Kardiogenní šok komplikující AKS – stratifikace rizika

R.Rokyta

KARDIOLOGICKÉ ODDĚLENÍ FN PLZEŇ
Komplexní kardiovaskulární centrum
Lékařská fakulta v Plzni, Univerzita Karlova v Praze

Kardiogenní šok (KŠ) – definice

- **Hypoperfúze tkání a orgánů** způsobená srdečním selháním
- **Klinika**: chladné končetiny, oligurie, alterace mentálního stavu

- **Hemodynamika**

1) perzistující hypotenze > 30 min

(STK < 80-90 mmHg nebo pokles o > 30 mmHg)

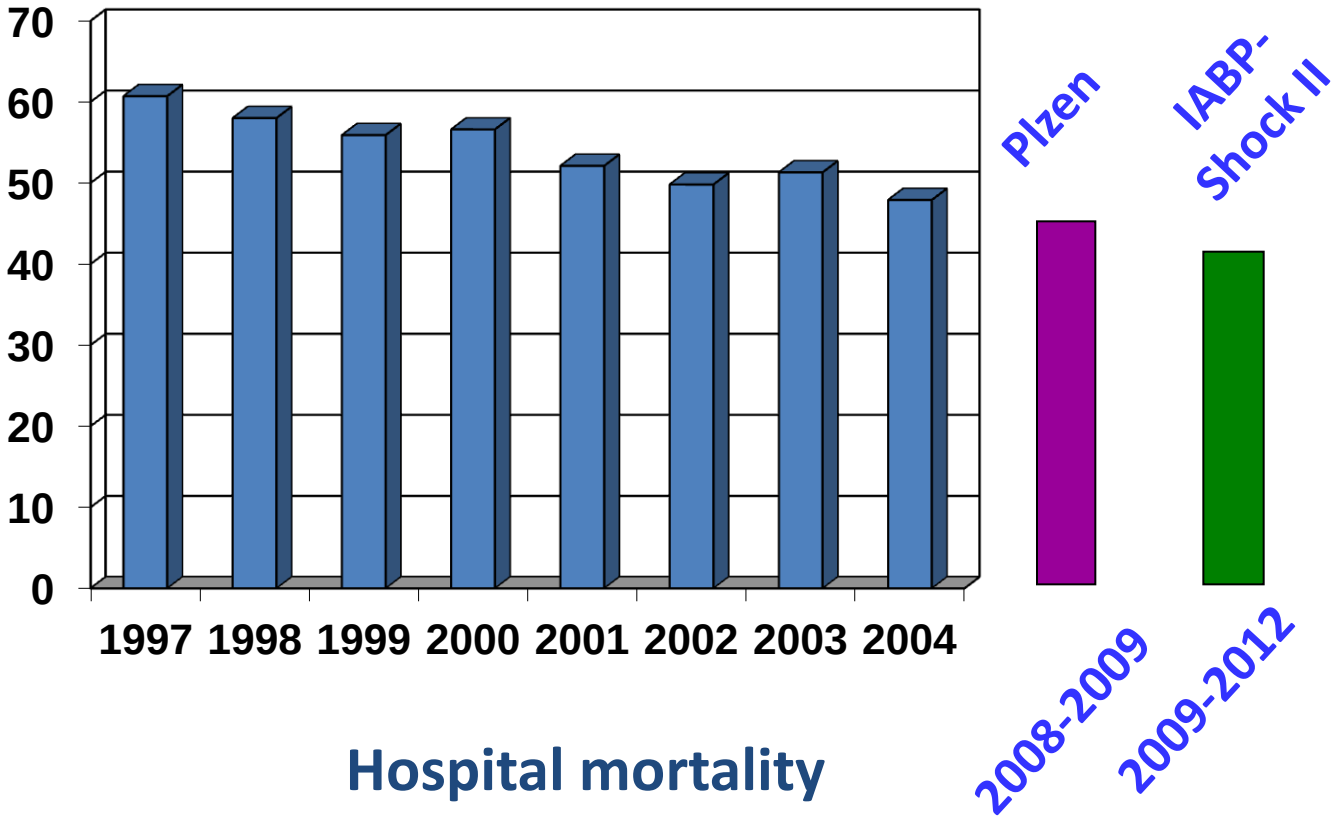
+ tachykardie > 100/min

2) srdeční index < 1,8 l/min/m^2 bez podpor nebo < 2,0 – 2,2 l/min/m^2 s podporou při adekvátních nebo zvýšených plnících tlacích LKS a PKS (PAOP $\geq$ 18 mmHg, resp. CVP $\geq$ 15 mmHg)

