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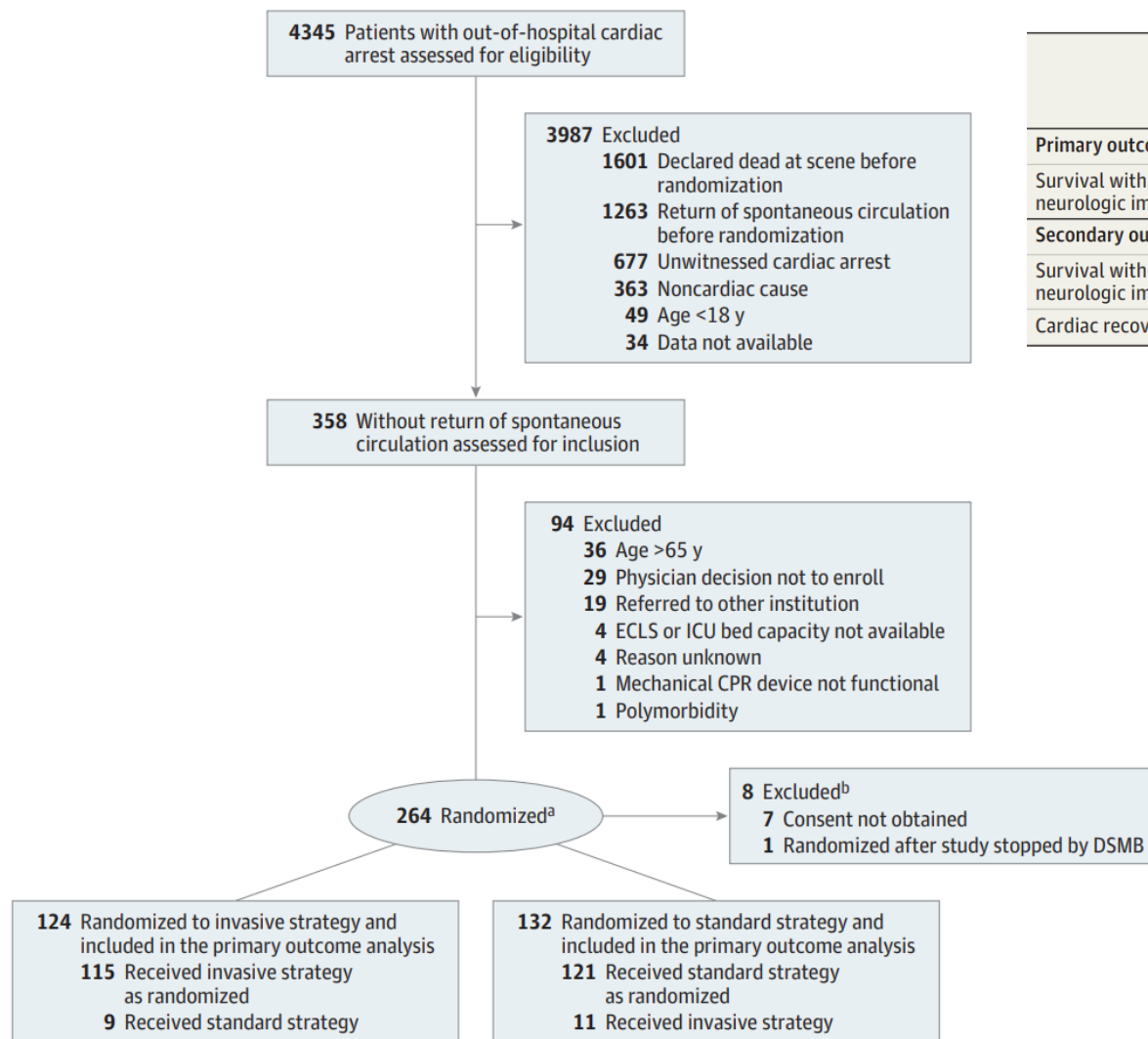
**Initial rhythm and survival
in refractory out-of-hospital cardiac arrest.
Post-hoc analysis of the Prague OHCA
randomised trial.**

