Room 5 - Global Expert Exchange

Deep dive session:
Lower limb interventions (part I)

Retrograde crossing of peripheral occlusions: Long-term results and outcome predictors

Stanislaw Bartus

Jagiellonian University

Krakow, Poland

Disclosure

Speaker name:

.....Stanislaw Bartus.....

I have the following potential conflicts of interest to report:

- ☐ Consulting
- ☐ Employment in industry
- ☐ Stockholder of a healthcare company
- ☐ Owner of a healthcare company
- ☐ Other(s)

- ■ I do not have any potential conflict of interest

Predictors of mortality and outcomes after retrograde endovascular angioplasty in patients with peripheral artery disease

Pawel Kleczynski, **Zoltan Ruzsa**, Joanna Wojtasik-Bakalarz, **Andras Nyerges**, Artur Dziewierz, Rafał Januszek, Tomasz Rakowski, Dariusz Dudek, Stanislaw Bartus

Semmelweis University, Budapest, Hungary

Szent-Györgyi Albert Medical University, Kecskemét, Hungary

Jagiellonian University Medical College, Krakow, Poland

Kleczynki P, Ruzsa Z, (...) Bartus S Adv Interv Cardiol 2019; 15, 2 (56): 234–239

Ruzsa Z. ,Wojtasik J(,..,) Bartus S J Invasive Cardiol. 2017 Oct;29(10):336-339

Predictors of mortality and outcomes after retrograde endovascular angioplasty in 834 patients with peripheral artery disease

- **939 / 834 patients (63 % male),**
- **68 (± 8 years).**
- **36 months follow up**

- **Inclusion criteria:**
- **Percutaneous retrograde recanalization.**

Kleczynki P, Ruzsa Z, (…) Bartus S Adv Interv Cardiol 2019; 15, 2 (56): 234–239
Ruzsa Z. ,Wojtasik J(,..,) Bartus S J Invasive Cardiol. 2017 Oct;29(10):336-339

Predictors of mortality and outcomes after retrograde endovascular angioplasty in 834 patients with peripheral artery disease

Variable	All
Age, median (IQR) [years]	68.0 (60.0–76.0)
Men	522 (62.6%)
Body mass index, median (IQR) [kg/m^2]	27.0 (23.71–30.1)
Arterial hypertension	735 (88.2%)
Diabetes mellitus	342 (49.1%)
Chronic kidney disease	135 (16.2%)
Chronic obstructive pulmonary disease	98 (11.8%)
Coronary artery disease	339 (40.7%)
Hyperlipidemia	708 (84.9%)
History of stroke/transient ischemic attack	74 (8.9%)
Smoking	463 (55.6%)
Previous endovascular revascularization of other lesion	183 (22.0%)
Previous arterial bypass	89 (10.7%)
Estimated glomerular filtration rate, median (IQR) [ml/min/1.73 m^2]	50.0 (40.0–60.0)

Adv Interv Cardiol 2019; 15, 2 (56): 234–239

Mortality and outcomes after retrograde endovascular angioplasty in patients with peripheral artery disease (n=834).

VARIABLE		ALL N=834
RUTHERFORD CLASSIFICATION:	0	0
	1	23 (2.8%)
	2	131 (15.7%)
	3	112 (13.5%)
	4	157 (18.9%)
	5	134 (16.1%)
	6	276 (33.1%)
FONTAINE SCALE:	1	1 (0.1%)
	2A	36 (4.4%)
	2B	256 (30.7%)
	3	149 (17.9%)
	4	389 (46.7%)
	5	1 (0.1%)
ACUTE LIMB ISCHEMIA		42 (5%)
CHRONIC LIMB ISCHEMIA		468 (56.1%)
INTERMITTENT CLAUDICATION <50 METERS		322 (39%)
ANKLE BRACHIAL INDEX, MEDIAN (IQR)		0.6 (0.3-0.7)

64.7%

Kleczynski P., Ruzsa Z. et all Advances in interventional cardiology *2019*

Predictors of mortality and outcomes after retrograde endovascular angioplasty in 834 patients with peripheral artery disease