Trends in Management and Outcomes of Patients With Acute Myocardial Infarction Complicated by Cardiogenic Shock

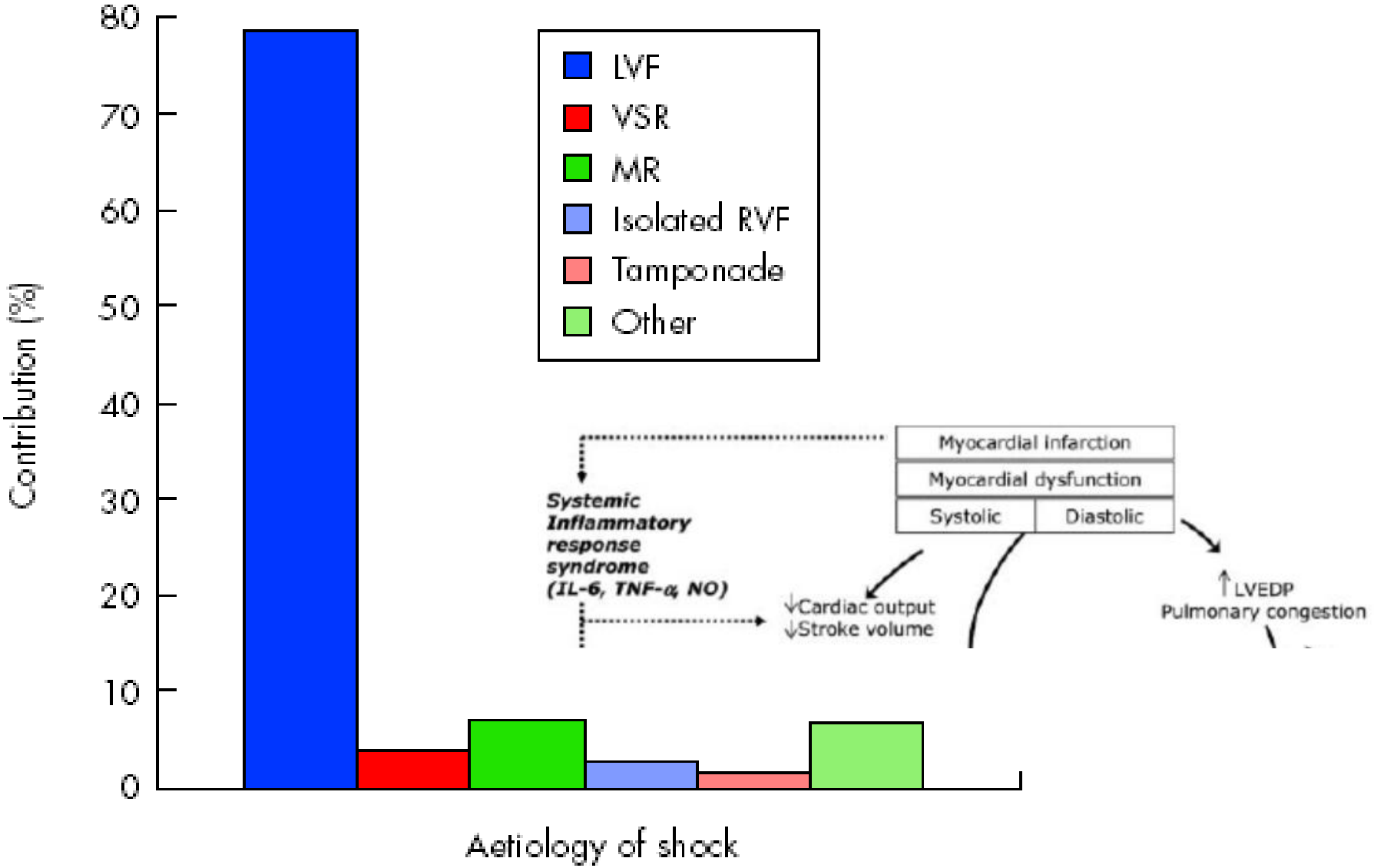
Anvar Babaev; Paul D. Frederick; David J. Pasta; et al.

