

Co je nového v léčbě AKS?

O. Hlinomaz



I. IKAK, ICRC, FN u sv. Anny, Brno

Lékař prvního kontaktu

Typické stenokardie > 5 min, EKG

NTG, (O₂), Kardegic 250mg i.v.

event. BB iv., nitráty iv., opiáty iv.

1. EKG s elevacemi ST úseků ⇒

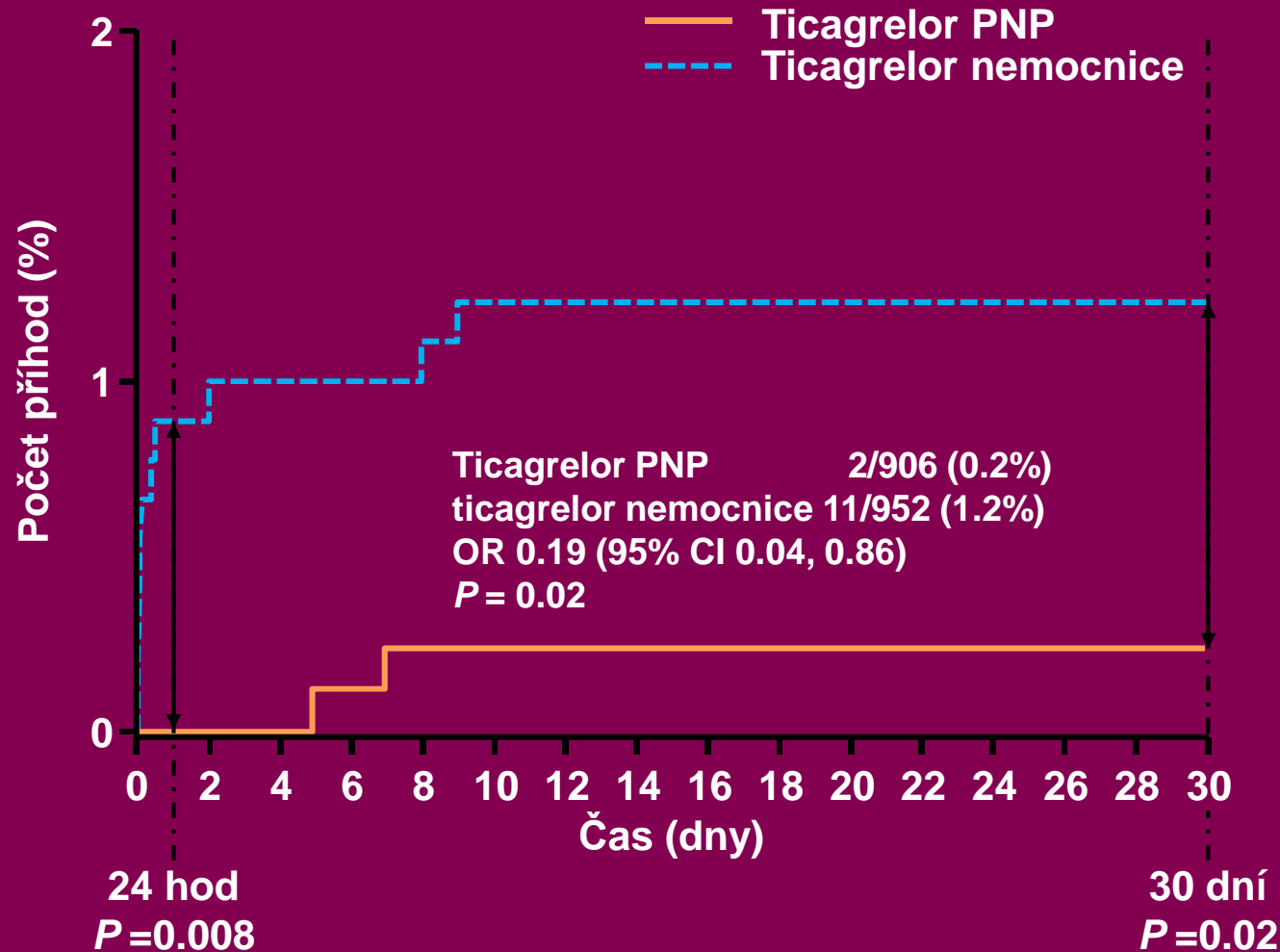
**(Brilique 180mg ev. Efient 60mg ev. Plavix 8 tbl.,
Heparin 70-100j/kg i.v.)**