Variable	All
TASC II:	
A	157 (18.9%)
B	167 (20.1%)
C	125 (15%)
D	383 (46%)
Angiography first access site:	
Brachial	30 (3.6%)
Femoral	599 (71.8%)
Radial	204 (24.5%)

Fluoroscopy time [s]	825.1 ±697.4
Contrast volume [ml]	120.9 ±84.5
Time from procedure to discharge [days]	3.3 ±2.1
Hospitalization time [days]	5.5 ±5.2

Iliac artery – chronic total occlusion	105 (12.6%)
Deep femoral artery – significant lesion	42 (5%)
Common femoral artery:	
Chronic total occlusion	33 (4%)
Calcification:	
Slight	316 (37.9%)
Severe	131 (15.7%)
Lesion length [mm]	14.1 ±15.8
Superficial femoral artery:	
Tortuosity:	
Severe	22 (2.7%)
Slight	285 (34.2%)
Chronic total occlusion SFA	415 (49.8%)
Calcification:	
Extreme	26 (3.1%)
Severe	363 (43.6%)
Slight	248 (35.7%)
Lesion length [mm]	127.9 ±110.3
Popliteal artery:	
Lesion length [mm]	52.3 ±48.7
Chronic total occlusion	99 (11.9%)
Tibio-fibular trunk:	
Significant lesion	206 (24.7%)
Chronic total occlusion	82 (9.8%)
Tibialis anterior artery:	
Significant lesion	387 (46.5%)
Chronic total occlusion	30 (3.6%)
Peroneal artery – significant lesion	305 (36.6%)
Tibialis posterior artery:	
Significant lesion	391 (47.5%)
Chronic total occlusion	70 (8.4%)

Adv Interv Cardiol 2019; 15, 2 (56): 234–239

Predictors of mortality and outcomes after retrograde endovascular angioplasty in 834 patients with peripheral artery disease.

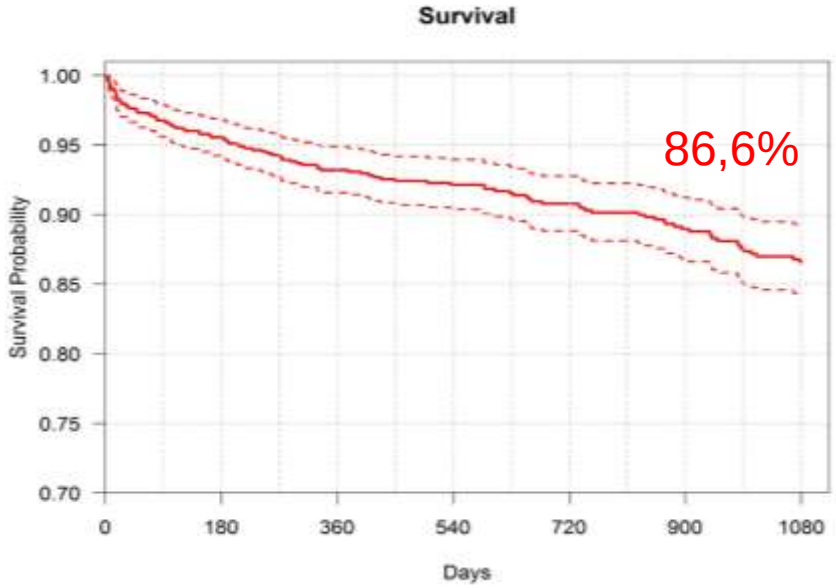
- 834 patients (63 % male),
- 68 (± 8 years).
- Percutaneous retrograde recanalization.