JAMA. 2005;294(4):448-454 (doi:10.1001/jama.294.4.448)

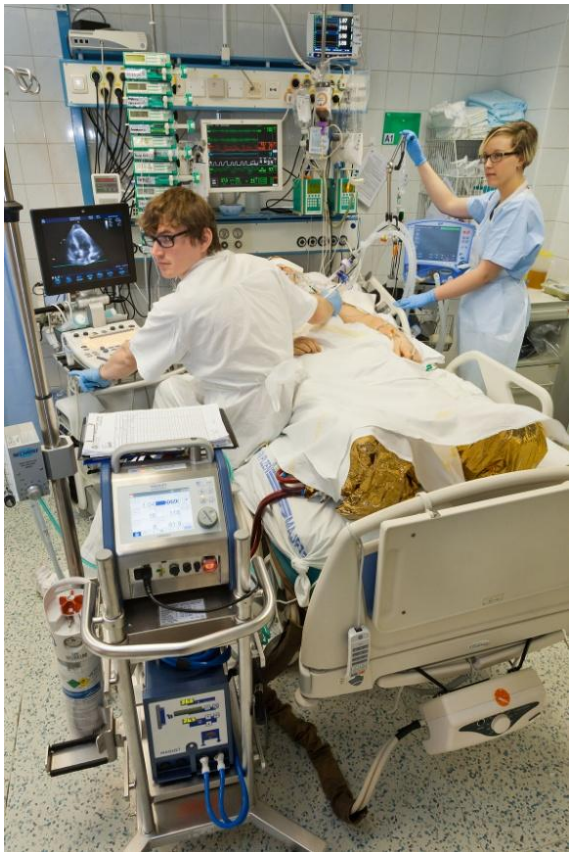


Hospital mortality

AMI – etiology of cardiogenic shock *(Menon, Heart 2002)*

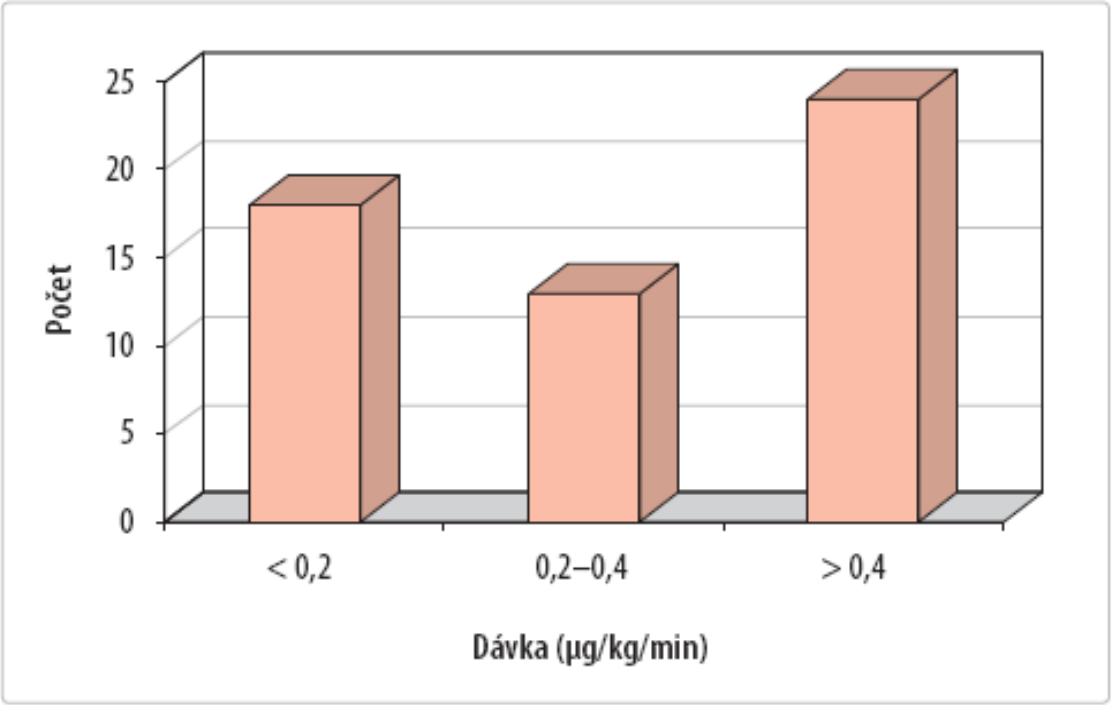


KŠIM – tíže šoku



IABP Shock-II : cca 82 % pacientů – mechanická ventilace

KŠIM – tíže šoku
dávka katecholaminů, MSP



Obrázek 4 Dávka noradrenalinu při zahájení IABK u pacientů s IM v kardiogenním šoku (n = 55)

