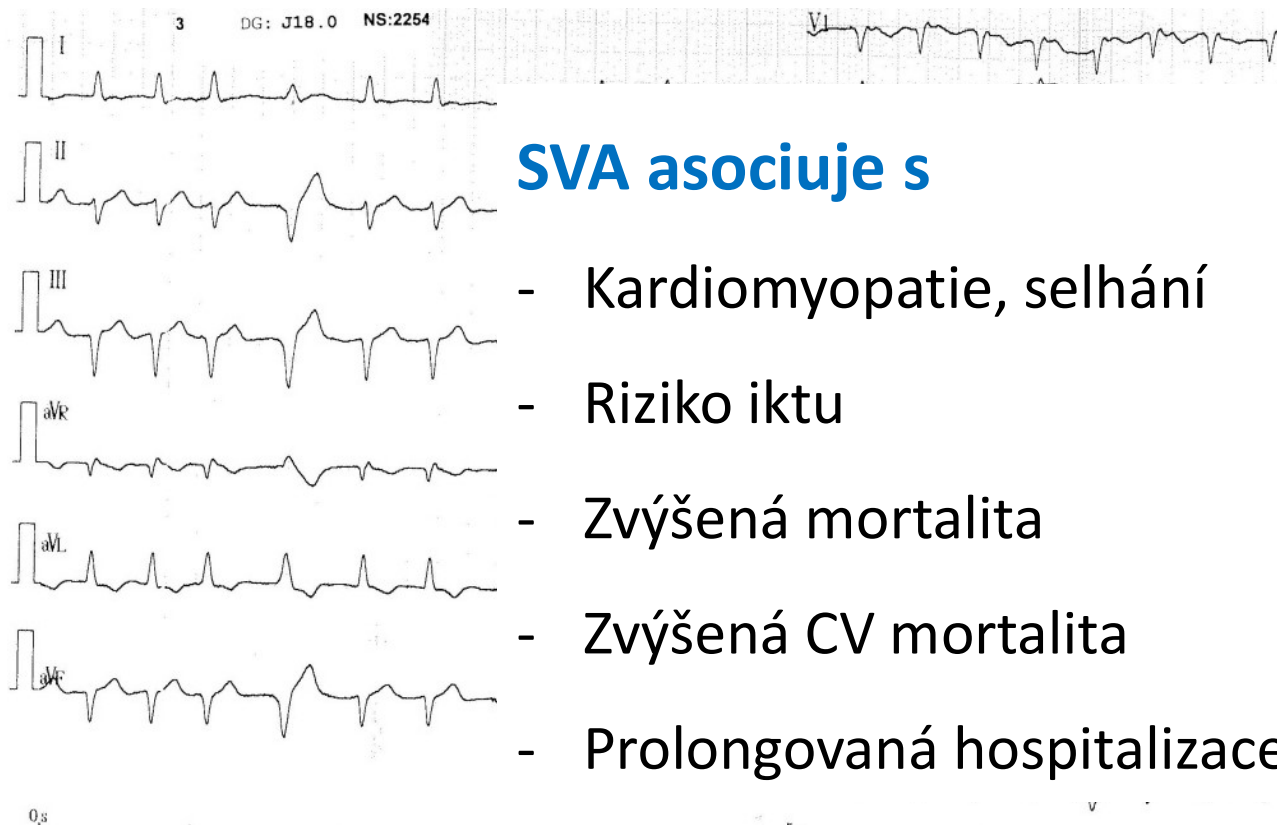
- 4-9-15% (věkově závislé)
- 15-40% perioperační

Incidence a závažnost stavu

- 10% (4-23%) sepse
- 23% (6-46%) septický šok

Endemický problém

- 25% populace nad 40 let !



SVA asociuje s

- Kardiomyopatie, selhání
- Riziko iktu
- Zvýšená mortalita
- Zvýšená CV mortalita
- Prolongovaná hospitalizace

NOAF a NOAF nezávisle zhoršují prognózu – proč každého revertujeme na sinus ?

Review Article

Management of Atrial Fibrillation in Critically Ill Patients

Mattia Arrigo, Dominique Bettex, and Alain Rudiger

NOAF a NOAF nezávisle zhoršují prognózu – proč každého revertujeme na sinus ?
 NOAF a NOAF nezávisle zhoršují prognózu – proč každého revertujeme na sinus ?
 NOAF a NOAF nezávisle zhoršují prognózu – proč každého revertujeme na sinus ?

October 2021 | Revised: 11 November 2021 | Accepted: 30 November 2021
 14007

REVIEW ARTICLE



Impressive Success of Electrical Cardioversion in Patients with New-Onset Atrial Fibrillation in Cardiosurgical Patients*

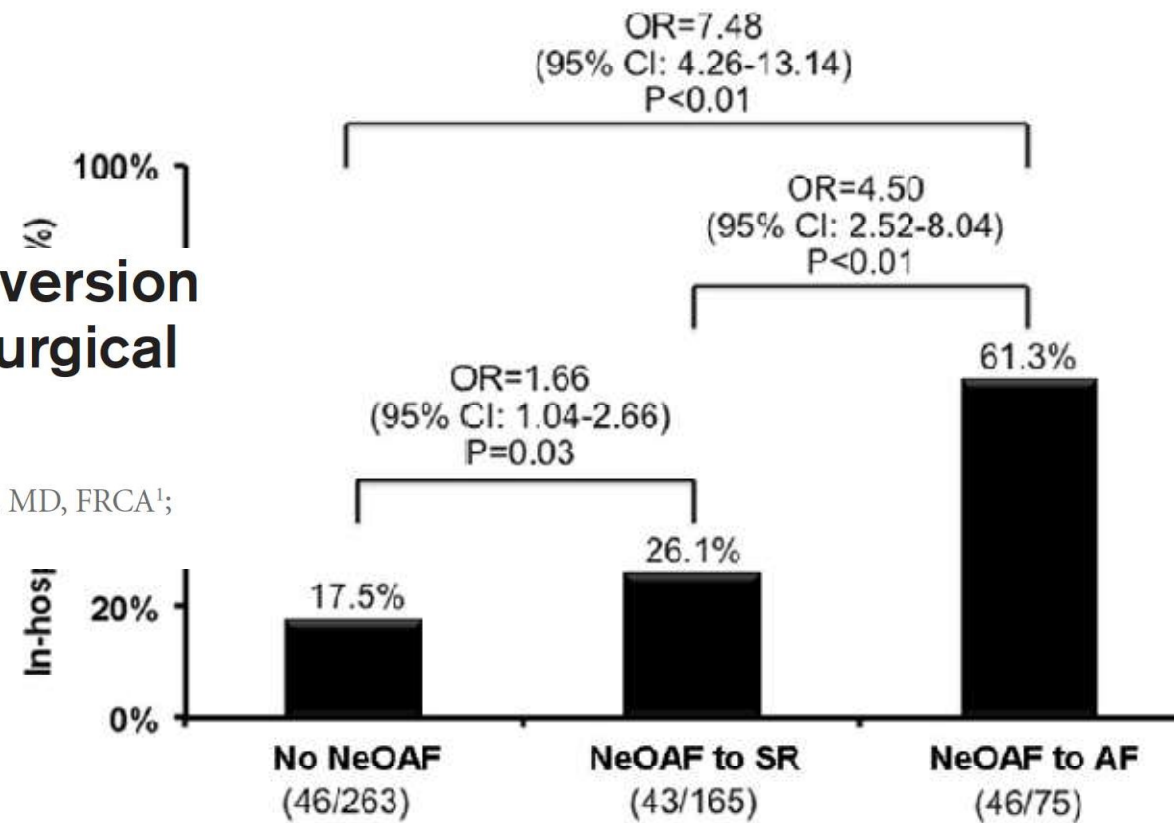
Mattia Arrigo, MD^{1,2}; Natalie Jaeger, MD¹; Burkhardt Seifert, PhD³; Donat R. Spahn, MD, FRCA¹; Dominique Bettex, MD¹; Alain Rudiger, MD¹

- DC kardioverze – efekt v 24-30%, s antiarytmiky 70-80%
- Rate control 4%

Prognostic impact of restored sinus rhythm in patients with sepsis and new-onset atrial fibrillation

Liu et al. *Critical Care* (2016) 20:37
 DOI 10.1186/s13054-016-1548-2

Wen Cheng Liu¹, Wen Yu Lin¹, Chin Sheng Lin¹, Han Bin Huang², Tzu Chiao Lin¹, Shu Meng C
 Shih Ping Yang¹, Jung Chung Lin³ and Wei Shiang Lin^{1*}



hythm nebo rate control ? Potřebujeme EBM+.....

rdiologie: Rekurence SVA a SE antiarytmik.....důraz na rate control

CT zařazovaly všechny stupně diastolické dysfunkce, bez stratifikace funkce LV a LA

avní PRCTs neukazují výhody rhythm vs rate control na

- mortalitu, CV mortalitu
- srdeční selhání
- iktus
- příjmy do nemocnice

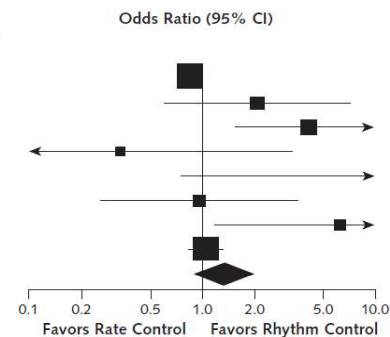
lková frekvence kardioverze 80%

FIRM Trial (J Am Coll Cardiol 2003)

ACE Trial (N Engl J Med 2002)

f-CHF Trial (included EF_LV<35%, NYHA II-IV (N Engl J Med 2008)

Study, Year (Reference)	Odds Ratio (95% CI)	Deaths/Total, n/N	
		Rate Control	Rhythm Control
Wyse et al, 2002 (27)	0.851 (0.720–1.005)	310/2027	356/2033
Carlsson et al, 2003 (18)	2.087 (0.608–7.167)	8/100	4/100
Okçün et al, 2004 (20)	4.125 (1.562–10.895)	36/84	6/39
Opolski et al, 2004 (21)	0.337 (0.034–3.291)	1/101	3/104
Vora et al, 2004 (26)	14.099 (0.754–263.543)	5/40	0/45
Petrac et al, 2005 (22)	0.957 (0.260–3.532)	5/52	5/50
Yildiz et al, 2008 (28)	6.270 (1.185–33.192)	5/66	2/155
Talajic et al, 2010 (24)	1.048 (0.836–1.314)	228/694	217/682
Overall	1.343 (0.893–2.020)		



REVIEW

Annals of Internal Medicine

ate- and Rhythm-Control Therapies in Patients With Atrial Fibrillation

Systematic Review

a M. Al-Khatib, MD, MHS; Nancy M. Allen LaPointe, PharmD; Raneer Chatterjee, MD, MPH; Matthew J. Crowley, MD;

Atrial Fibrillation AND Heart Failure

The prevalence of AF in patients with HF increased from <10% in those with NYHA I disease to 4.2% in those with NYHA IV disease.