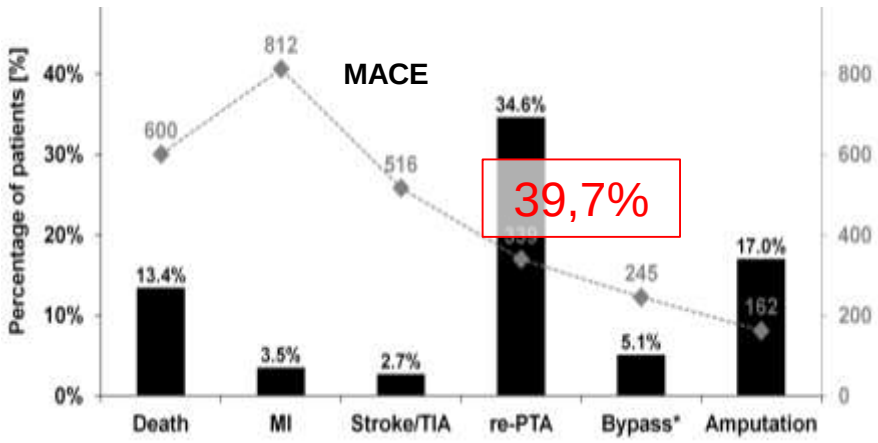
- Procedural success (of 939) - 92%.

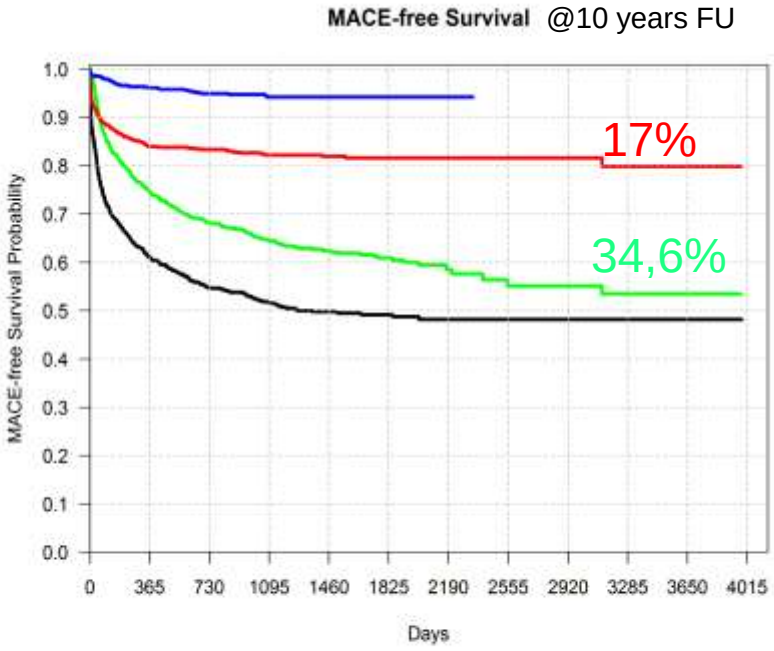
- In-hospital observation (of 86 pts):
  - proximal hematoma (9.3%),
  - vascular perforation/bleeding (4.7%),
  - distal hematoma (4.7%),
  - puncture site bleeding (3.5%)
  - pseudoaneurysm (1.2%),
  - thrombosis (1.2%),
  - local inflammation (1.2%).

Kleczynki P, Ruzsa Z, (…) Bartus S Adv Interv Cardiol 2019; 15, 2 (56): 234–239
Ruzsa Z. ,Wojtasik J(,..,) Bartus S J Invasive Cardiol. 2017 Oct;29(10):336-339

Mortality and outcomes after retrograde endovascular angioplasty in patients with peripheral artery disease (n=834).