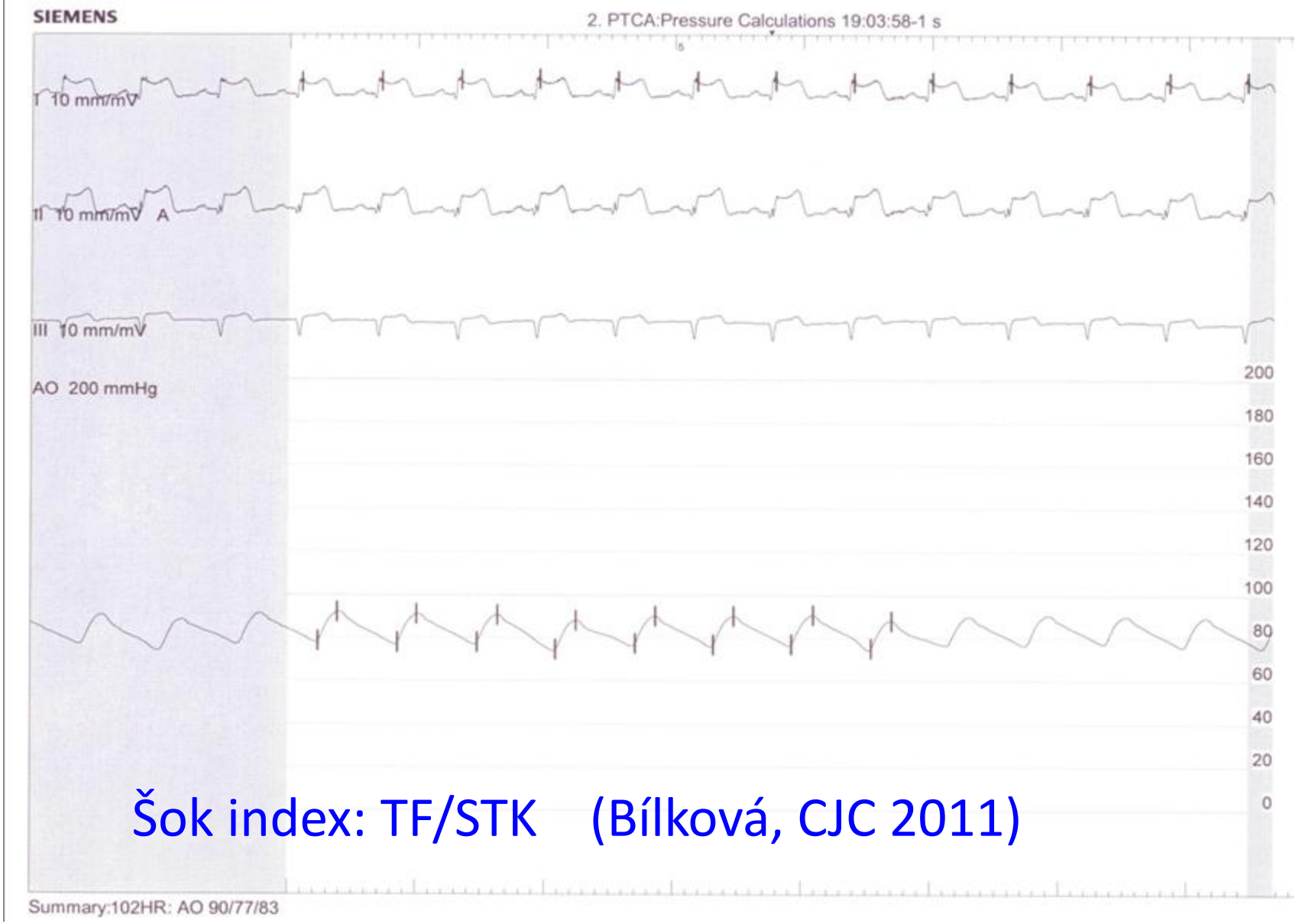
IABP shock II

noradrenalin – medián

IABP – 0,3 ug/kg/min

Control – 0,4 ug/kg/min

Example of STEMI with cardiogenic shock prior primary PCI



Šok index: TF/STK (Bílková, CJC 2011)