STUDY/PREVALENCE OF AF (%)

- SOLVD Prevention: 4.2%
- SOLVD Treatment: 10.1%
- V-HeFT: 14.4%
- CHF-STAT: 15.4%
- DIAMOND CHF: 25.8%
- GESICA: 28.9%
- CONSENSUS: 49.8%

SOLVD: Studies of Left Ventricular Dysfunction
V-HeFT: Vasodilator Heart Failure Trial
CHF-STAT: Congestive Heart Failure Survival Trial of Antiarrhythmic Therapy
DIAMOND CHF: Danish Investigations of Arrhythmia and Mortality on Dofetilide
GESICA: Grupo de Estudio de la Sobrevida en la Insuficiencia Cardíaca en Arritmias
CONSENSUS: Cooperative North Scandinavian Enalapril Survival Study

By Mark Abrahams, MD. Designed by Jonathan Stern for MedPage Today
Reviewed by Philip Green, MD, Assistant in Clinical Medicine, Division of Cardiology, Columbia University Medical Center, New York, New York
Adapted from: Maisel WH, et al. Atrial fibrillation in heart failure: epidemiology, pathogenesis, and therapy. Am J Cardiol. 2003;91(6A):20-8D

LA: rozhodovací algoritmy

Klíčová role echokardiografie:

- LV velikost, kontraktilita ?
- LVEDP, preload....katecholaminy ?
- Chlopně: MS, MR, AS – sig. ?
- Dilatace LA ?
- Spont. echokonstrast ?
- PAPs ?

Rhythm nebo rate control ?

Elektrická kardioverze ?

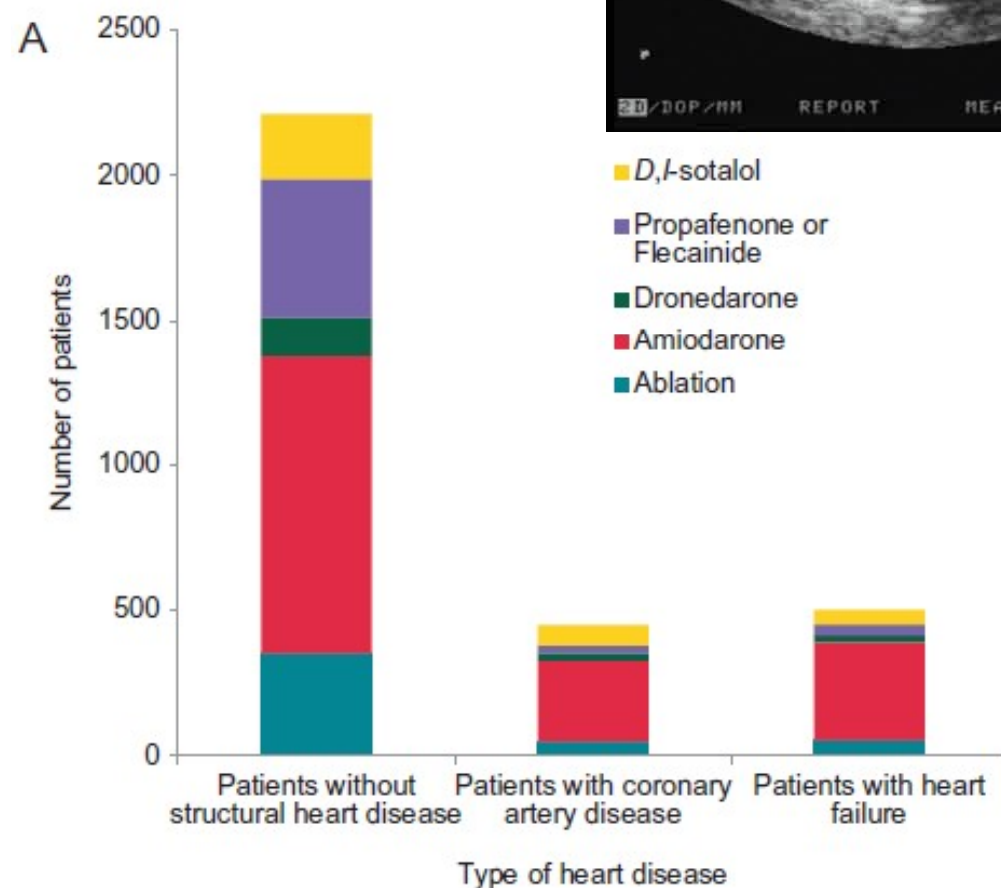
>48h ? : TEE

Predictory udržitelnosti SR: 2D a Doppler ?

Antikoagulace - nastavení

Předchozí betablokátory

Medikace při propuštění (betablokátory ?)



Europace (2014) 16, 6–14
doi:10.1093/europace/eut263

CLINICAL RESEARCH

Atrial fibrillation

Therapy of SV Arrhythmias

Disappointing Success of Electrical Cardioversion for New-Onset Atrial Fibrillation in Cardiosurgical ICU Patients*

Mattia Arrigo, MD^{1,2}; Natalie Jaeger, MD¹; Burkhardt Seifert, PhD³; Donat R. Spahn, MD, FRCA¹; Dominique Bettex, MD¹; Alain Rudiger, MD¹

(*Crit Care Med* 2015; 43:2354–2359)

DC cardioversion – effect in 24-30%, with antiarrhythmics 70-80%

Vaughan-Williams

Class	Known as	Examples	Medical uses
IA	Fast-channel blockers	Quinidine, ajmaline, procainamide, disopyramide	Ventricular arrhythmias, prevention of paroxysmal recurrent atrial fibrillation (triggered by vagaloveractivity), procainamide in Parkinson-White syndrome, all these drugs increase QT interval
IB		Lidocaine, mexiletine, tocainide	Treatment and prevention during and immediately after myocardial infarction, though this practice is now discouraged given the increased risk of asystole; ventricular tachycardia
IC		Encainide, flecainide, propafenone, moricizine	Prevention of paroxysmal atrial fibrillation, treatment of re-entrant tachyarrhythmias of abnormal conduction system; these drugs are contraindicated immediately after myocardial infarction
II	Beta-blockers	Carvedilol, propranolol, esmolol, timolol, metoprolol, atenolol, bisoprolol, nebivolol	Reduction in myocardial infarction mortality, prevention of tachyarrhythmia's recurrences, propranolol has sodium channel-blocking effects
III		Amiodarone, sotalol, ibutilide, dofetilide, dronedarone	Sotalol: ventricular tachycardias and atrial fibrillation; Ibutilide: atrial flutter and atrial fibrillation, amiodarone: prevention of paroxysmal atrial fibrillation, and hemodynamically stable ventricular tachycardia
IV	Calcium channel blockers	Verapamil, diltiazem	Prevention of recurrences of paroxysmal supraventricular tachycardia, slowing-down of ventricular rate in patients with atrial fibrillation
V		Adenosine, digoxin, magnesium sulfate	Used in supraventricular arrhythmias, especially in heart failure with atrial fibrillation, contraindicated in ventricular arrhythmias or in the case of magnesium sulfate, used in torsades de pointes

Amiodarone

- III class (V-W) antiarytmikum
- Nejméně kardiodepresivní
- Mírně vazodilatační
- Efekt u 80% NOAF – pomalejší než 1c class
- Synergismus s $MgSO_4$ i.v.
- Toxický již za pár dní podávání
 - Prolongovaný QTc
 - Plicní toxicita (3-14 dní...)
 - Hyperthyreoza, dlouhodobě hypothyreoza
 - Hepatotoxicita



Synonymem antiarytmika v intenzivní péči se stala nejvíce toxická medikace !



...one but not propafenone impairs bioenergetics and autophagy of myocardial cells

...čová^a, Vlasta Němcová^b, Milada Halačová^{a,c}, Petr Waldauf^a, Martin Balík^d, Duška^{a,*}