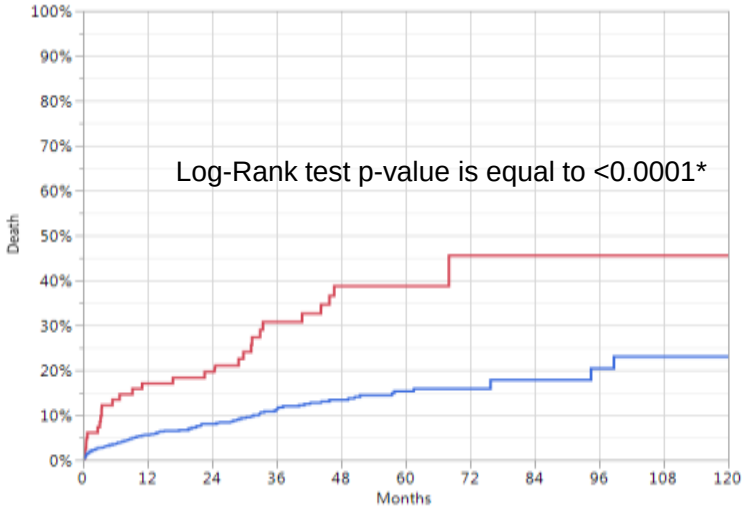
MACE # at risk	939	485	362	266	187	124	55	39	35	26	13	0
Re-PTA # at risk	939	600	450	338	242	157	64	41	37	27	13	0
Amputation # at risk	939	634	512	398	274	177	79	54	52	39	19	0
LEB # at risk	939	654	499	376	257	150	33	0	0	0	0	0

Kleczynki P, Ruzsa Z, (...) Bartus S Adv Interv Cardiol 2019; 15, 2 (56): 234–239

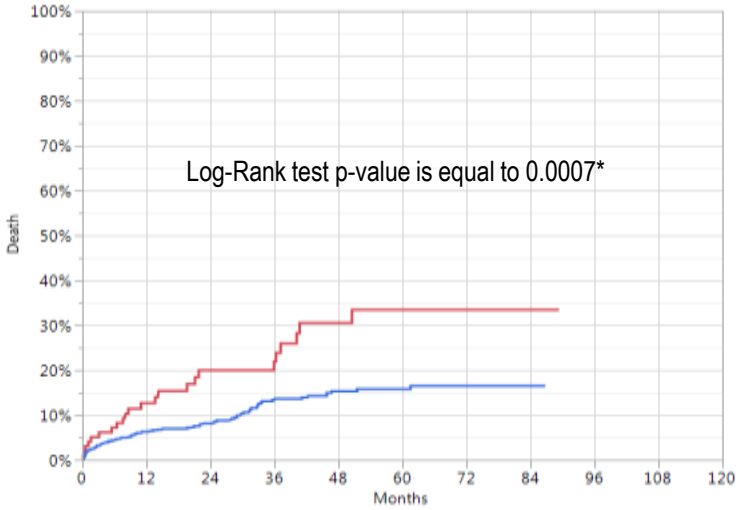
Ruzsa Z. ,Wojtasik J(..) Bartus S J Invasive Cardiol. 2017 Oct;29(10):336-339

Mortality and outcomes after retrograde endovascular angioplasty in patients with peripheral artery disease n=834