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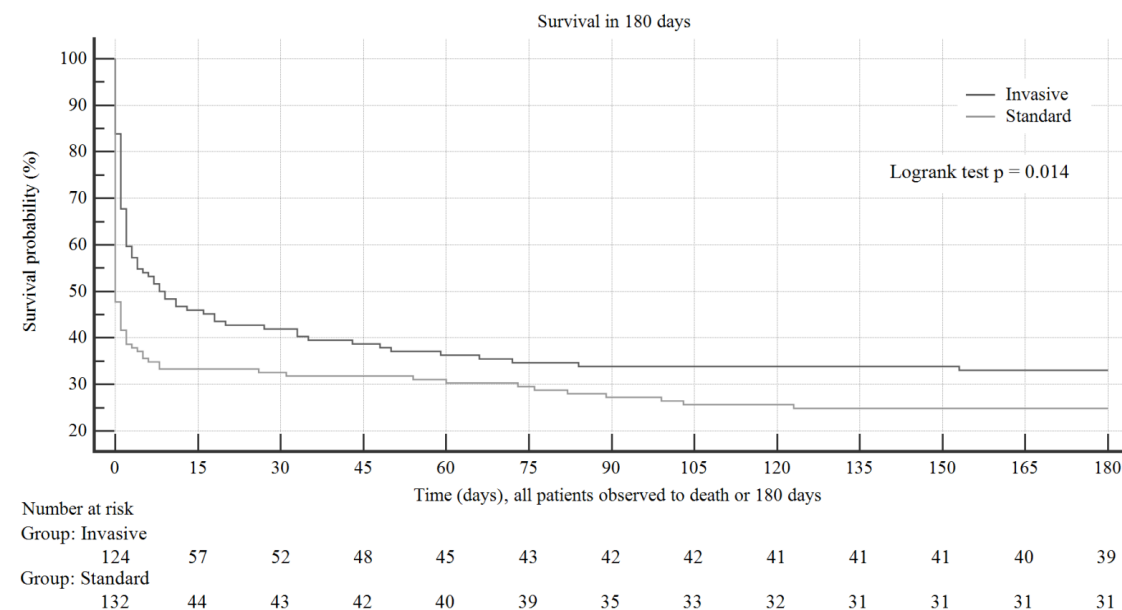
Prague OHCA trial