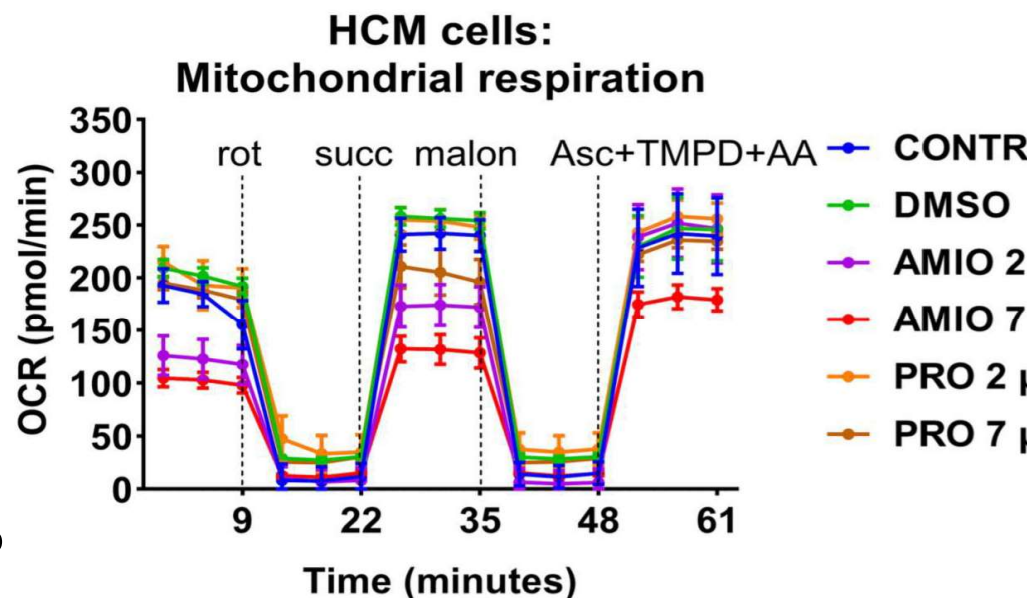
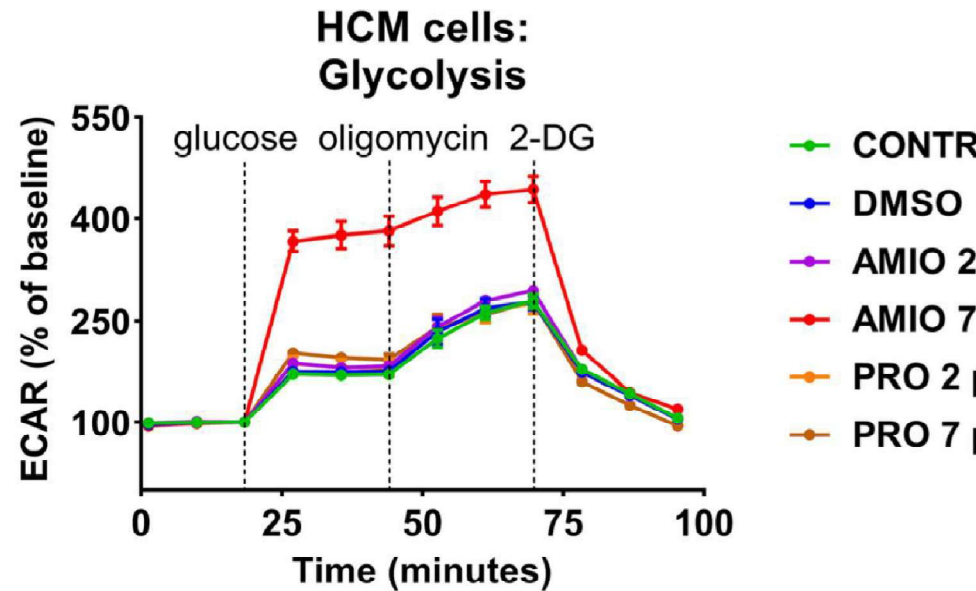
...h expozice terapeutickým hladinám amiodaron
...bo propafenon: 2 a 7 ug/ml

...miodaron s dose-dependentním efektem na
...tochondrial uncoupling, přepnutí z
...idativního metabolismu na anaerobní
...ykolýzu s poklesem ATP

...tofagie lidských kardiomyocytů

...opafenone bezpečnější na buněčné úrovni

...nická implikace pro vysoké dávky amiodaronu ?

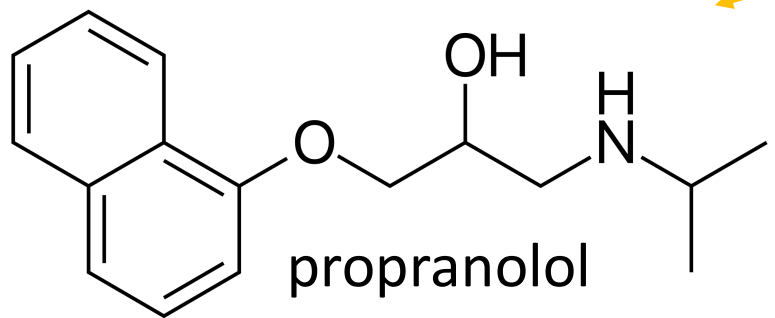
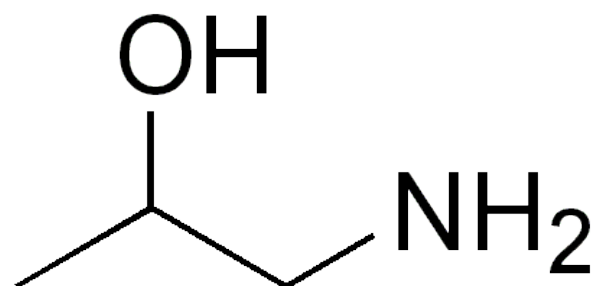


propranolamine jako chemický základ betablokátorů...a většiny antiarytmik

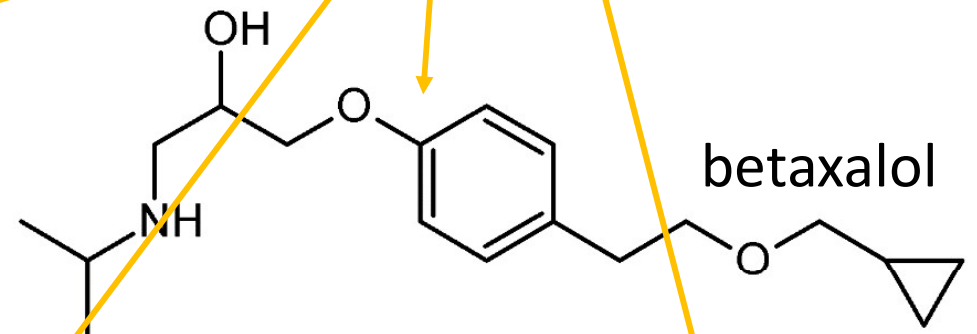
Klasifikace antiarytmik: Vaughan-Williams

Class II – betablokátoři

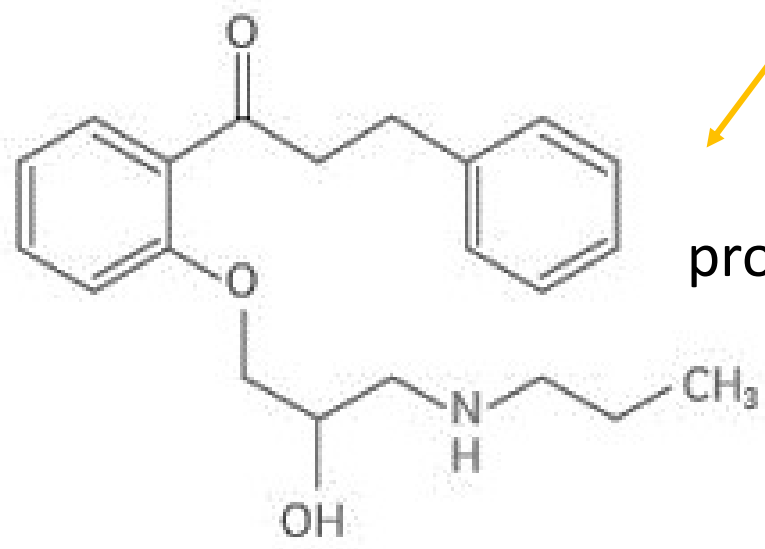
Class Ic - propafenone



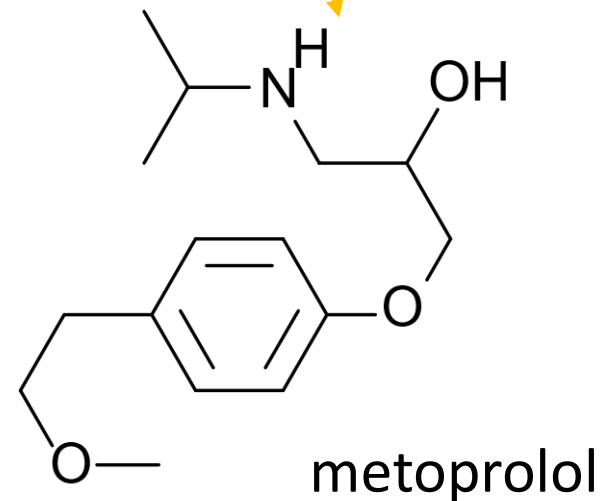
propranolol



betaxalol



propafenone



metoprolol

Propafenon

Účinné a rychlé antiarytmikum (1-2h)

Kontraindikován u

- Těžké dysfunkce LK
- Převodních poruch > Ist AV block

Monitoring PQ

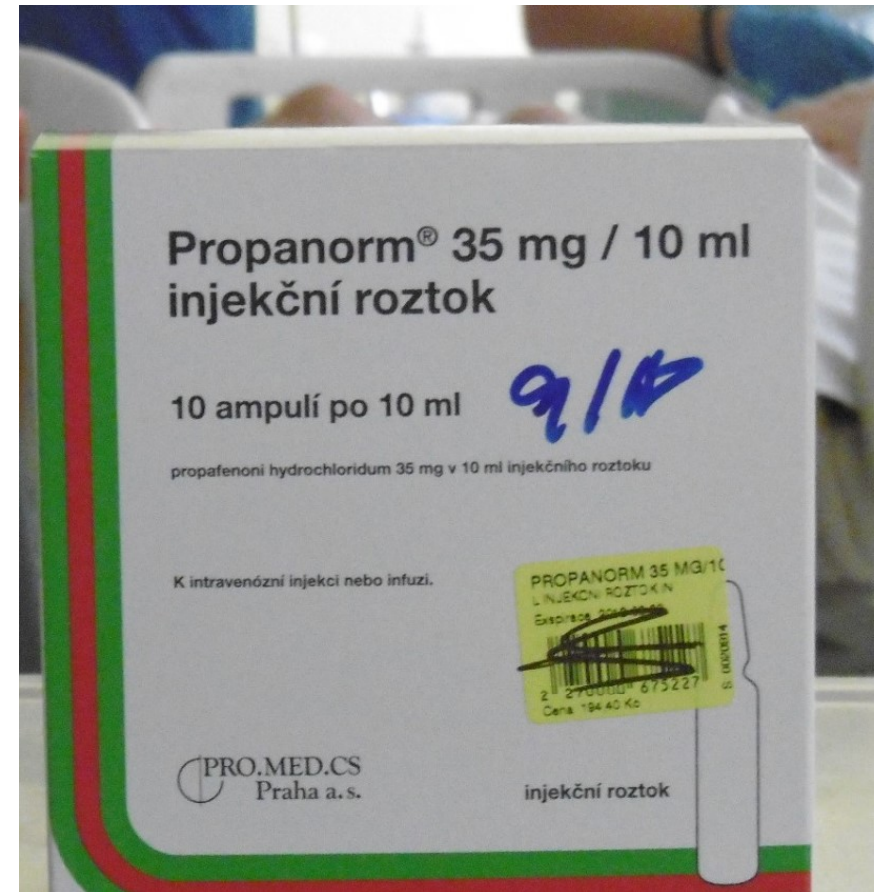
Pozor na interakce v ARF a při zhoršení jater



Flecainide/encainide nepopulární na ICU pro reportované fatální kazuistiky – dose related toxicity



CASE REPORT



Cardiology Journal
2013, Vol. 20, No. 2, pp. 203–205
DOI: 10.5603/CJ.2013.0035
Copyright © 2013 Via Medica
ISSN 1897–5593

Arrhythmogenic effect of flecainide toxicity

Pierre-Yves Courand¹, Franck Sibellas¹, Sylvain Ranc¹, Audrey Mullier²,
Gilbert Kirkorian¹, Eric Bonnefoy¹

Průběhy z 1c třídy V-W ?