ANGIOSÁL

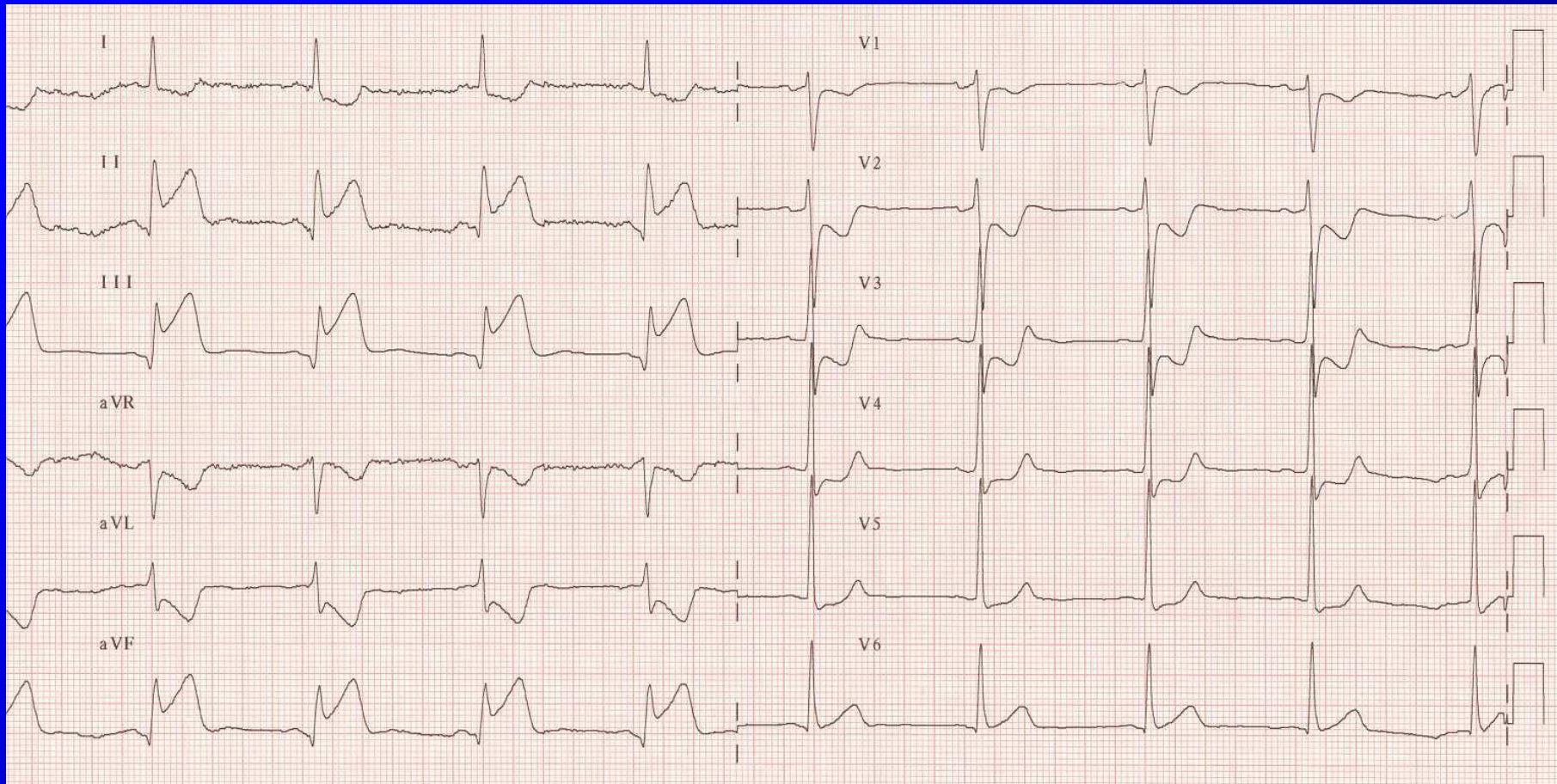
2. EKG bez elevací ST úseků ⇒ KJ

3. EKG neznámé ⇒ KJ

Úplná akutní trombóza ve stentu během 30 dní (sekundární cíl studie ATLANTIC)



STEMI



Boj o čas

v ČR 95% pac. přivezeno do kardiocentra RZP

Summary of important time targets



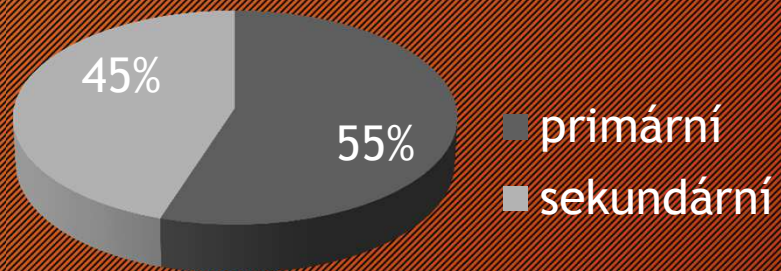
ESC

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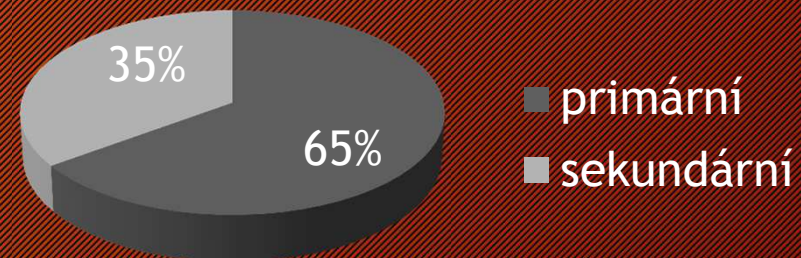
Intervals	Time targets
Maximum time from FMC to ECG and diagnosis.	≤10 min
Maximum expected delay from STEMI diagnosis to primary PCI (wire crossing) to choose primary PCI strategy over fibrinolysis (if this target time cannot be met, consider fibrinolysis).	≤120 min
Maximum time from STEMI diagnosis to wire crossing in patients presenting at primary PCI hospitals.	≤60 min
Maximum time from STEMI diagnosis to wire crossing in transferred patients.	≤90 min