Nemocní se spatřenou refrakterní mimonemocniční oběhovou zástavou

- Standardní vs. invazivní přístup

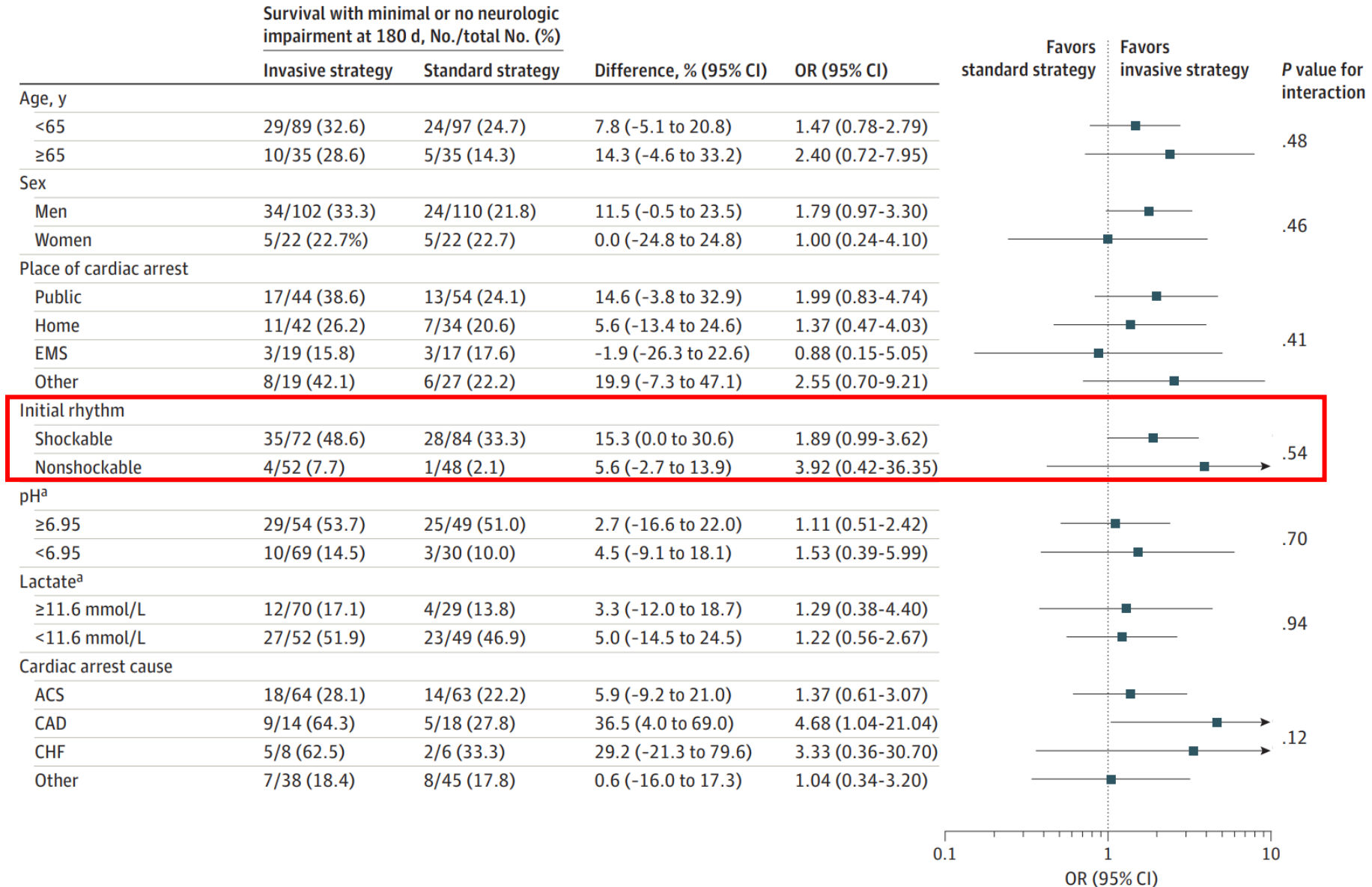


	No. (%)		Absolute difference, % (95% CI)	P value
	Invasive strategy (n = 124)	Standard strategy (n = 132)		
Primary outcome				
Survival with minimal or no neurologic impairment at 180 d ^a	39 (31.5)	29 (22.0)	9.5 (−1.3 to 20.1)	.09
Secondary outcomes				
Survival with minimal or no neurologic impairment at 30 d ^a	38 (30.6)	24 (18.2)	12.4 (1.9 to 22.7)	.02
Cardiac recovery at 30 d ^b	54 (43.5)	45 (34.1)	9.4 (−2.5 to 21)	.12



Prague OHCA trial

Podskupinové analýzy.



Jaký je význam vstupního rytmu?

Do této doby netestováno na populaci s refrakterní OHCA

Metodika

Populace Prague OHCA trial

- Dospělí pacienti se spatřenou oběhovou zástavou mimo nemocnici předpokládané kardiální etiologie
- Bez dosažení ROSC přes adekvátně vedenou KPCR → REFRAKTERNÍ OHCA (164 pacientů > 45 minut)
- Randomizování 1:1

Analýza dle vstupního rytmu

- První dokumentovaný rytmus záchrannou službou
- Porovnání DEFIBRILOVATELNÉHO a NEDEFIBRILOVATELNÉHO rytmu

Defibrilovatelný: fibrilace komor a komorová tachykardie

Nedefibrilovatelný: asystolie nebo PEA

Identické endpointy jako v hlavní studii:

- Přežívání s dobrým neurologickým stavem ve 180 dni
- Neuro recovery a Cardiac recovery ve 30 dni