Stratifikace rizika - KŠIM

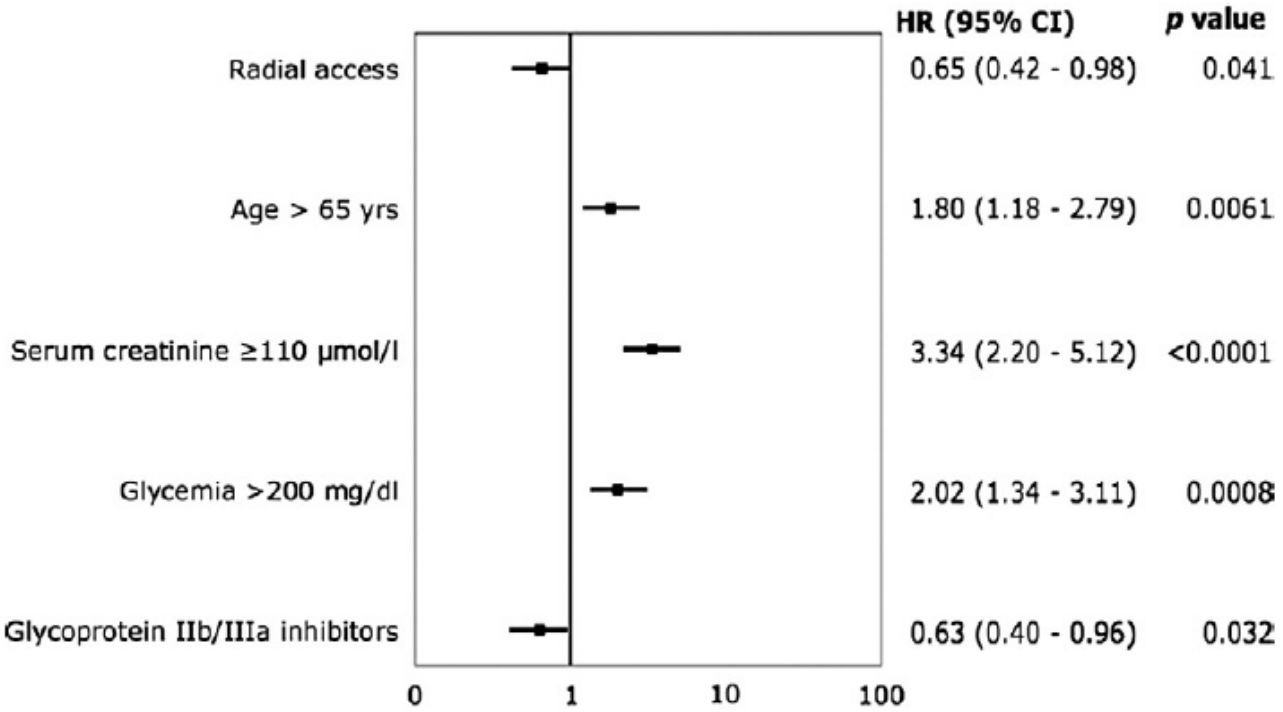
Sleeper AHJ 2010 (SHOCK) n=1217, 30 D mort	age	hypoperf	kreat >168 umol/l	anoxic brain damage	SAP	Prior CABG	Non-inferior MI
Cheng, EHJ ACC 2016, n=544, 30 D mort	age	lactate adm	kreat adm				
Vergara , AJC 2017, n = 388, 2 Y mort	>75 yrs			OHCA			failed PCI
Muller G ENCOURAGE V-A ECMO (ICM 2016) n=137, 6 M mort	>60 yrs	lactate (<2,2-8, >8)	kreat >150 umol/l	GCS<6	BMI >25	PT<50 %	female

Attaná (Acute Cardiac Care 2012) – clearance laktátu > 10 %/12 h

Early and late outcomes after primary percutaneous coronary intervention by radial or femoral approach in patients presenting in acute ST-elevation myocardial infarction and cardiogenic shock

Ivo Bernat, MD, PhD,[a] Eltigani Abdelaal, MD,[b] Guillaume Plourde, MS,[b] Yoann Bataille, MD,[b] Jakub Cech, MD,[a] Jan Pesek, MD,[a] Jiri Koza, MD,[a] Stepan Jirous, MD,[a] Jimmy Machaalany, MD,[b] Jean-Pierre Déry, MD,[b] Olivier Costerousse, PhD,[b] Richard Rokyta, MD, PhD,[a] and Olivier F. Bertrand, MD, PhD[b] *Pilsen, Czech Republic and Quebec, Canada*

Am Heart J 2013;165:338-43



Adjusted hazard ratios and 95% confidence intervals for factors associated with death at 1yr

Independent predictors of 1-year mortality.