Poměr primární/sekundární transport

2008



2017

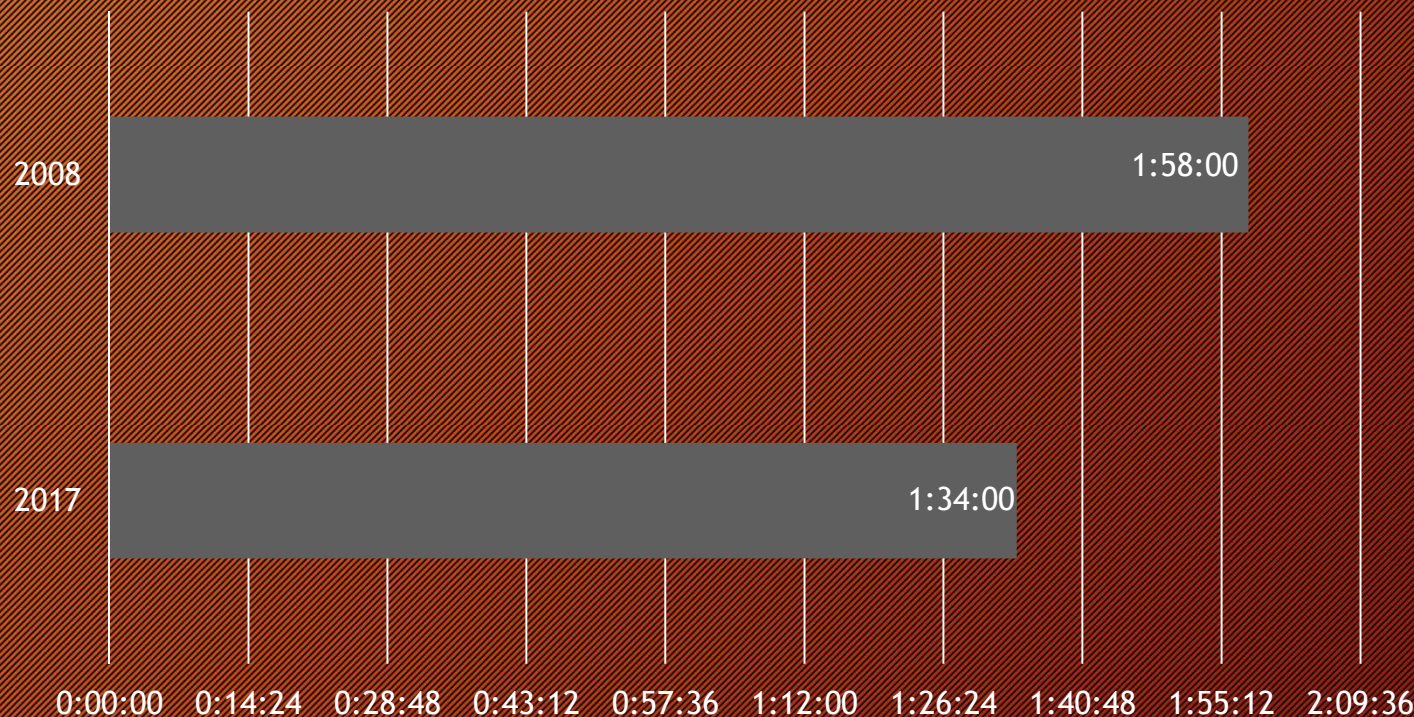


Zdržení způsobené pacientem

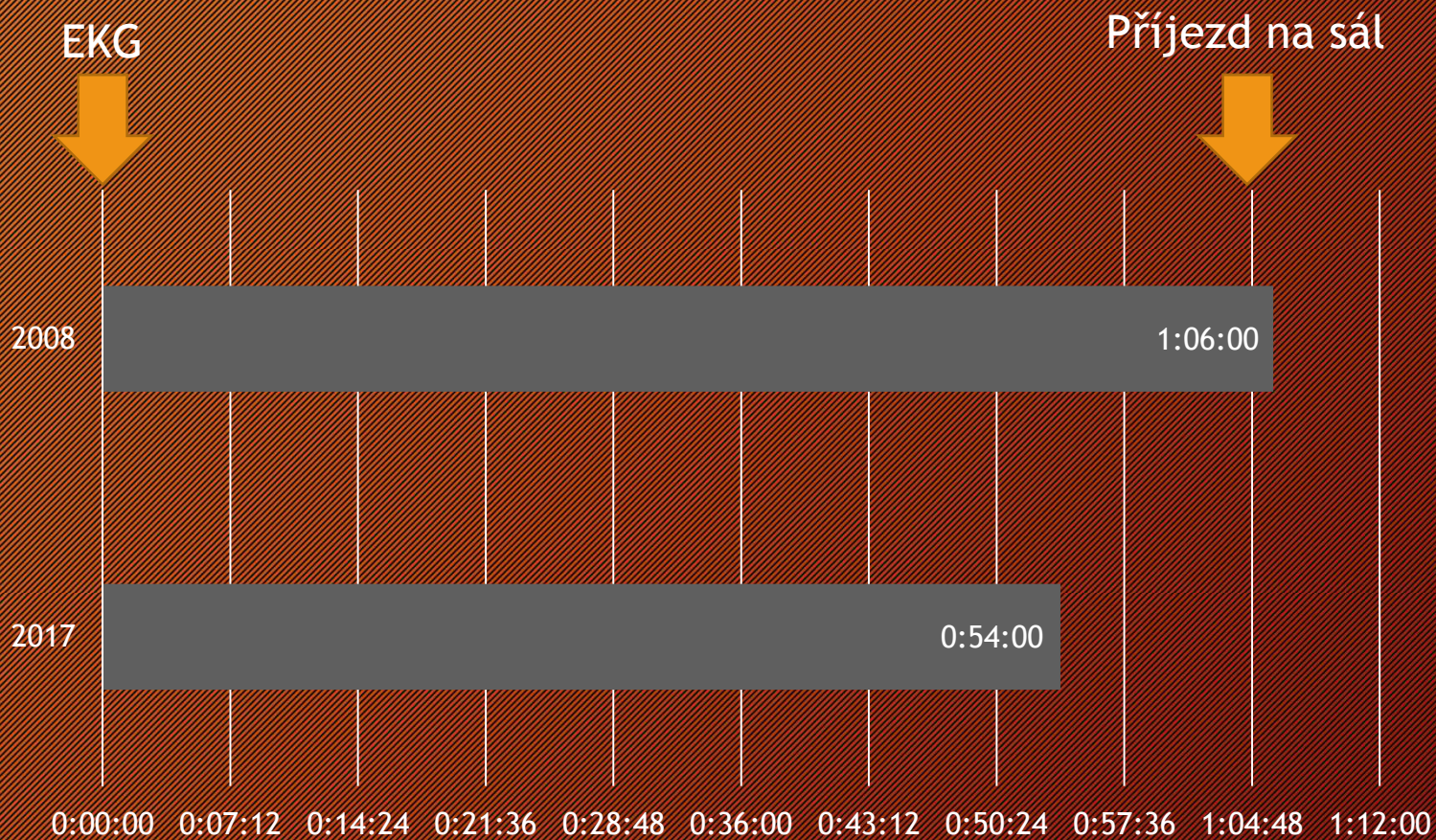
Počátek potíží



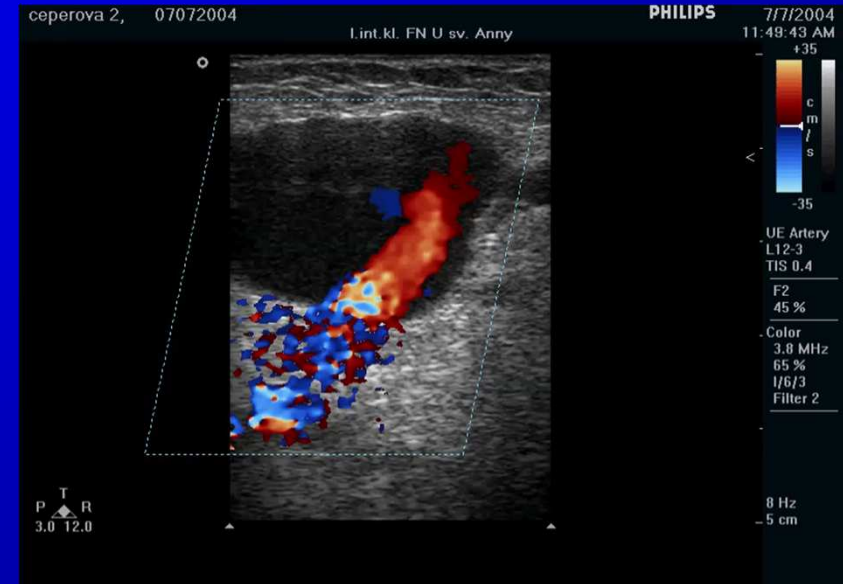
Čas hlášení



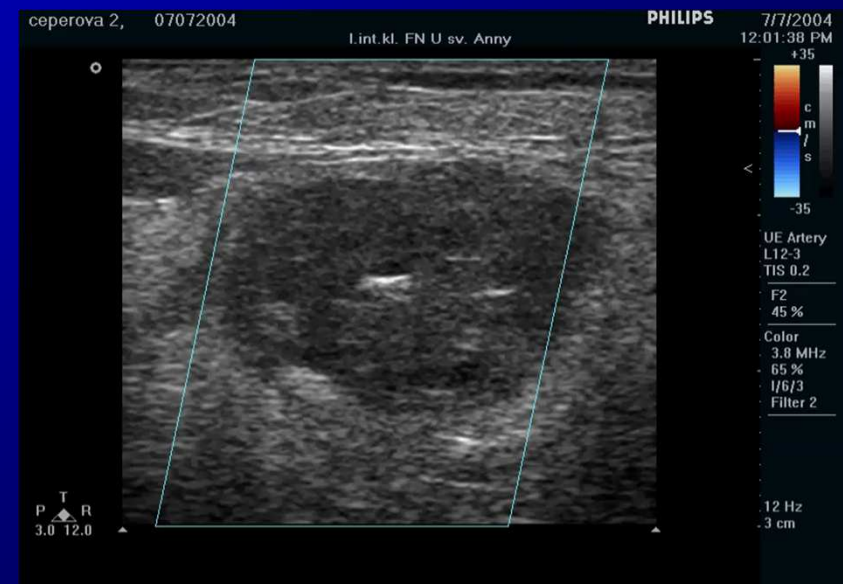
EKG / příjezd na sál



Radiální přístup



96% (52%)