The New England Journal of Medicine

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MARCH 21, 1991

Number 12

EFFECTS ON QUALITY AND MORBIDITY IN PATIENTS RECEIVING ENCAINIDE, FLECAINIDE,
OR PLACEBO

The Cardiac Arrhythmia Suppression Trial

Randomized Trial – pacienti s ischemic. chor. srdeční (před a po AMI) exponováni 1c class vs placebo

1c class vyšší mortalita, incl. EF_LV < 30% (!)

ambulantní kardiologie, ambulantní – follow up 10 měsíců

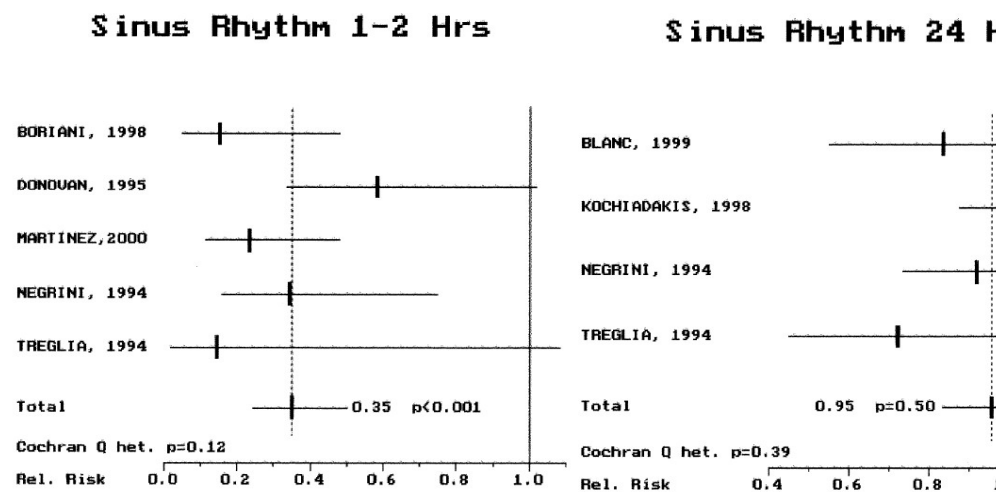
nejvíce citovaná studie 1c třídy není srovnatelná u kriticky nemocných !!!

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Volume 41
ISSN 0735-1097
PII S0735-1097(03)00000-0

Amiodarone Versus Placebo and Class Ic Drugs for Cardioversion of Recent-Onset Atrial Fibrillation: A Meta-Analysis

Philippe Chevalier, MD, PhD,* Alexis Durand-Dubief, MD,* Haran Burri, MD,* Michel Cucherat, MD,* Gilbert Kirkorian, MD,* Paul Touboul, MD*



- 6 studií na amiodarone vs placebo a 6 1c class vs placebo
- propafenon peak efekt v 1-2h, srovnatelné s amiodaronem ve 24h



propafenone for supraventricular arrhythmias in septic shock: A randomized controlled trial
Comparison to amiodarone and metoprolol☆☆☆

Authors: I. Kolnikova^a, M. Maly^a, P. Waldauf^b, G. Tavazzi^c, J. Kristof^a

Outcome: Antiarytmická účinnost (24h)

24h success: simultaneous electrical cardioversion (23.7% amiodarone, 35.5% propafenone, ns)

24h survival: 73.5% amiodarone, 88.9% propafenone, 92.3% metoprolol

Outcome: Mortality

28-day mortality: amio 40.4%, propaf 30.4%, metoprolol 21.4% (all ns)

90-day mortality: amio 49.6%, propaf 39.5%, metoprolol 21.4% (all ns)

Conclusion: PRCT: outcome ve 12 měsících

Survival at 12 months: higher in propafenone than in amiodarone

Adjusted 12m survival: HR amiod vs propaf 1.58 (1.04; 2.4), p=0.03

Multivariate analysis: 12m HR cardioversion versus acute arrhythmia:

HR 0.67, p=0.113

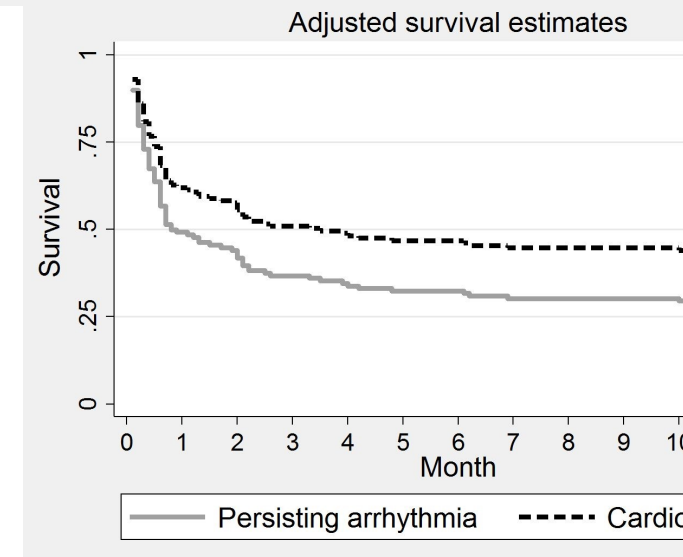
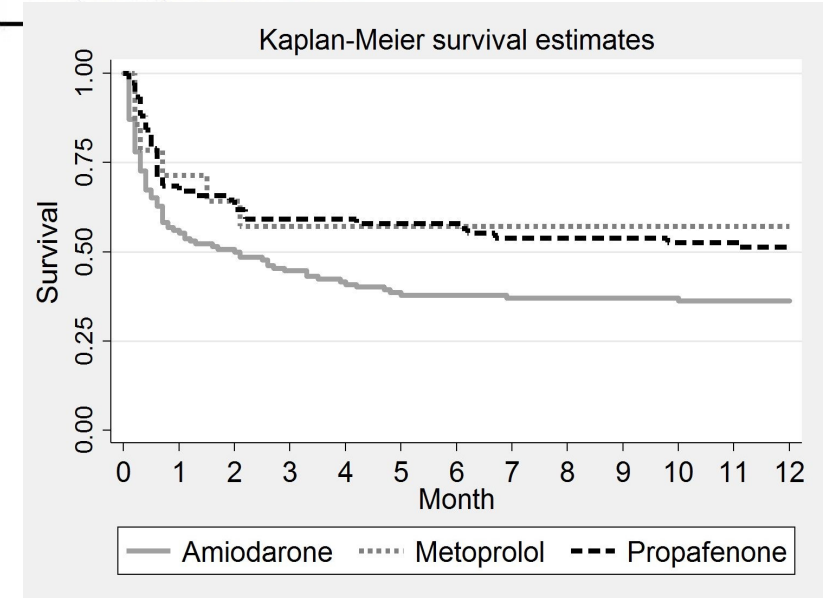
234 patients with septic shock and SV arrhythmia

163 (69.7%) atrial fibrillation

34 (14.5%) chronic atrial fibrillation

27 (11.5%) SVT

10 (4.3%) atrial flutter



Propafenone vs Amiodarone in Septic Shock

Journal of Critical Care 41 (2017) 16–23

Contents lists available at ScienceDirect

Journal of Critical Care

journal homepage: www.jccjournal.org



Cardiovascular Drugs and Therapy

<https://doi.org/10.1007/s10557-020-06998-8>

SHORT COMMUNICATION

Vasopressin in Patients with Septic Shock and Dynamic Left Ventricular Outflow Tract Obstruction

Martin Balik¹ • Adam Novotny¹ • Daniel Suk¹ • Vojtech Matousek¹ • Michal Maly¹ • Tomas Brozek¹ • Guido



ELSEVIER



propafenone for supraventricular arrhythmias in septic shock—Comparison to amiodarone and metoprolol☆☆☆
Balik^{a,*}, I. Kolinikova^a, M. Maly^a, P. Waldauf^b, G. Tavazzi^c, J. Kristof^a

propafenone for supraventricular arrhythmias in septic shock—Comparison to amiodarone and metoprolol

International Journal of Cardiology 266 (2018) 147–14

Contents lists available at ScienceDirect

International Journal of Cardiology

journal homepage: www.elsevier.com/locate/ijcard



European Heart Journal: Acute Cardiovascular Care (2024) 00, 1–9
<https://doi.org/10.1093/ehjacc/zuae023>

ORIGINAL SCIENTIFIC PAPER
General intensive care



Contents lists available at ScienceDirect

Journal of Critical Care

journal homepage: www.journals.elsevier.com/journal-of-critical-care

The outcomes of patients with septic shock treated with propafenone compared to amiodarone for supraventricular arrhythmias are related to end-systolic left atrial volume

Petr Waldauf¹, Michal Porizka², Jan Horejsek², Michal Otahal², Eva Svobodova², Ivana Jurisinova², Michal Maly², Tomas Brozek², Jan Rulisek², Pavel Trachta², Tomas Tencer¹, Adela Krajcova¹, Frantisek Duska¹, and Martin Balik¹ ^{2*}

Intensive Care Med

<https://doi.org/10.1007/s00134-023-07208-3>

Echocardiography predictors of sustained sinus rhythm after cessation of supraventricular arrhythmia in patients with septic shock

M. Balik^{a,*}, P. Waldauf^{b,1}, M. Maly^a, T. Brozek^a, J. Rulisek^a, M. Porizka^a, R.

Management of arrhythmia in sepsis and septic shock

Martin Balik, Vojtech Matousek, Michal Maly, Tomas Brozek

atrial fibrillation in critically ill patients – more than rate control therapy?☆☆☆

Intensive Care Med

Intensive Care and Intensive Care, 1st Faculty of Medicine, Charles University, Ger...
<https://doi.org/10.1007/s00134-024-07713-z>

Efficacy and safety of propafenone as antiarrhythmic in septic shock compared to amiodarone: a prospective blind study

CORRESPONDENCE

Beta-blockers as antiarrhythmics in septic shock: a light at the end of the tunnel?