Impact of access site choice on outcomes of patients with cardiogenic shock undergoing percutaneous coronary intervention: A systematic review and meta-analysis

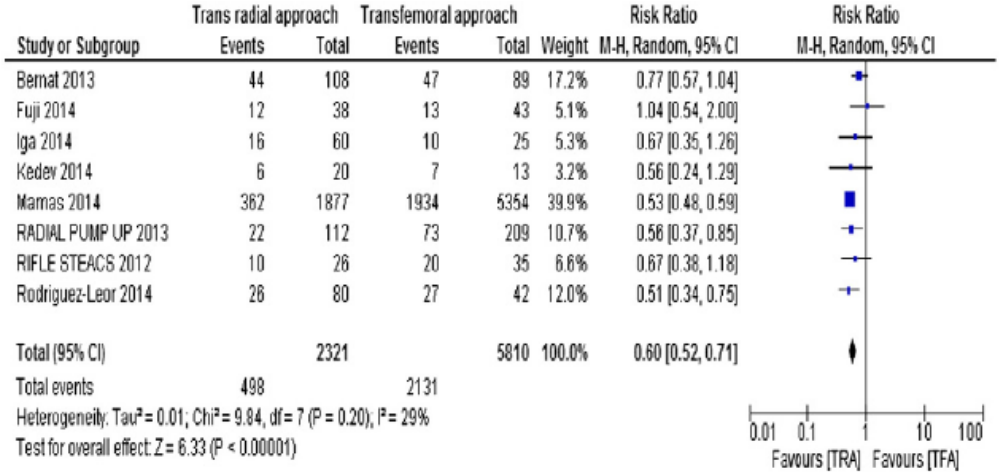
Am Heart J 2015;170:353-361.e6.

Samir B. Pancholy, MD, FACP, FACC, FSCAI,[a] Ghanshyam Palamaner Subash Shantha, MD,[b] Enrico Romagnoli, MD, PhD,[c] Sasko Kedev, MD, PhD,[d] Ivo Bernat, MD, PhD,[e] Sunil V. Rao, MD, FACC, FSCAI,[f,j] Sanjit Jolly, MD, FRCP (C),[g] Olivier F. Bertrand, MD, PhD, FSCAI,[h] and Tejas M. Patel, MD, DM, FESC, FACC, FSCAI[i] Scranton, PA;

Table IV. Baseline characteristics of study participants from included studies

First author	Year	No. of patients		Major bleeding (%)		Access site bleeding		30-d mortality (%)		30-d y MACCE (%)	
		TRA	TFA	TRA	TFA	TRA	TFA	TRA	TFA	TRA	TFA
Mamas	2014	1877	5354	1.5	3.5	0.05	1.1	24.7	39.8	30.5	44.9
Fuji	2014	38	43	2.6	7	0	2.3	32	30	NR	NR
Iga	2014	60	25	6.7	28	0.9	12	26.7	40	28.3	44
Rodriguez-Leor	2014	80	42	NR	NR	NR	NR	32.5	64.3	44	74
Bernat	2013	108	89	13	22	0.9	8	41	53	NR	NR
Kedev	2014	20	13	5	7	NR	NR	6	7	45	54
RIFLE-STEACS	2012	26	35	69	74	NR	NR	38	57	38	57
Radial Pump UP	2013	112	209	9.8	14.8	6.3	18.7	19.6	34.9	19.6	34.9

Figure 2



Unadjusted 30-day mortality comparison between access sites. Forest plot comparing unadjusted 30-day mortality between TFA and TRA site choices in patients with CS.

European Journal of Heart Failure (2015) 17, 501–509
doi:10.1002/ejhf.260

Clinical picture and risk prediction of short-term mortality in cardiogenic shock

Veli-Pekka Harjola[1*,†], Johan Lassus[2†], Alessandro Sionis[3], Lars Køber[4], Tuukka Tarvasmäki[5], Jindrich Spinar[6], John Parissis[7], Marek Banaszewski[8], Jose Silva-Cardoso[9], Valentina Carubelli[10], Salvatore Di Somma[11], Heli Tolppanen[2], Uwe Zeymer[12], Holger Thiele[13], Markku S Nieminen[2], and Alexandre Mebazaa[14], for the CardShock study investigators and the GREAT network

Table 4 The CardShock risk Score for risk prediction of in-hospital mortality in cardiogenic shock

Variable	CardShock risk Score
Age >75 years	1
Confusion at presentation	1
Previous MI or CABG	1
ACS aetiology	1
LVEF <40%	1
Blood lactate	
<2 mmol/L	0
2–4 mmol/L	1
>4 mmol/L	2
$eGFR_{CKD-EPI}$	
>60 mL/min/1.73 m^2	0
30–60 mL/min/1.73 m^2	1
<30 mL/min/1.73 m^2	2
Maximum points	9