What is new in 2017 Guidelines on AMI-STEMI



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2012 CHANGE IN RECOMMENDATIONS 2017

Radial access	MATRIX
DES over BMS	EXAMINATION, COMFORTABLE-AMI, NORSTENT
Complete Revascularisation	PRAMI, DANAMI-3-PRIMULTI, CVLPRIT, Compare-Acute
Thrombus Aspiration	TOTAL, TASTE
Bivalirudin	MATRIX, HEAT-PPCI
Enoxaparin	ATOLL, Meta-analysis
Early Hospital Discharge	Small trials & observational data
Oxygen when SaO ₂ <95%	Oxygen when SaO ₂ <90% AVOID, DETO2X
Same dose i.v. in all patients	Half dose i.v. in Pts >75 years STREAM

What is new in 2017 Guidelines on AMI-STEMI (continued)



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2017 NEW RECOMMENDATIONS

- Additional lipid lowering therapy if LDL >1.8 mmol/L (70 mg/dL) despite on maximum tolerated statins. **IMPROVE-IT, FOURIER**
- Complete revascularization during index primary PCI in STEMI patients in shock. Expert opinion

- Cangrelor if P2Y₁₂ inhibitors have not been given. **CHAMPION**
- Switch to potent P2Y₁₂ inhibitors 48 hours after fibrinolysis. Expert opinion
- Extend Ticagrelor up to 36 months in high-risk patients. **PEGASUS-TIMI 54**
- Use of polypill to increase adherence. **FOCUS**

- Routine use of deferred stenting. **DANAMI 3-DEFER**

I

IIa

IIb

III

What is new in 2017 Guidelines on AMI-STEMI (continued)

2017 NEW / REVISED CONCEPTS

MINOCA AND QUALITY INDICATORS:

- New chapters dedicated to these topics.

STRATEGY SELECTION AND TIME DELAYS:

- Clear definition of first medical contact (FMC).
- Definition of “time 0” to choose reperfusion strategy (i.e. the strategy clock starts at the time of “STEMI diagnosis”).
- * Selection of PCI over fibrinolysis: when anticipated delay from “STEMI diagnosis” to wire crossing is ≤ 120 min.
- Maximum delay time from “STEMI diagnosis” to bolus of fibrinolysis agent is set in 10 min.
- “Door-to-Balloon” term eliminated from guidelines.

* **TIME LIMITS FOR ROUTINE OPENING OF AN IRA:**

- 0-12h (Class I); 12-48h (Class IIa); >48h (Class III).

ELECTROCARDIOGRAM AT PRESENTATION:

- * Left and right bundle branch block considered equal for recommending urgent angiography if ischaemic symptoms.

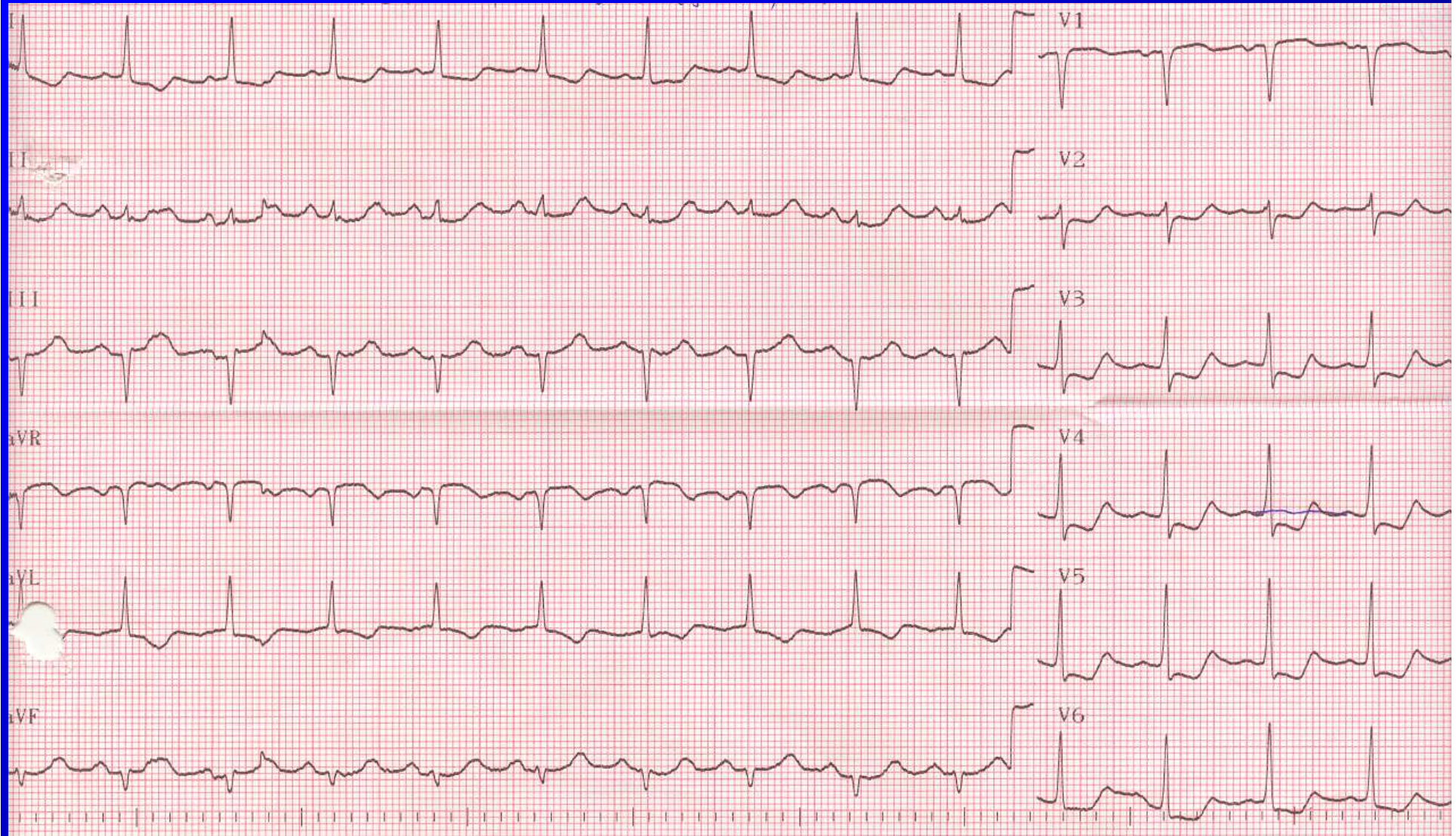
TIME TO ANGIOGRAPHY AFTER FIBRINOLYSIS:

- Timeframe is set in 2-24h after successful fibrinolysis.

PATIENTS TAKING ANTICOAGULANTS:

- Acute and chronic management presented.