Martin Balik^{1*}, G. Tavazzi^{2,3} and M. Slama⁴

ORIGINAL

Propafenone versus amiodarone for supraventricular arrhythmias in septic shock: a randomised controlled trial

Martin Balik^{1*}, Michal Maly¹, Tomas Brozek¹, Jan Rulisek¹, Michal Porizka¹, Robert Sachl¹, Michal Ot

Propafenone vs Amiodarone in Septic Shock,
ClinicalTrials.gov ID: NCT03029169

12
Martin Balik^{1*}, Petr Waldauf², Michal Maly¹, Vojtech Matousek¹, Tomas Brozek¹, Jan Rulisek¹, Michal Porizka¹, Robert Sachl¹, Michal Otahal¹, Petr Brestovansky¹, Frantisek Duska¹, Adela Krajcova¹, Frantisek Duska¹, Jan Rulisek¹, Tomas Brozek¹

NAL

propafenone versus amiodarone supraventricular arrhythmias in septic shock: randomised controlled trial

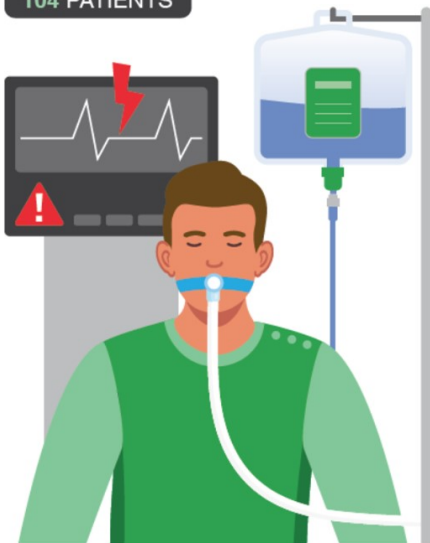
lik^{1*}, Michal Maly¹, Tomas Brozek¹, Jan Rulisek¹, Michal Porizka¹, Robert Sachl¹, Michal Otahal¹,
ovansky¹, Eva Svobodova¹, Marek Flaksa¹, Zdenek Stach¹, Jan Horejsek¹, Lukas Volny¹,
sinova¹, Adam Novotny¹, Pavel Trachta¹, Jan Kunstyr¹, Petr Kopecky¹, Tomas Tencer², Jaroslav Pazout²,
lavek³, Frantisek Duska², Adela Krajcova² and Petr Waldauf²

PATIENTS

arrhythmia and a left ventricular ejection fraction above 35%.

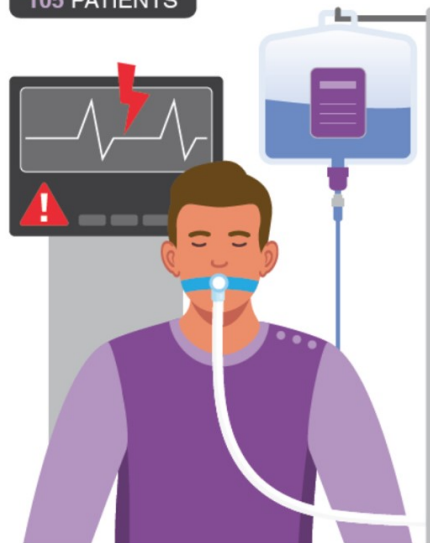
PROPAFENONE GROUP

104 PATIENTS



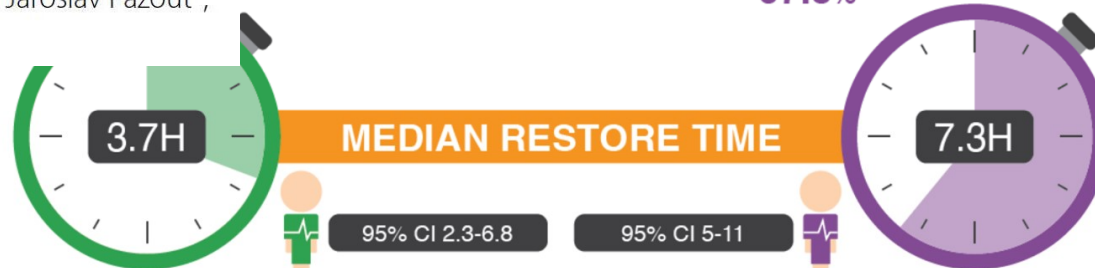
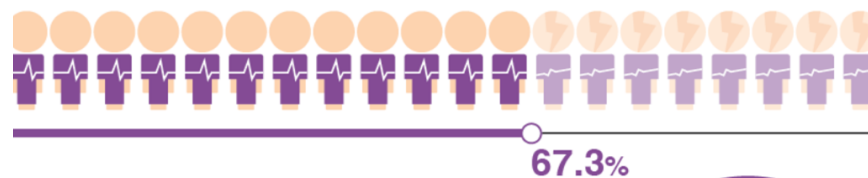
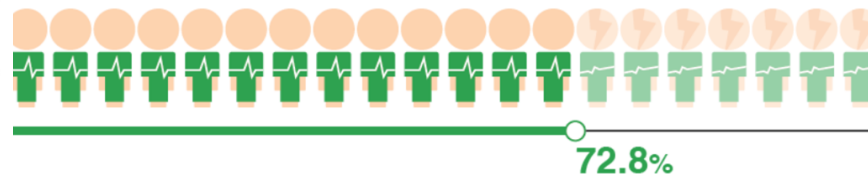
AMIODARONE GROUP

105 PATIENTS

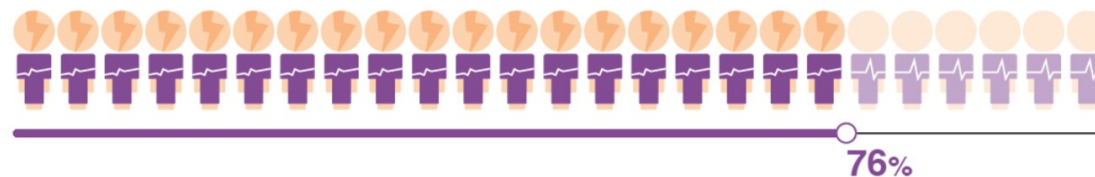
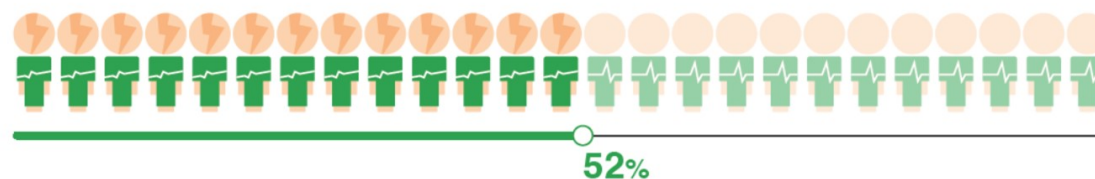


RESULTS

PATIENTS IN SINUS RHYTHM AFTER 24H



ARRHYTHMIA RECURRENCES



Propafenone haemodynamic safety in septic shock

Electric CV 40.4% in propafenone vs 2.4% in amiodarone, $p=0.2$

5 (7.2%) patients unblinded

fractory SVA with a cross over (3 from P and 6 from A to P)

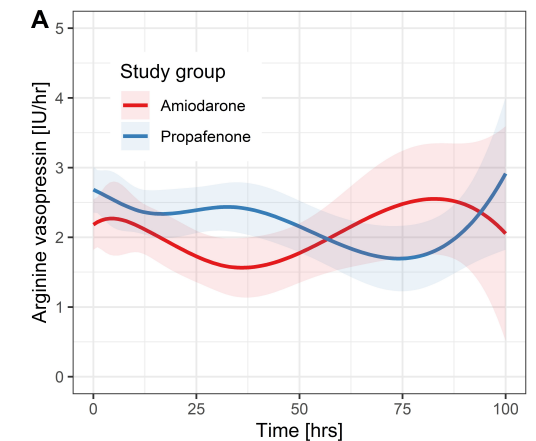
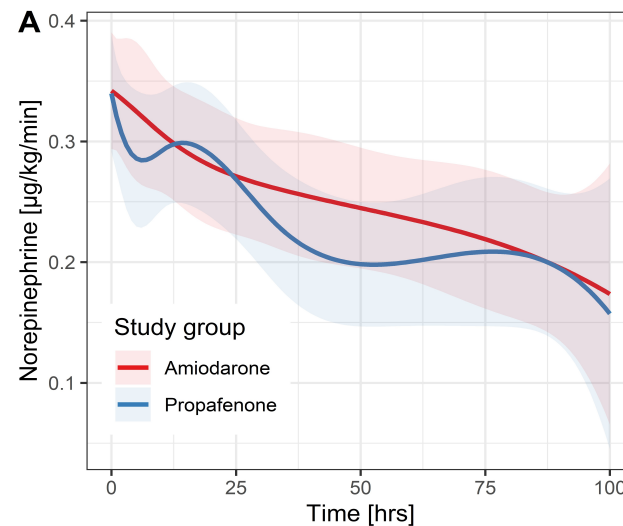
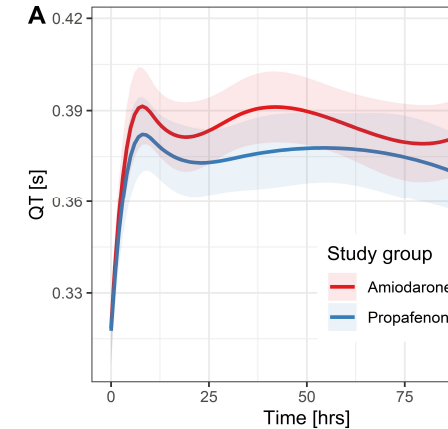
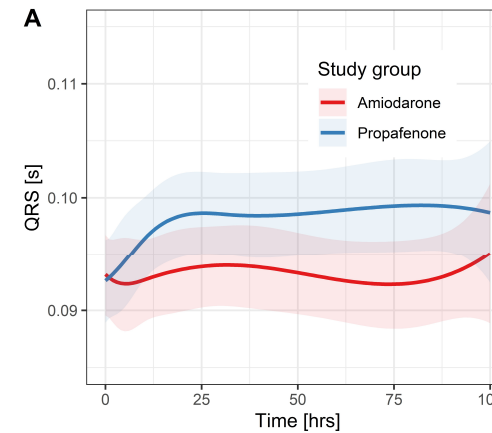
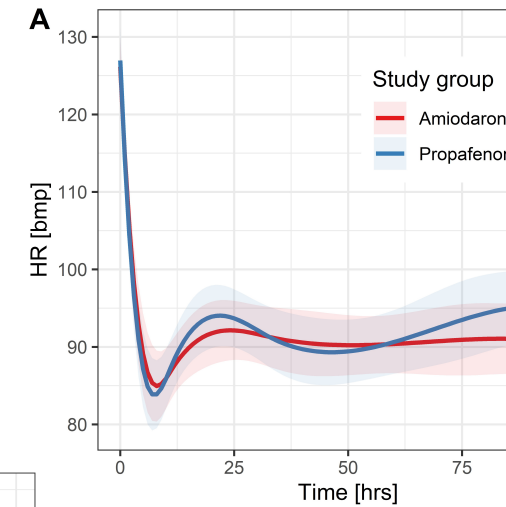
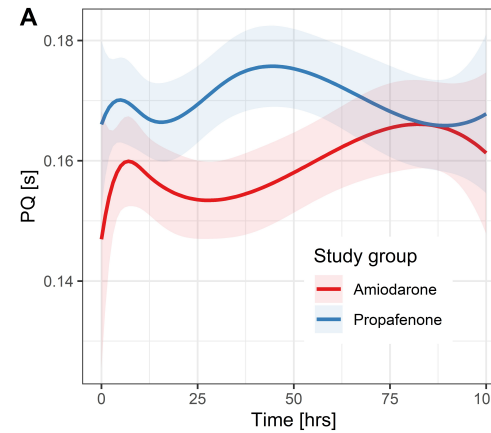
interrupted due to TTS (4 in P and 2 in A)