0-3 body - 9 %
4-5 b. - 36 %
6-9 b. -77 %

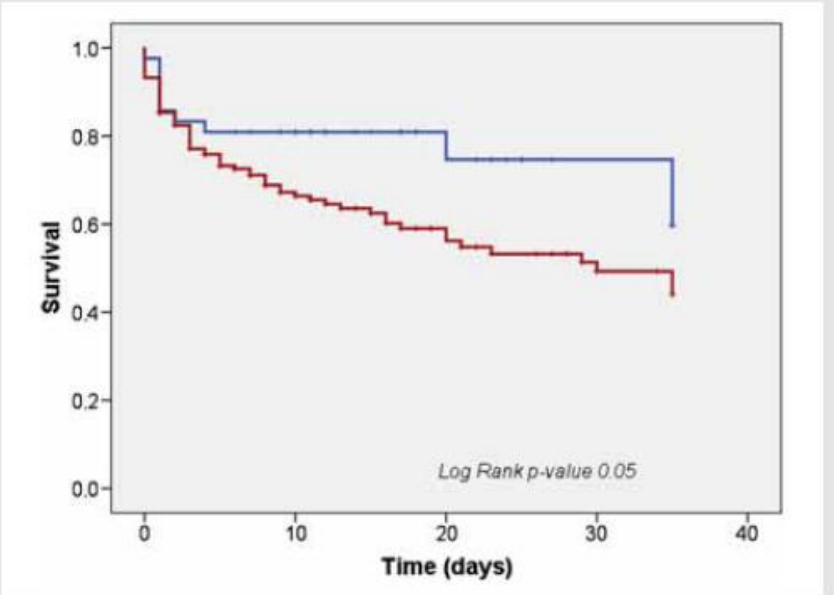


Figure 1 Kaplan–Meier in-hospital survival curves for cardiogenic shock patients with (red line) and without (blue line) acute coronary syndrome aetiology.

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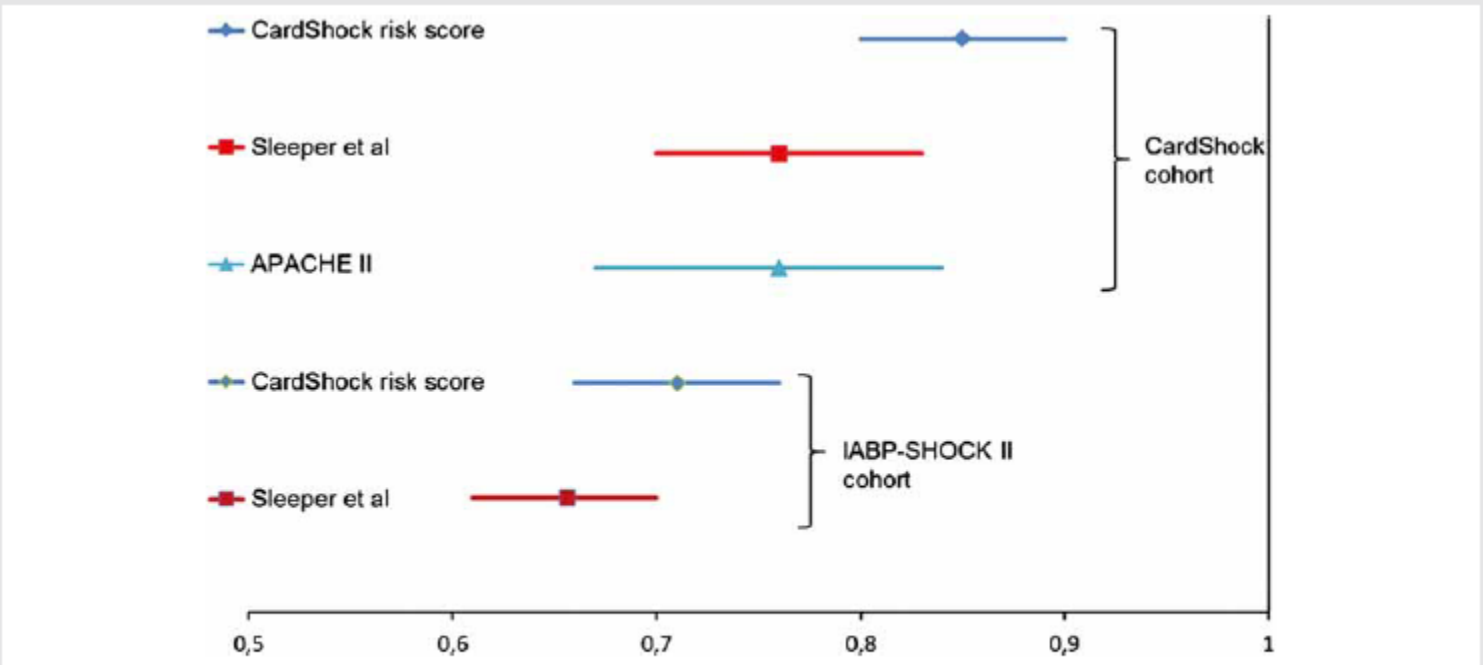