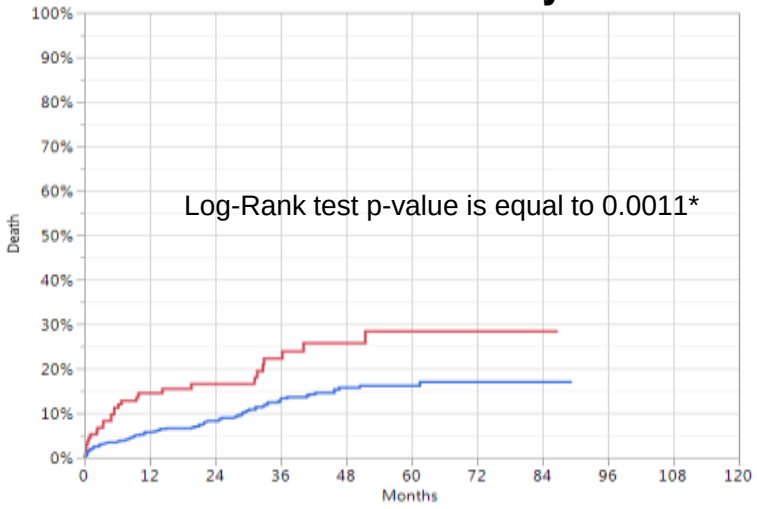
Stroke/TIA



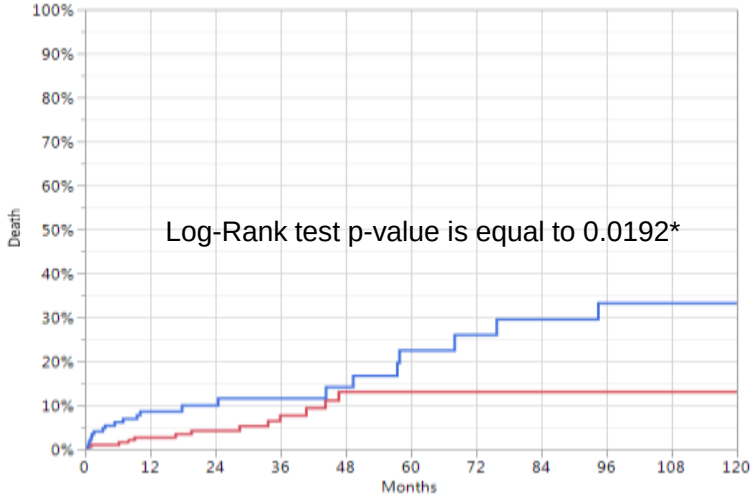
COPD



Renal Insufficiency

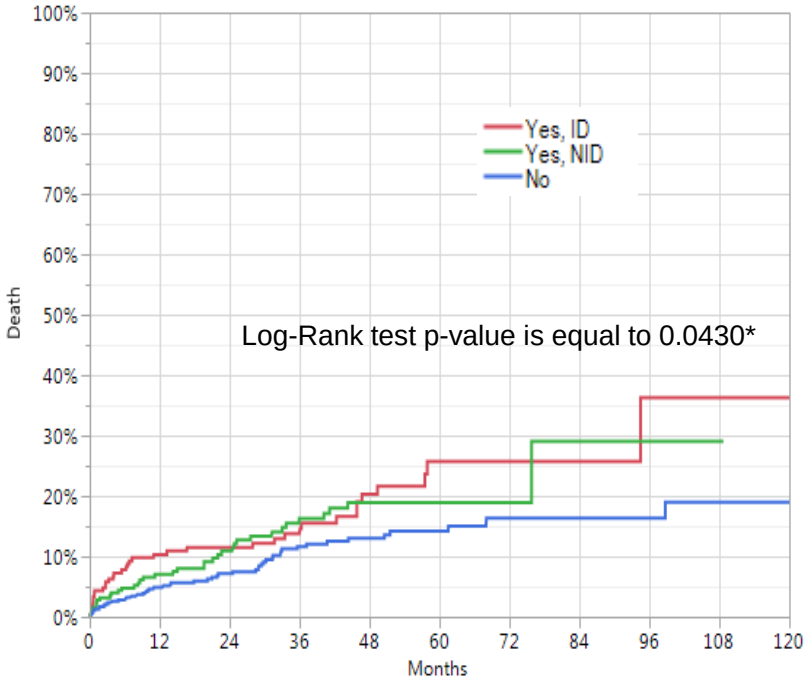


Smoking

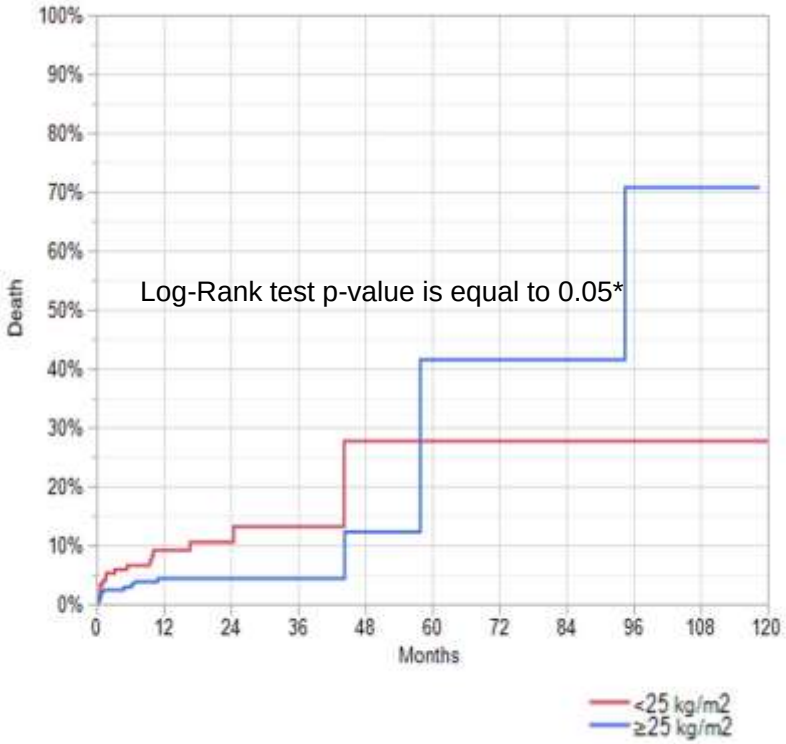


Mortality and outcomes after retrograde endovascular angioplasty in patients with peripheral artery disease n=834

Diabetes mellitus



BMI



Mortality and outcomes after retrograde endovascular angioplasty in patients with peripheral artery disease (n=834)

Multivariate analysis

Predictors of mortality rate after 36 months:

history of stroke	(HR for stroke 2.4, 95% confidence interval (CI) 1.55-3.66; p=0.0002)
Age	(HR for age per 10 years 1.37, 95% (CI) 1.15-1.64; p=0.0002)
Rutherford category,	(HR for Rutherford category 1.63, 95% CI (1.35-1.98); p< 0.0001)
chronic limb ischemia	(HR for chronic limb ischemia 0.44, 95% CI (0.25-0.8), p=0.007)
chronic kidney disease (CKD)	(HR for CKD 1.73, 95% CI (1.14-2.56), p=0.01)
COPD	(HR for COPD 2.4, 95% CI (1.5-3.7), p=0.0004);
previous revascularization	(HR for previous ER 0.59, 95% CI (0.35-0.94), p=0.02).

Predictors of secondary endpoint (death, reER and amputation)

diabetes	(HR 1.3, 95% CI (1.07-1.55, p<0.0075),
Rutherford category	(HR 1.27, 95% CI (1.18-1.37), p<0.0001)
history of stroke	(HR 1.41, 95% CI (1.05-1.86), p=0.02), all age-adjusted.