no medication induced arrhythmias

decreases of the vasopressors similar

24h, 71.6% in P liberated from NAD vs 7% in A, $p=0.4$

day: 88.1% in P vs 81% in A, $p=0.3$

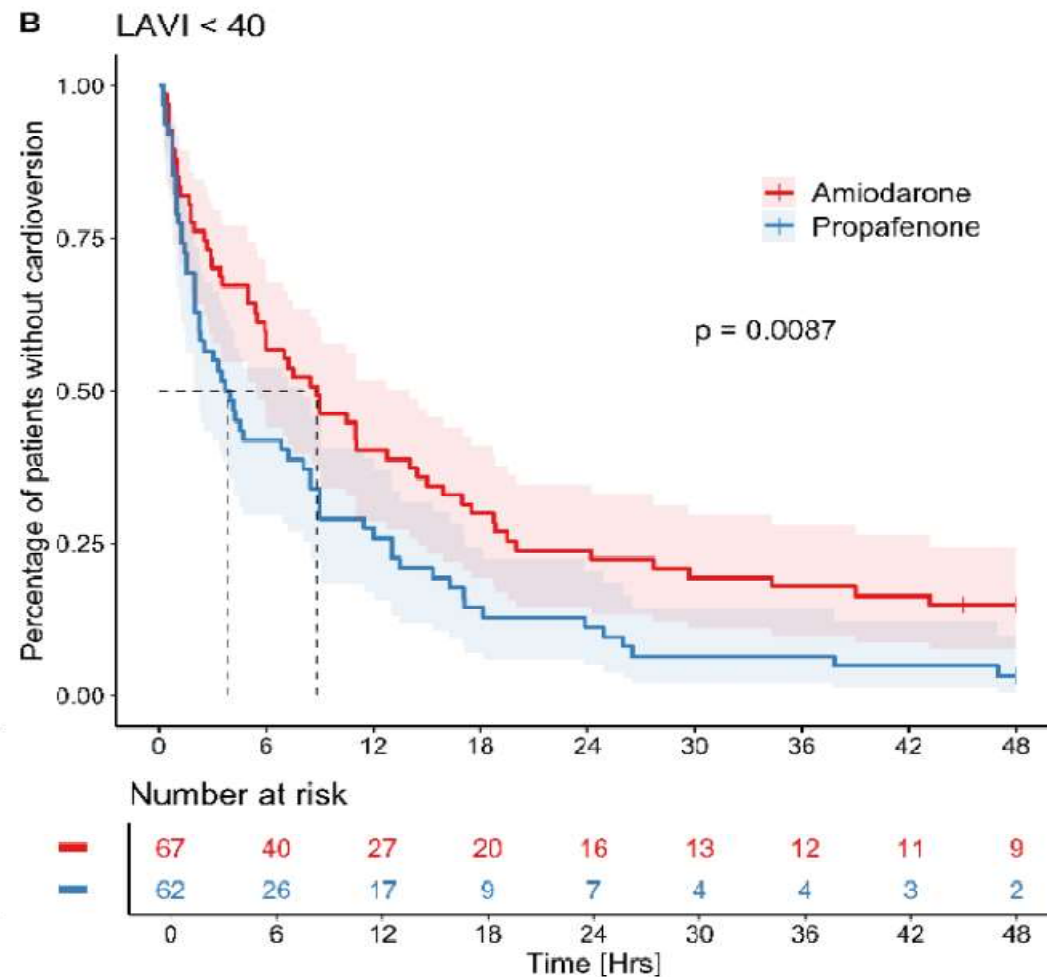
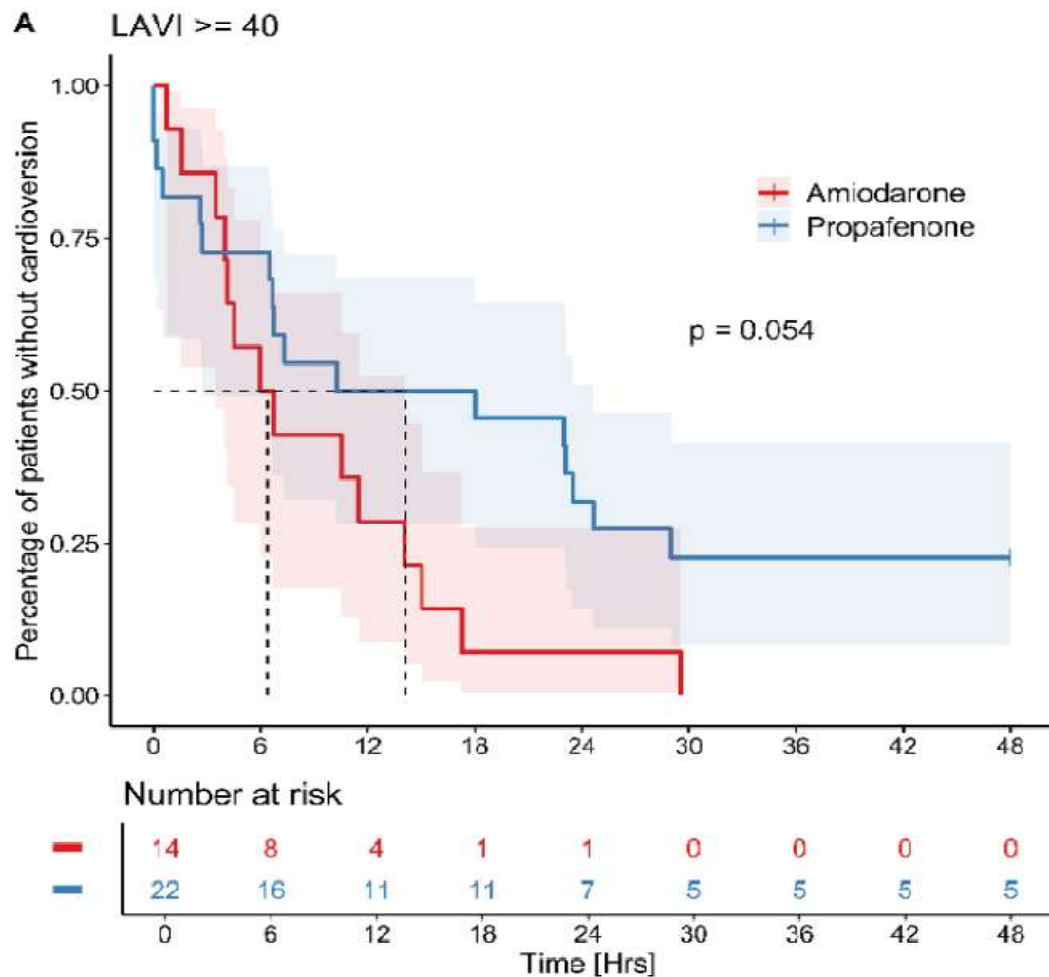


dilatovaná LA: p=0.04 pro primary outcome SR ve 24h (propafenon vs amiodaron)

h: LAVI < 40 ml/m² sinus v 81.3% propafenon vs 65.7% amiodaron (p=0.04)

LAVI < 40 ml/m² lépe s propafenon (p=0.009): 3.6 (2.0; 7.25)h vs 8.5 (5.0;12.8)h v amiodaronu

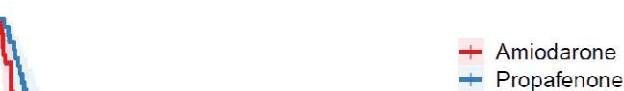
LAVI ≥ 40 ml/m² v amiodaronu (p=0.05): 6.4 (3.5; 14.1)h do KV vs 18 (2.8; 24.7)h v propafenonu



Outcomes of patients with septic shock treated with propafenone compared to amiodarone for supraventricular arrhythmias related to end-systolic left atrial volume