AKS bez elevací ST úseků



EKG

**zásadní pro rozhodnutí o způsobu léčby
ale !!!**

- **málo senzitivní při nepřítomnosti stenokardií**
- **málo senzitivní pro nález na RC-RMS**
- **EKG se mění během několika minut**
- **neodhalí všechny prognosticky závažné stavy**

Atypical electrocardiographic presentations (continued)



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Isolated posterior myocardial infarction

Isolated ST depression ≥ 0.5 mm in leads V_1 - V_3 and ST-segment elevation (≥ 0.5 mm) in posterior chest wall leads V_7 - V_9

Ischaemia due to left main coronary artery occlusion or multivessel disease

ST depression ≥ 1 mm in eight or more surface leads, coupled with ST-segment elevation in aVR and/or V_1 , suggests left main-, or left main equivalent- coronary obstruction, or severe three vessel ischaemia.

Vysoké riziko

Okamžitá koronarografie

- **protrahované nebo opakované stenokardie nereagující na léčbu**
- **stenokardie + deprese ST + cTnI**
- **stenokardie + srdeční selhání + arytmie**
- **PCI před <6 měsíci**

XA/4/4
Fr. 1
Left Coronary 15 fps



M, 40 let
NAP

23.3 LAO
32.8 CAU
112.9 kV
632.0 mA
Velikost pixelu: 0.258 mm
W: 256 L: 128



XAV616

Fr. 1

Left Coronary 15 fps

24.9 LAO

22.5 CRA

83.8 kV

853.0 mA

Velikost pixelu: 0.258 mm

WV: 256 L: 128

XA/17/17
Fr. 1
Fluoroscopy



8.4 LAO
26.1 CAU
118.6 kV
1.0 mA
Velikost pixelu: 0.258 mm
W: 256 L: 128

Onyx 3,5 18

XA/24/24

Fr. 1

Left Coronary 15 fps

8.4 LAO

26.1 CAU

89.8 kV

795.0 mA

Velikost pixelu: 0.258 mm

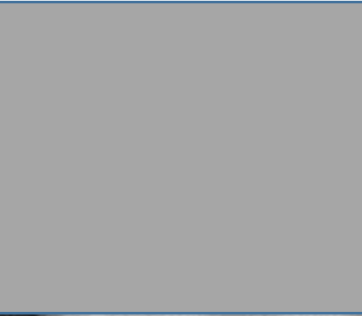
W: 256 L: 128

XA/29/29
Fr. 1
Left Coronary 15 fps



7.8 LAO
28.7 CAU
82.2 kV
869.0 mA
Velikost pixelu: 0.258 mm
W: 256 L: 128

RIA (TAP)
Onyx 3,0 18
kissing



XA/35/35

Fr. 1

Left Coronary 15 fps

Handwritten signature

17.1 LAO

24.3 CAU

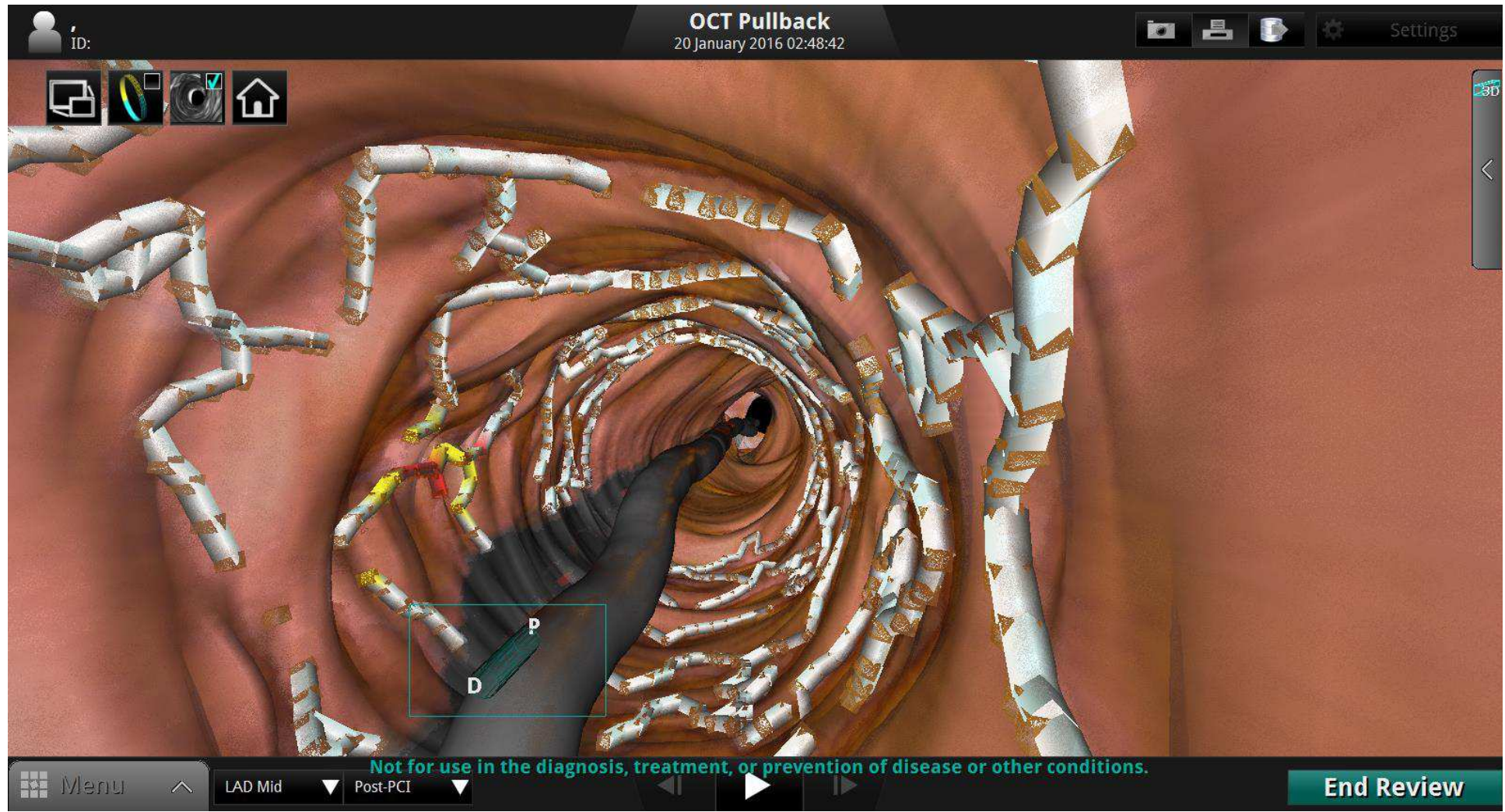
91.8 kV

778.0 mA

Velikost pixelu: 0.258 mm

W: 256 L: 128

OCT - MSO software



SDEC registry

- **Since May 2011**
- **OHCA > 18 y.o.**
- **Paris and suburbs**
- **Population : 6 828 583 (01/2018)**



INTRODUCTION	PROBLEMATIQUE	METHODS	RESULTATS	DISCUSSION	CONCLUSION
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Population

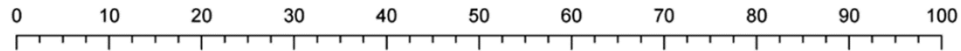
- **15/05/2011 to 15/05/2015**
- **All OHCA admitted alive to hospital**
- **Exclusion : obvious non-cardiac cause of OHCA**