Základní klinická a demografická data

Parameter	Shockable rhythm (N = 156)	Non-shockable rhythm (N = 100)	P
Age (years)	56 (45–64)	60 (51–66)	0.03
Sex			
Female	15 (10%)	29 (29%)	<0.001
Male	141 (90%)	71 (71%)	
Medical history			
Hypertension	57/126 (45%)	32/65 (49%)	0.65
Coronary artery disease	26/125 (21%)	8/62 (13%)	0.23
Chronic heart failure	10/123 (8%)	6/62 (10%)	0.78
Diabetes mellitus	18/120 (15%)	18/62 (29%)	0.03
Chronic kidney disease	2/122 (2%)	3/61 (5%)	0.34
Chronic obstructive pulmonary disease	7/122 (6%)	3/62 (5%)	1.00
ICD implanted	1/134 (1%)	2/76 (3%)	0.30
Bystander CPR	154 (99%)	98 (98%)	1.00
Time from collapse to EMS arrival (min)	9 (6–11)	9 (7–12)	0.54
Time from collapse to ACLS (physician arrival) (min)	10 (8–13)	11 (6–14)	0.87
Dispatcher assisted CPR	133 (85%)	70 (70%)	0.006
Time until or of dispatcher assisted CPR began (min)	3 (2–4)	3 (1–5)	0.97
Time from collapse to randomization (min)	25 (20–30)	24 (20–32)	0.98
Number of adrenaline doses prehospitally (mg)	4 (2–6)	5 (4–7)	<0.001
Intermittent ROSC	56 (36%)	30 (30%)	0.40
Randomised to			
Standard	84 (54%)	48 (48%)	0.44
Invasive	72 (46%)	52 (52%)	

Hospitalizační fáze

Parameter	Shockable rhythm (N = 156)	Non-shockable rhythm (N = 100)	P
Admitted to hospital	136 (87%)	74 (74%)	0.01
Time to hospital admission (min)	55 (46–64)	51 (41–63)	0.12
Time from randomization to admission (min)	30 (23–37)	28 (20–35)	0.20
Declared dead	33 (21%)	42 (42%)	<0.001
Time of CPR (time to death/ROSC or ECLS) (min)	54 (33–69)	51 (39–68)	0.33
Sustained ROSC on admission	67 (43%)	25 (25%)	0.005
TTM used	122/136 (90%)	66/74 (76%)	0.01
ECLS			
ECLS implanted	57 (37%)	35 (35%)	0.91
Time to ECLS (min)	62 (57–73)	60 (50–66)	0.09
Invasive assessment			
Coronary angiography	126/127 (99%)	55/62 (89%)	0.002
Pulmonary angiography	8/127 (6%)	19/62 (31%)	<0.001
Aortography	22/127 (17%)	19/62 (31%)	0.06
Left ventricle angiography	29/127 (23%)	18/62 (29%)	0.37
Laboratory values on admission			
pH	7.00 (6.87–7.17)	6.85 (6.75–6.97)	<0.001
Lactate (mmol/L)	10.7 (7.8–13.8)	13.8 (10.5–17.0)	<0.001
Cause of cardiac arrest (including autopsy findings)			
Acute coronary syndrome	89 (57%)	38 (38%)	<0.001
Coronary artery disease – chronic	29 (19%)	3 (3%)	
Pulmonary embolism	1 (1%)	23 (23%)	

Primární a sekundární endpointy

Parameter	Shockable rhythm (N = 156)	Non-shockable rhythm (N = 100)	P value
Primary outcome			
Survival with CPC at 180 days			
1 or 2	63 (40.4 %)	5 (5 %)	<0.001
≥3	93 (59.6 %)	95 (95 %)	
Secondary outcomes			
Cardiac recovery at 30 days			
Yes	84 (53.8 %)	15 (15 %)	<0.001
No	72 (46.2 %)	85 (85 %)	
Neuro recovery at 30 days			
Yes	58 (37.2 %)	4 (4 %)	<0.001
No	98 (62.8 %)	96 (96 %)	

Primární a sekundární endpointy

INVASIVE

STANDARD

Initial rhythm	Shockable (N = 72)	Non-shockable (N = 52)	P	Shockable (N = 84)	Non-shockable (N = 48)	P
Primary outcome						
Survival with CPC at 180 days						
1 or 2	35 (49 %)	4 (8 %)	<0.001	28 (33 %)	1 (2 %)	<0.001
≥3	37 (51 %)	48 (92 %)		56 (67 %)	47 (98 %)	
Secondary outcomes						
Cardiac recovery at 30 days						
Yes	43 (60 %)	11 (21 %)	<0.001	41 (49 %)	4 (8 %)	<0.001
No	29 (40 %)	41 (79 %)		43 (51 %)	44 (92 %)	
Neuro recovery at 30 days						
Yes	34 (47 %)	4 (8 %)	<0.001	24 (29 %)	0 (0 %)	<0.001
No	38 (53 %)	48 (92 %)		60 (17 %)	48 (100 %)	