Valdauf¹, Michal Porizka², Jan Horejsek², Michal Otahal², Eva Svobodova², Kurisinova², Michal Maly², Tomas Brozek², Jan Rulisek², Pavel Trachta², Tencer¹, Adela Krajcova¹, Frantisek Duska¹, and Martin Balik^{2*}

LAVI < 40 ml/m²

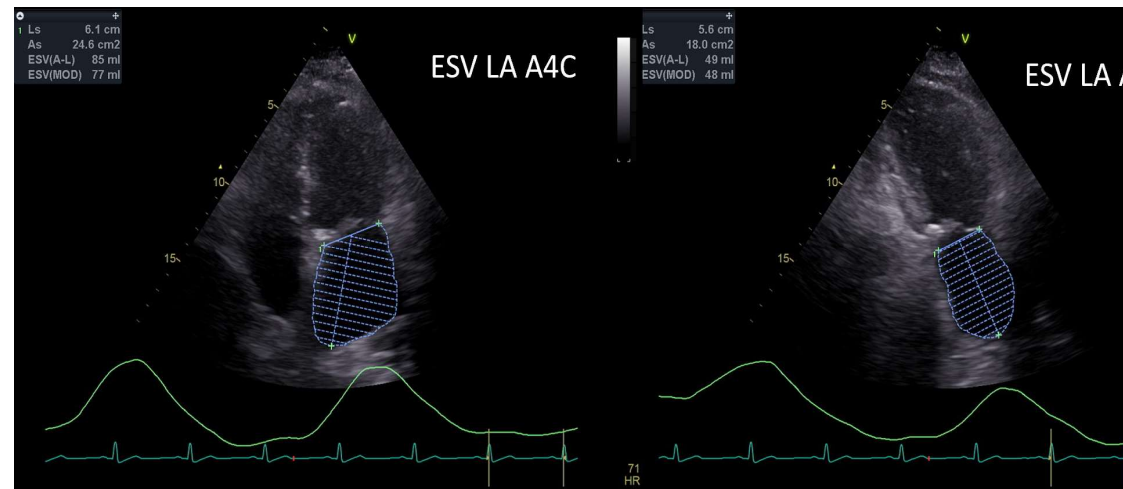
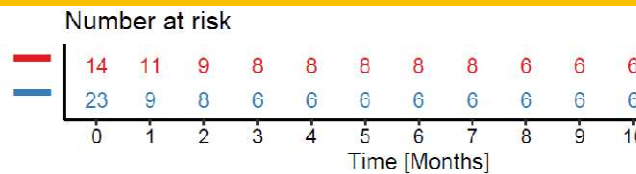
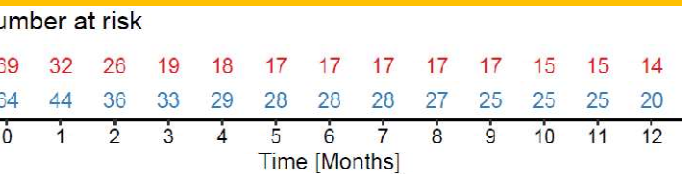


B LAVI ≥ 40 ml/m²



Propafenone (1C class V-W)

Neškodí kriticky nemocným pacientům v septickém šoku
 Má naopak příznivý dopad na přežití a udržení sinus rytmu u pacientů s nedilatovanou levou síní
 Toto je t.č. jediná studie poukazující na outcome benefit (derivátu) betablokátorů v septickém šoku (vs trials L-Stress, Landisep.....)



- LAVI < 40 ml/m²
 - SR v propafenon o 16% více než u amiodaron (primary outcome)
 - mortalitní benefit propafenone 1-roc (p=0.007), 1-roc (p=0.014)
 - HR 0.60 pro mortalitu 1-roc (p=0.014)

Intensive Care Med
<https://doi.org/10.1007/s00134-024-07713-z>

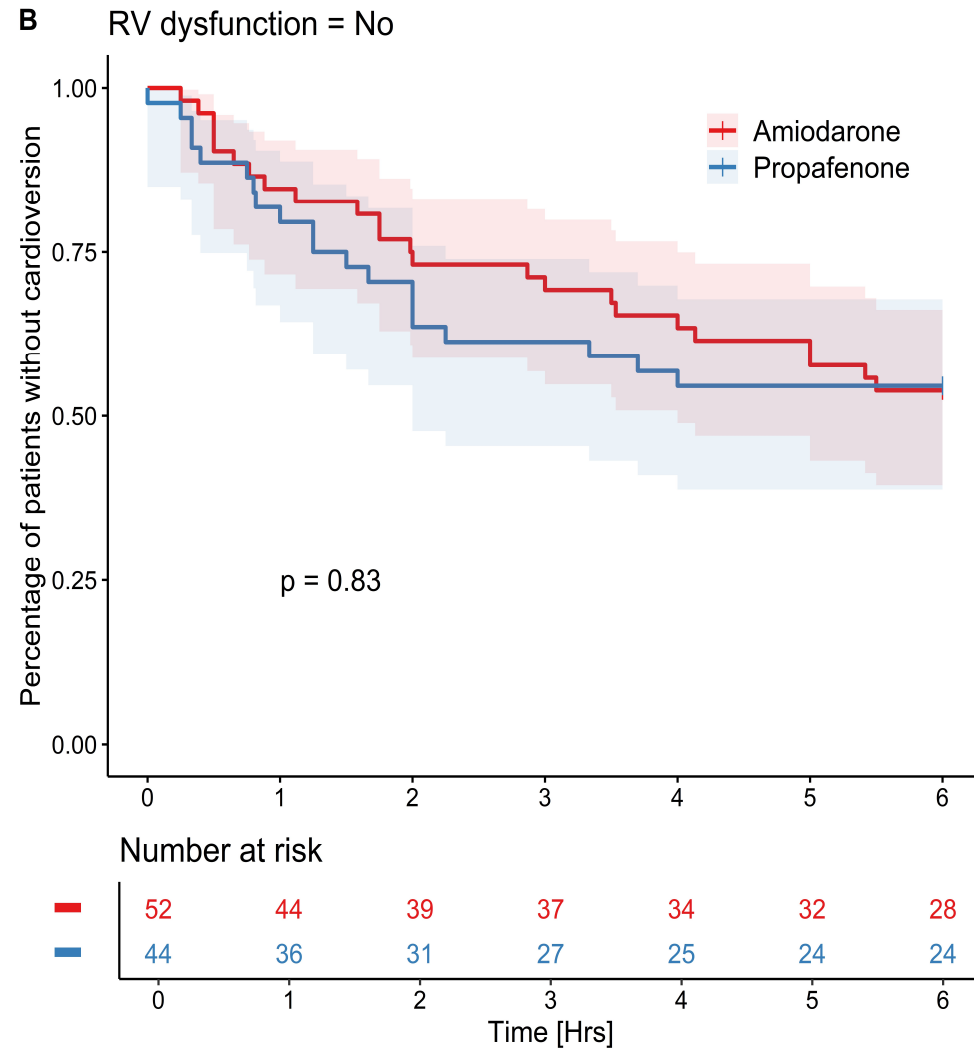
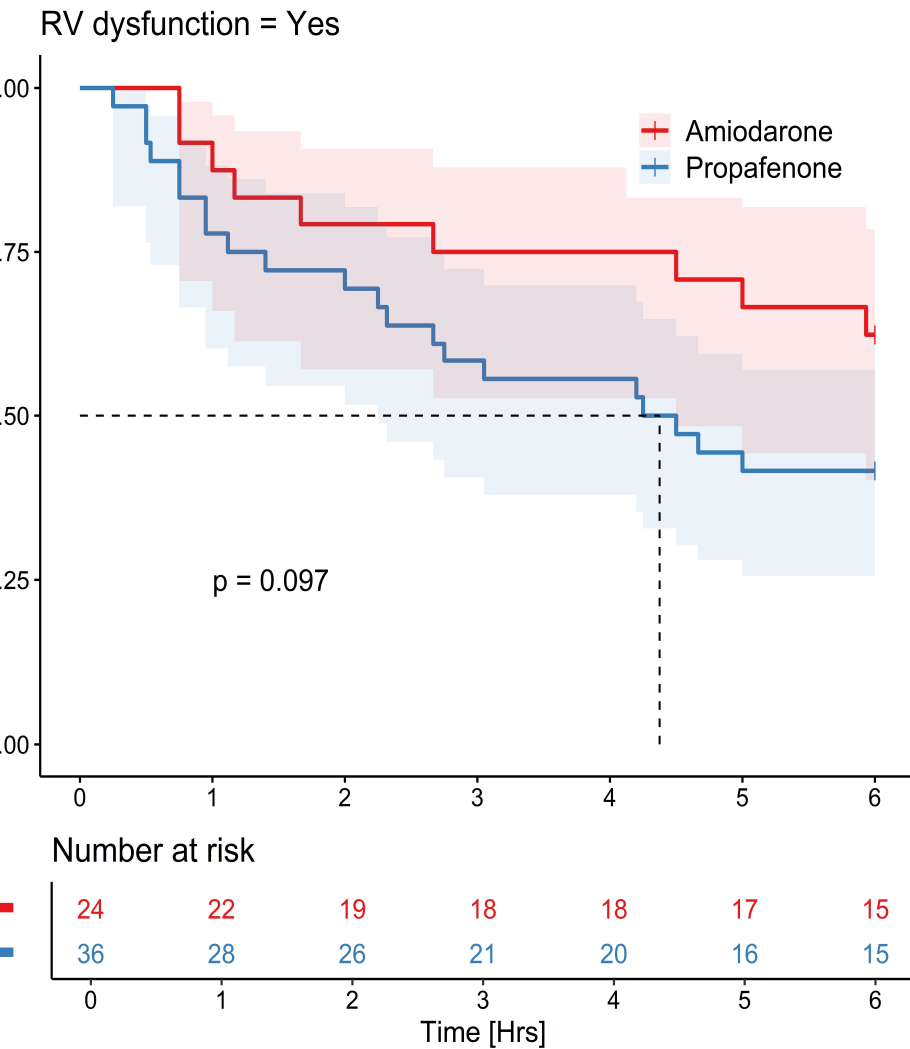
CORRESPONDENCE

Beta-blockers as antiarrhythmics in septic shock: a light at the end of the tunnel

Martin Balik^{1*}, G. Tavazzi^{2,3} and M. Slama⁴

Dysfunkční PK a SVA – propafenon nesignifikantně lepší

1 (37.9%) pac. se středně-těžce dilatovanou PK, TAPSE<15 mm, PAPs>40 mmHg versus 10 (62.1%) pac. s normální až mírně dysfunkční PK.