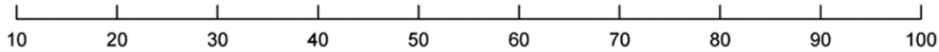
CAHP score

The CAHP (Cardiac Arrest Hospital Prognosis) score: a tool for risk stratification after out-of-hospital cardiac arrest

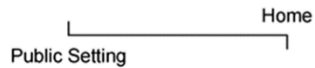
Points



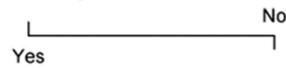
Age



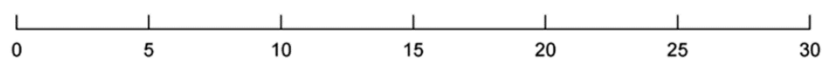
Arrest Setting



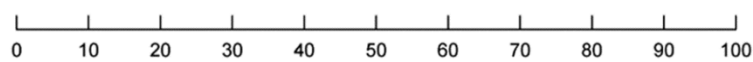
Shockable Rhythm



Collapse-BLS Duration (min)



BLS - ROSC Duration (min)



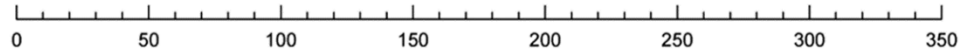
pH



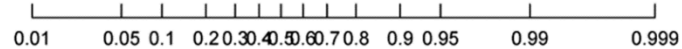
Epinephrine (mg)



Total Points



Risk of Poor Outcome

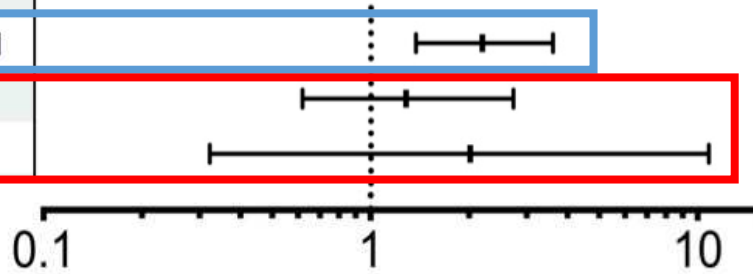


INTRODUCTION	PROBLEMATIQUE	METHODES	RESULTS	DISCUSSION	CONCLUSION
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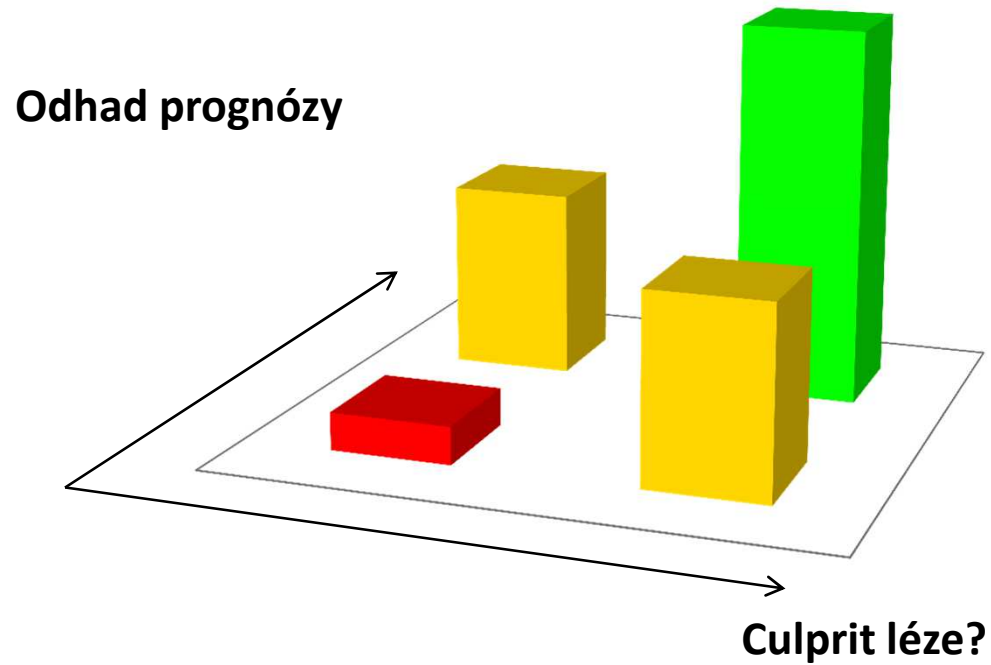
CA / Survival

TABLE 3 Association Between Early Invasive Strategy and Outcome, According to CAHP Score

CAHP Score	Number CAG/Patients	OR	95% CI	p Value
Survival				
<150	573/667 (86%)	2.3	1.4-3.9	0.001
150-200	311/469 (66%)	1.3	0.6-2.9	0.55
>200	128/274 (47%)	2.1	0.3-12.5	0.43



Koronaro všem po OHCA ?



Cardiac arrest

Recommendations	Class	Level
It is indicated that all medical and paramedical personnel caring for suspected myocardial infarction have access to defibrillation equipment and are trained in basic cardiac life support.	I	C
Urgent angiography (and PCI if indicated) should be considered in patients with resuscitated cardiac arrest without diagnostic <u>ST-segment elevation but with a high suspicion of ongoing myocardial ischaemia.</u>	IIa	C
Prehospital cooling using a rapid infusion of large volumes of cold i.v. fluid immediately after return of spontaneous circulation is not recommended.	III	B

Souhrn

- O₂ jen při pO₂<90%
- Ticagrelor v PNP při transportu >30 min
- Osvěta pacientů
- Urgentní koronaro u STEMI <48 h
- STE a VR, deprese v mnoha svodech – MVD (kmen)
- Nekatetrizovat všechny pac. s OHCA