Independent predictors of tertiary composite end point
(death, reER, amputation, myocardial infarction, lower extremity bypass and thrombendaterectomy).

Rutherford grade	(HR 1.21, 95% CI (1.13-1.3), p<0.0001),
coronary artery disease	(HR 1.4, 95% CI (1.16-1.67), p=0.0003)
history of stroke	(HR 1.38, 95% CI (1.03-1.81), p=0.02)

Kleczynski P., Ruzsa Z. et all Advances in interventional cardiology *2019*

Outcomes after retrograde endovascular angioplasty

Conclusions:

Long-term follow-up shows that

- **retrograde recanalization results in high rate of technical success with low complication rate**
- **need for reinterventions in 40% of pts**
- **relatively high survival rate**
- **history of stroke, Rutherford level, CKD, COPD, and previous endovascular revascularization of other lesion were independently associated with increased risk of all-cause death**

Kleczynki P, Ruzsa Z, (…) Bartus S Adv Interv Cardiol 2019; 15, 2 (56): 234–239

Ruzsa Z. ,Wojtasik J(,..,) Bartus S J Invasive Cardiol. 2017 Oct;29(10):336-339

Long-term follow-up after retrograde recanalisation of superficial femoral artery chronic total occlusion

TECHNICAL FORUM

CLI and CTO summit
– complex aortoiliac and femoral interventions

Stanislaw Bartus

Jagiellonian University

Krakow, Poland