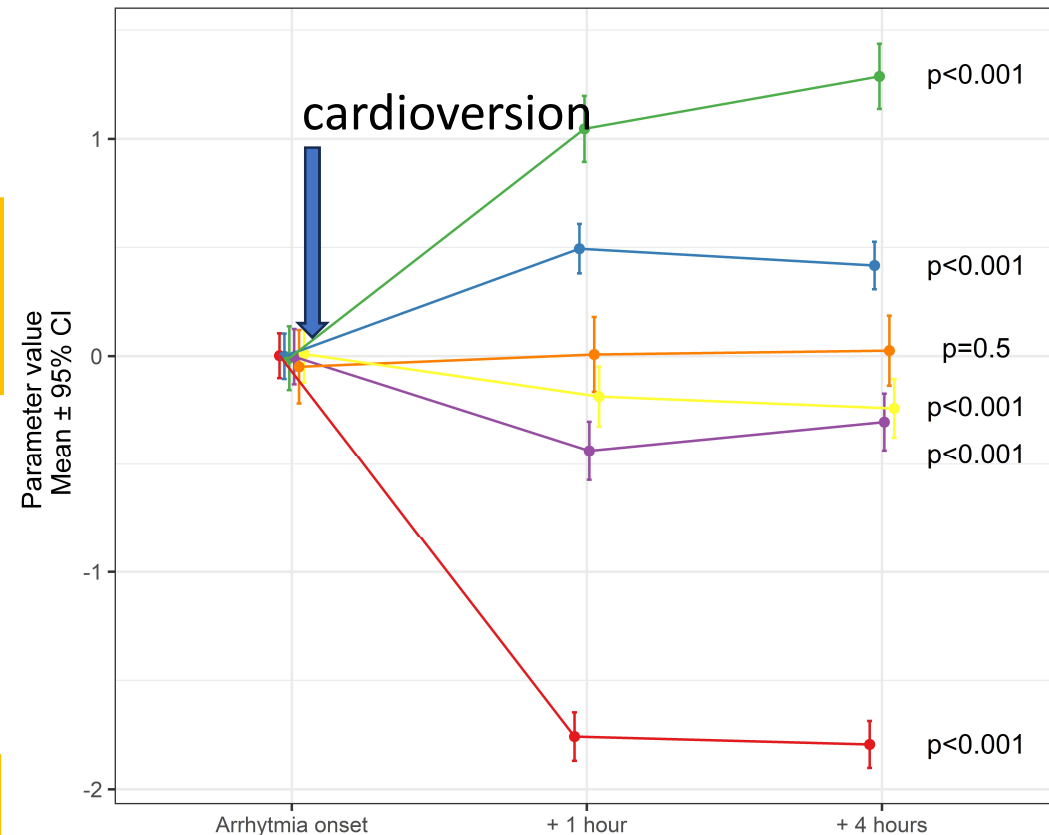


se změní s kardioverzí v septickém šoku ? Vliv pulzaticlního toku.

Parameter	Arrhythmia onset (n=209)	Cardioversion +1h (n=173)	Cardioversion +4h (n=187)	p-value
(min)	130 (111; 147)	85 (78; 96)	85 (77; 94)	<0.001
(mmHg)	75 (70; 82)	80 (75; 85)	80 (75; 85)	<0.001
(mmHg)	8.6 (8; 9.2)	8 (7.4; 8.6)	8.1 (7.5; 8.7)	0.01
(l)	50 (42; 60)	66 (58; 78)	69 (60; 79)	<0.001
(/min)	6.315 (5.332; 7.654)	5.496 (4.849; 6.656)	5.787 (4.862; 6.901)	<0.001
(min.m ²)	3.165 (2.618; 3.792)	2.839 (2.401; 3.304)	2.932 (2.450; 3.371)	<0.001

MAP (↑) = CO (↓) x SVR(...NAD↓)..?
 arytmie vs sinus po kardioverzi

(mmHg)	44 (37; 54)	47 (38; 54)	46 (37; 54)	0.5
(dyn/s.cm ⁻⁵)	867 (825; 909)	1064 (1020; 1107)	1003 (961; 1046)	<0.001
(μg/kg.min)	0.30 (0.15; 0.45)	0.25 (0.12; 0.40)	0.21 (0.10; 0.40)	<0.001
of dosage		-0.05 (-0.09; -0.02)	-0.07 (-0.1; -0.04)	
(IU/h)	2.00 (2.00; 3.00)	2.00 (0.00; 2.00)	2.00 (0.00; 2.00)	<0.001
of dosage		-0.76 (-1.09; -0.42)	-0.84 (-1.17; -0.52)	
patients	N=55	N=42	N=49	
amine	3.00 (2.75; 3.00)	3.00 (2.50; 4.00)	4.00 (3.00; 5.00)	0.6
(.min)				
patients	N=11	N=9	N=7	



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Echocardiography predictors of sustained sinus rhythm after cardioversion of supraventricular arrhythmia in patients with septic shock

M. Balik^{a,*}, P. Waldauf^{b,1}, M. Maly^a, T. Brozek^a, J. Rulisek^a, M. Porizka^a, R. Sachl^a

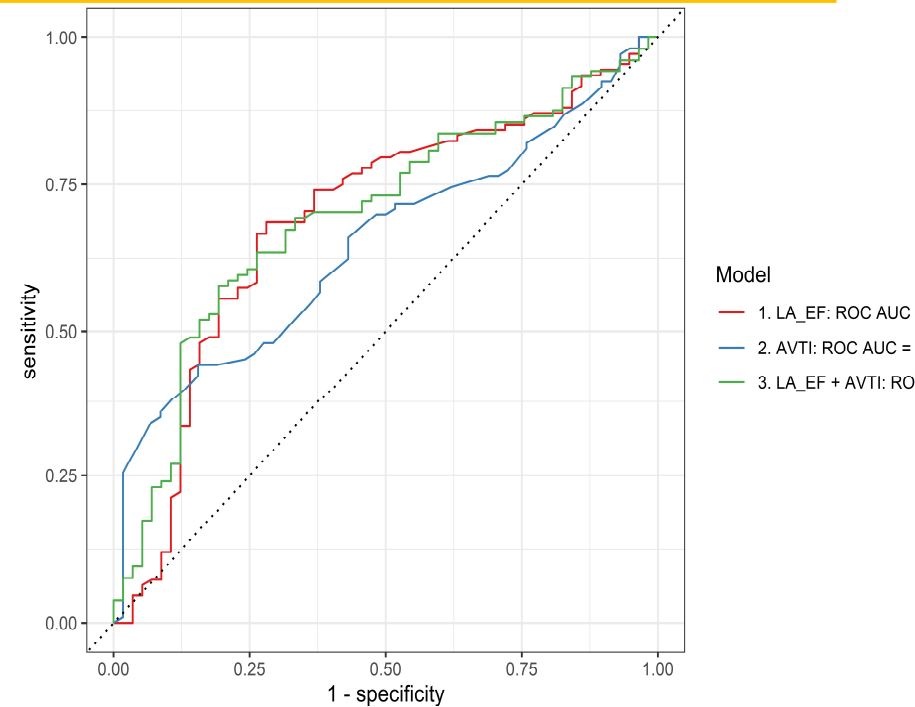
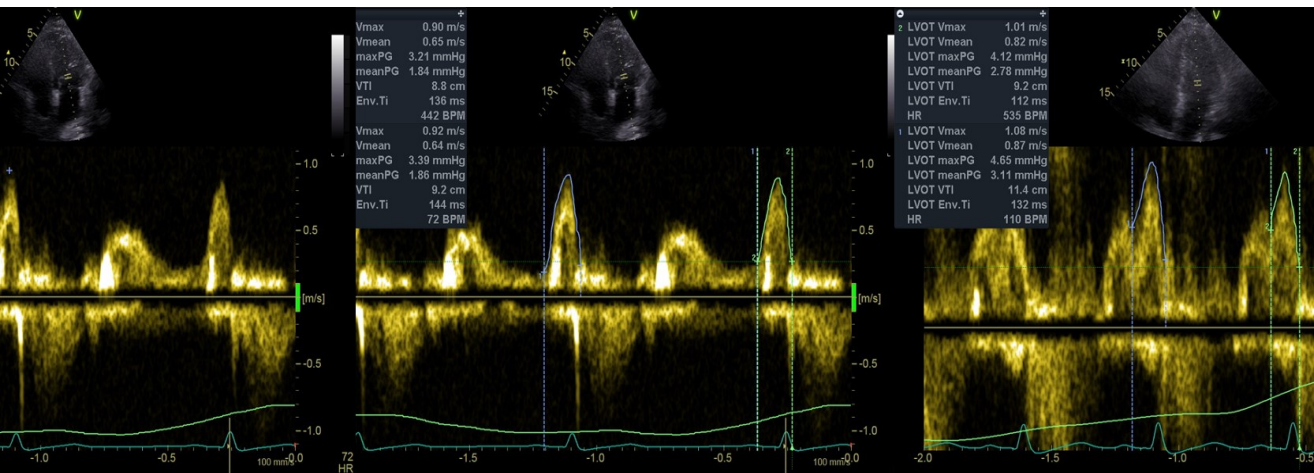


- LA_ESD a LAVI nestačí k predikci udržení SR (cut off ?)

- Echo guided kardioverze !

ultrasonography predictors of sustained sinus rhythm after cardioversion of atrial fibrillation with ventricular arrhythmia in patients with septic shock

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parameter at 4h	0 recurrence N=65	1 recurrence N=41	2 recurrences N=28	3 recurrences N=16	>3 recurrences N=37	p-value
LAESD (%)	44 (36, 49)	37 (28, 43)	31 (28, 38)	35 (31, 42)	30 (25, 36)	<0.001
LAVI (cm ³)	8.65 (7.13, 9.50)	8.00 (6.25, 9.85)	7.85 (5.88, 8.85)	6.80 (6.00, 8.10)	6.50 (5.65, 8.30)	0.007

Děkuji za pozornost !

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