Celková mortalita: STEMI, p-PCI

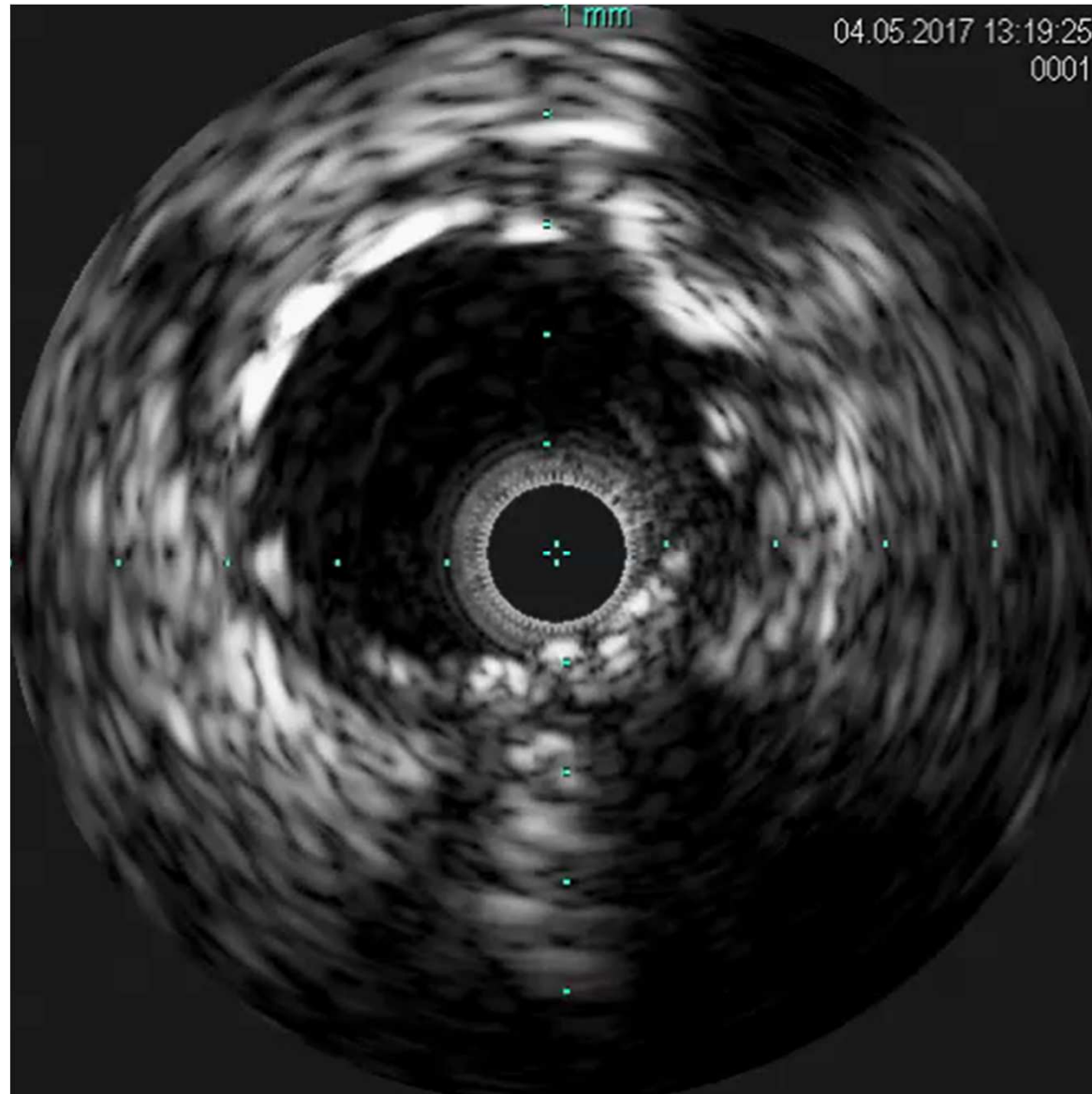
Mortality STEMI	2005	2006	2007	2008	2009	2010
hospitalization	3,8%	3,7%	3,1%	2,5%	2,9%	3,0%
30 days	6,9%	7,3%	7,0%	6,0%	7,0%	5,1%
1 year	11,5%	10,9%	10,1%	9,8%	10,4%	8,6%

Hospitalizační mortalita 3-4%, 30-ti denní mortalita 5-7%

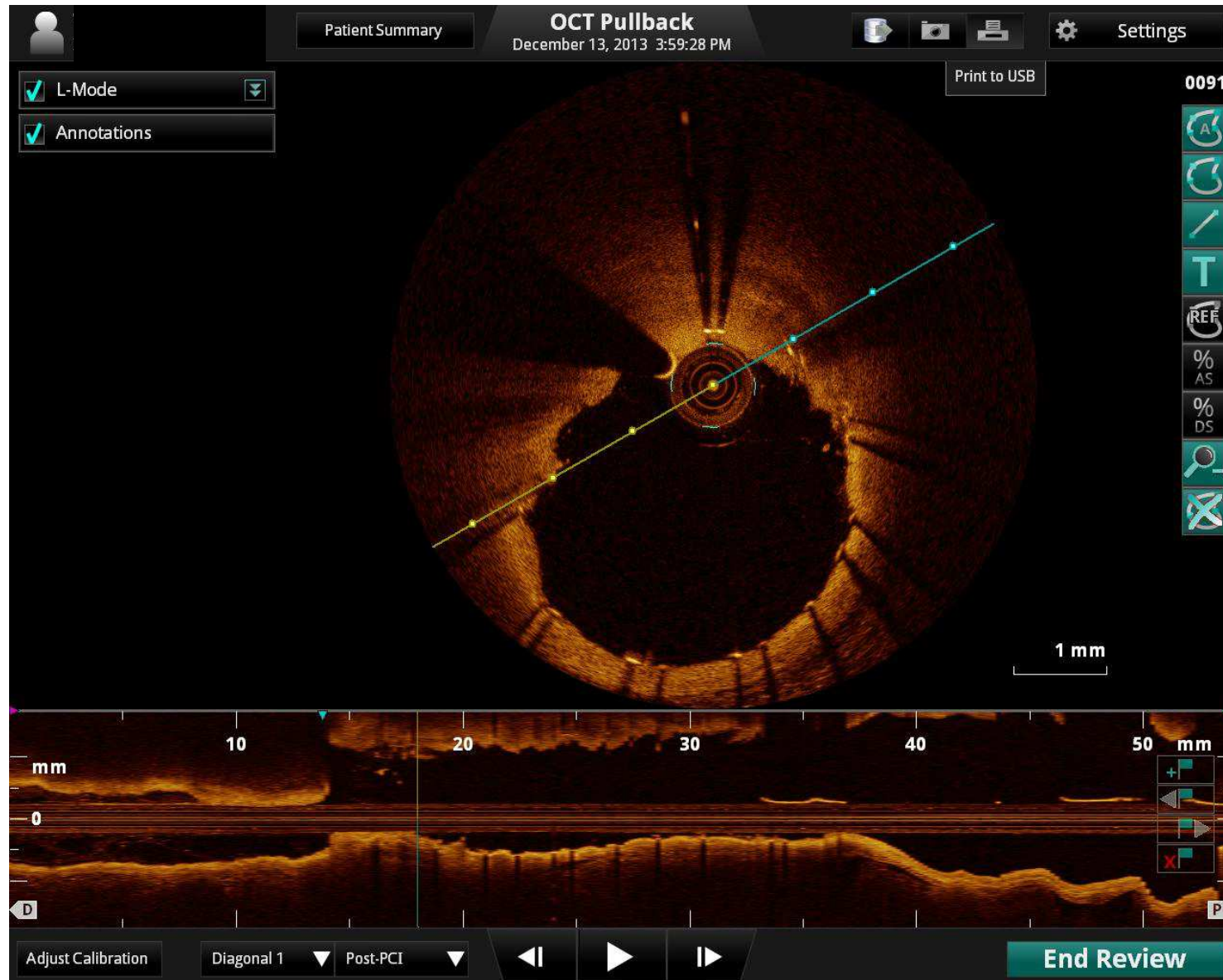
Mortalita	1 yr	2 yrs	3 yrs	4 yrs	5 yrs	6 yrs
Nr (n)	32 179	26 867	21 560	16 053	10 668	5 008
mortality	11,3%	14,5%	17,2%	20,5%	23,8%	25,5%