Primární a sekundární endpointy dle studijní větve

Cox regression analysis

Predikce nepříznivého neurologického outcome

Covariate	Model A (Admitted to hospital) (<i>n</i> = 210)			Model B (After the initial in-hospital evaluation) (<i>n</i> = 181)		
	HR	95% CI	<i>P</i>	HR	95% CI	<i>P</i>
Age $\geq$ 65 years	0.92	0.63–1.34	0.67	0.87	0.57–1.34	0.53
Sex = women	0.96	0.62–1.49	0.86	1.17	0.73–1.85	0.52
Sustained ROSC on admission = yes	0.35	0.24–0.51	<0.001	0.69	0.41–1.15	0.15
Length CPR > 45 min = yes	–	–	–	1.97	1.16–3.32	0.01
Telephone assisted bystander CPR = yes	1.19	0.8–1.77	0.39	1.31	0.82–2.1	0.26
Acute coronary syndrome = yes	–	–	–	1.29	0.86–1.94	0.22
Shockable rhythm = yes	0.32	0.22–0.46	<0.001	0.27	0.18–0.41	<0.001

Závěrem

Vstupní defibrilovatelný rytmus u pacientů s refrakterní oběhovou zástavou

- Příznivější přežívání s dobrým neurologickým výsledkem ve 180 dnech od oběhové zástavy
- Vyšší přítomnost „neuro a cardio recovery“ ve 30 dnech.
- Výsledek je konsistentní bez ohledu na invazivitu vstupní strategie
- Nebylo prokázáno, že by invazivní strategie měla významný vliv na přítomnost primárního endopointu

Vstupní nedefibrilovatelný rytmus

- Nedefibrilovatelný rytmus je známkou nepříznivé prognózy i přes vstupní invazivní přístup



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Resuscitation

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Clinical paper

Initial rhythm and survival in refractory out-of-hospital cardiac arrest. Post-hoc analysis of the Prague OHCA randomized trial

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Abstract

Background: The prognosis of refractory out-of-hospital cardiac arrest (OHCA) is generally poor. A recent Prague OHCA study has demonstrated that an invasive approach (including extracorporeal cardiopulmonary resuscitation, ECPR) is a feasible and effective treatment strategy in refractory OHCA. Here we present a post-hoc analysis of the role of initial rhythm on patient outcomes.

Methods: The study enrolled patients who had a witnessed OHCA of presumed cardiac cause without early recovery of spontaneous circulation. The initial rhythm was classified as either a shockable or a non-shockable rhythm. The primary outcome was a composite of 180 day-survival with Cerebral Performance in Category 1 or 2.

Results: 256 (median age 58y, 17% females) patients were enrolled. The median (IQR) duration of resuscitation was 52 (33–68) minutes. 156 (61%) and 100 (39%) of patients manifested a shockable and non-shockable rhythm, respectively. The primary outcome was achieved in 63 (40%) patients with a shockable rhythm and in 5 (5%) patients with a non-shockable rhythm ($p < 0.001$). When patients were analyzed separately based on whether the treatment was invasive ($n = 124$) or standard ($n = 132$), the difference in the primary endpoint between shockable and non-shockable initial rhythms remained significant (35/72 (49%) vs 4/52 (8%) in the invasive arm and 28/84 (33%) vs 1/48 (2%) in the standard arm; $p < 0.001$).

Conclusion: An initial shockable rhythm and treatment with an invasive approach is associated with a reasonable neurologically favorable survival for 180 days despite refractory OHCA. Non-shockable initial rhythms bear a poor prognosis in refractory OHCA even when ECPR is readily available.

Keywords: Resuscitation, Cardiac arrest, Extracorporeal circulation, Invasive approach



Děkuji za pozornost!

Poděkování:

- Za příležitost k účasti na studii
- Pomoc při přípravě publikace
- Možnost vystoupit v této sekci

Vedení kliniky, hlavnímu investigátorovi, spoluautorům, sestrám...