Figure 2 C-statistics for prediction of in-hospital mortality of the CardShock risk Score. C-statistics (lines represent the 95% confidence interval) of the CardShock risk Score and the Sleeper score (SHOCK trial and registry[13]) in the CardShock (derivation) and IABP-SHOCK II (validation) cohorts. C-statistics for the APACHE II score (Knaus *et al.*[14]) in the CardShock cohort are shown for comparison.

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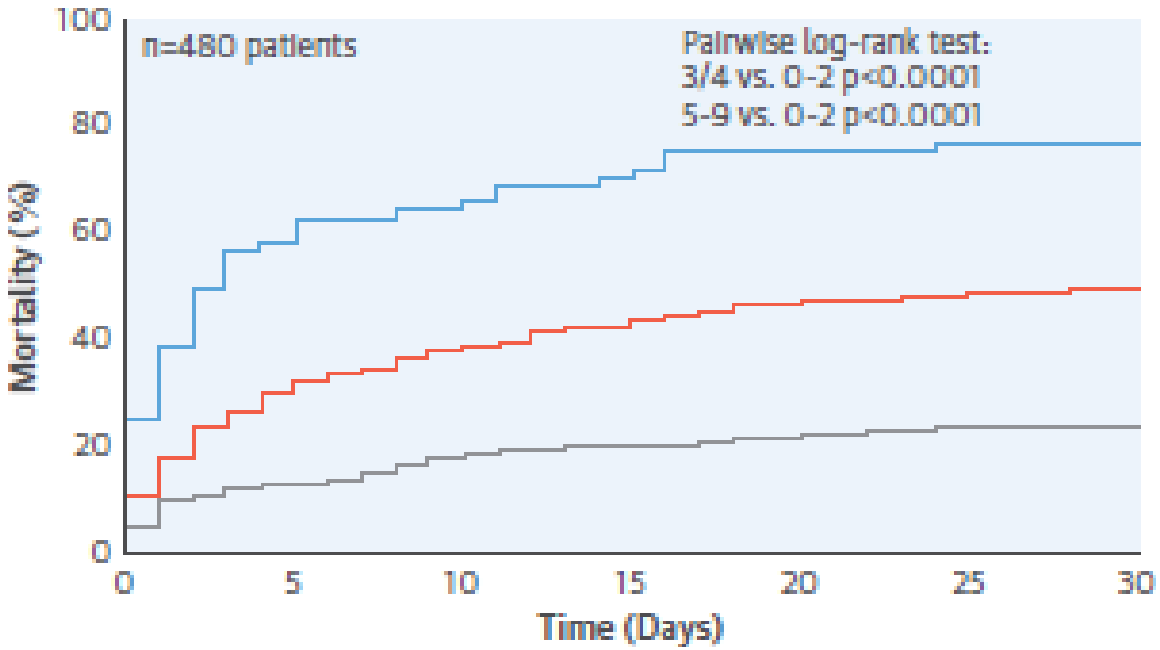
Risk Stratification for Patients in Cardiogenic Shock After Acute Myocardial Infarction

Score

Variable	Points
Age >73 years	1
History of stroke	2
Glucose >10.6 mmol/l (191 mg/dl)*	1
Creatinine >132.6 µmol/l (1.5 mg/dl)*	1
Arterial lactate >5 mmol/l*	2
TIMI flow grade <3 after PCI	2
Maximum	9

Risk categories

Category	Points
Low	0-2
Intermediate	3/4
High	5-9



Score 5-9 76,6 %

Score 3/4 49,2 %

Score 0-2 23,8 %

KŠIM – stratifikace rizika – ZÁVĚRY

1) Mortalita kardiogenního šoku při AIM je stále vysoká
1) Časná stratifikace rizika je prospěšná a snadno proveditelná , pro další studie
2) CardShock risk skóre
   IABP Shock II risk skóre