1 roční mortalita 9-11%, poté ~3% ročně

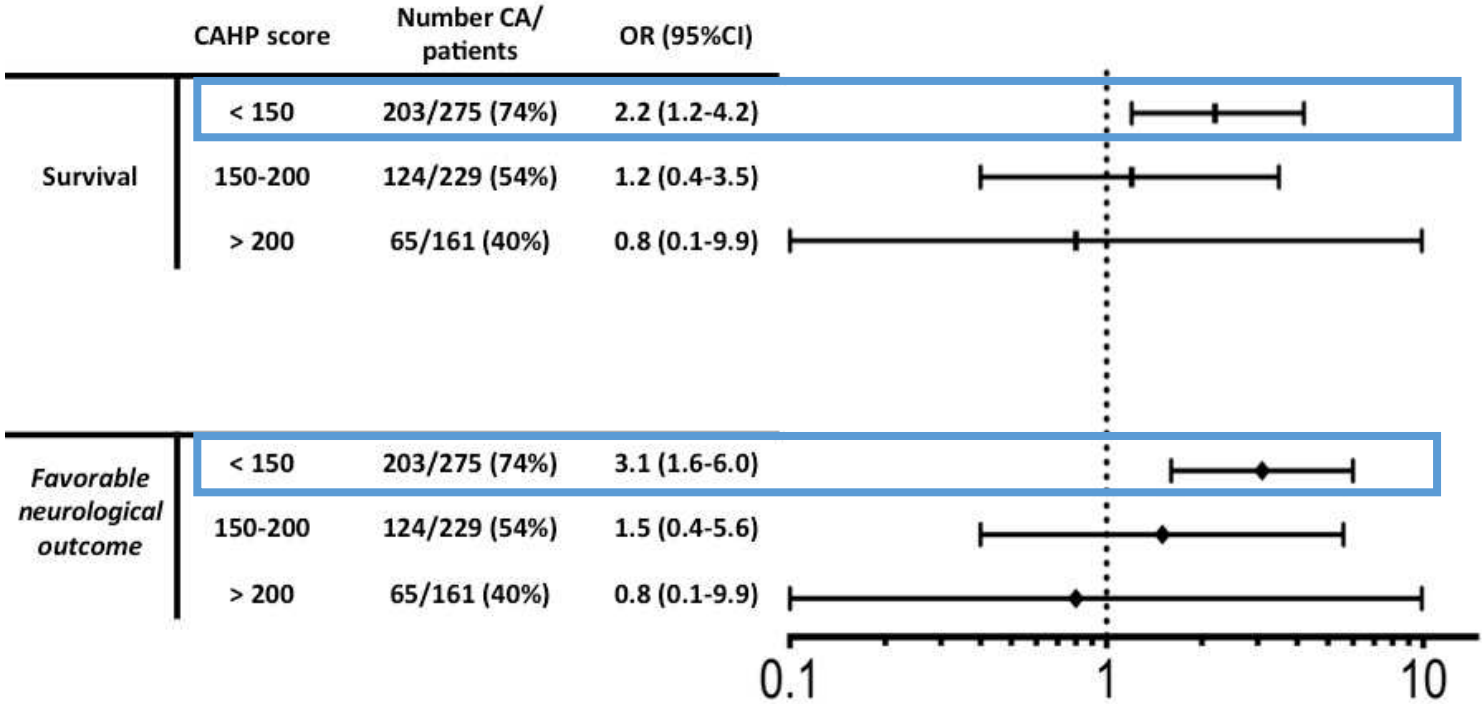
Intrakoronární ultrazvuk - IVUS



Optická koherentní tomografie OCT



Patients without ST elevation



JACC 2018

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ORIGINAL INVESTIGATIONS

1-Year Outcomes of Patients Undergoing Primary Angioplasty for Myocardial Infarction Treated With Prasugrel Versus Ticagrelor



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PRAGUE-18 Study Group

Periprocedural and postprocedural antithrombotic therapy in patients undergoing primary percutaneous coronary intervention

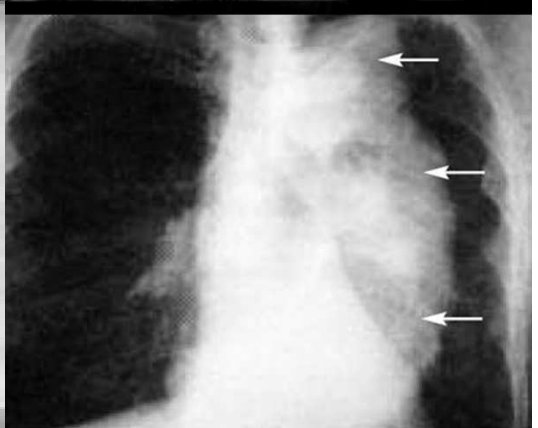
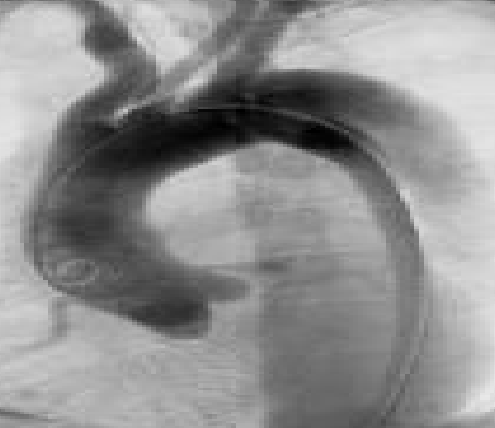
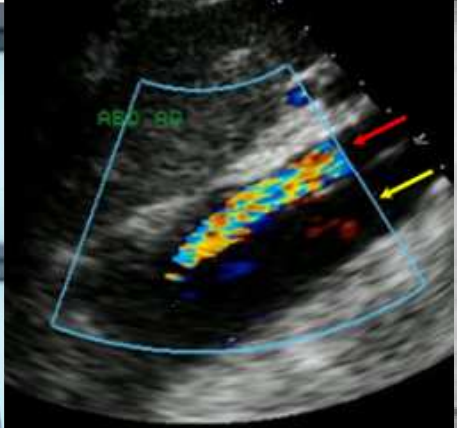


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Recommendations	Class	Level
Antiplatelet therapy		
A potent P2Y ₁₂ inhibitor (prasugrel or ticagrelor), or clopidogrel if these are not available or are contra-indicated, is recommended before (or at latest at the time of) PCI and maintained over 12 months unless there are contra-indications such as excessive risk of bleeding.	I	A
Aspirin (oral or i.v, if unable to swallow) is recommended as soon as possible for all patients without contra-indications.	I	B
GP IIb/IIIa inhibitors should be considered for bailout if there is evidence of no-reflow or a thrombotic complication.	IIa	C
Cangrelor may be considered in patients who have not received P2Y ₁₂ receptor inhibitors.	IIb	A

Akutní disekce aorty



Akutní plicní embolie



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CA / CPC 1-2

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Favorable neurological outcome				
<150	573/667 (86%)	3.1	1.8-5.3	<0.001
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