

Antithrombotische Therapie beim Schockpatienten

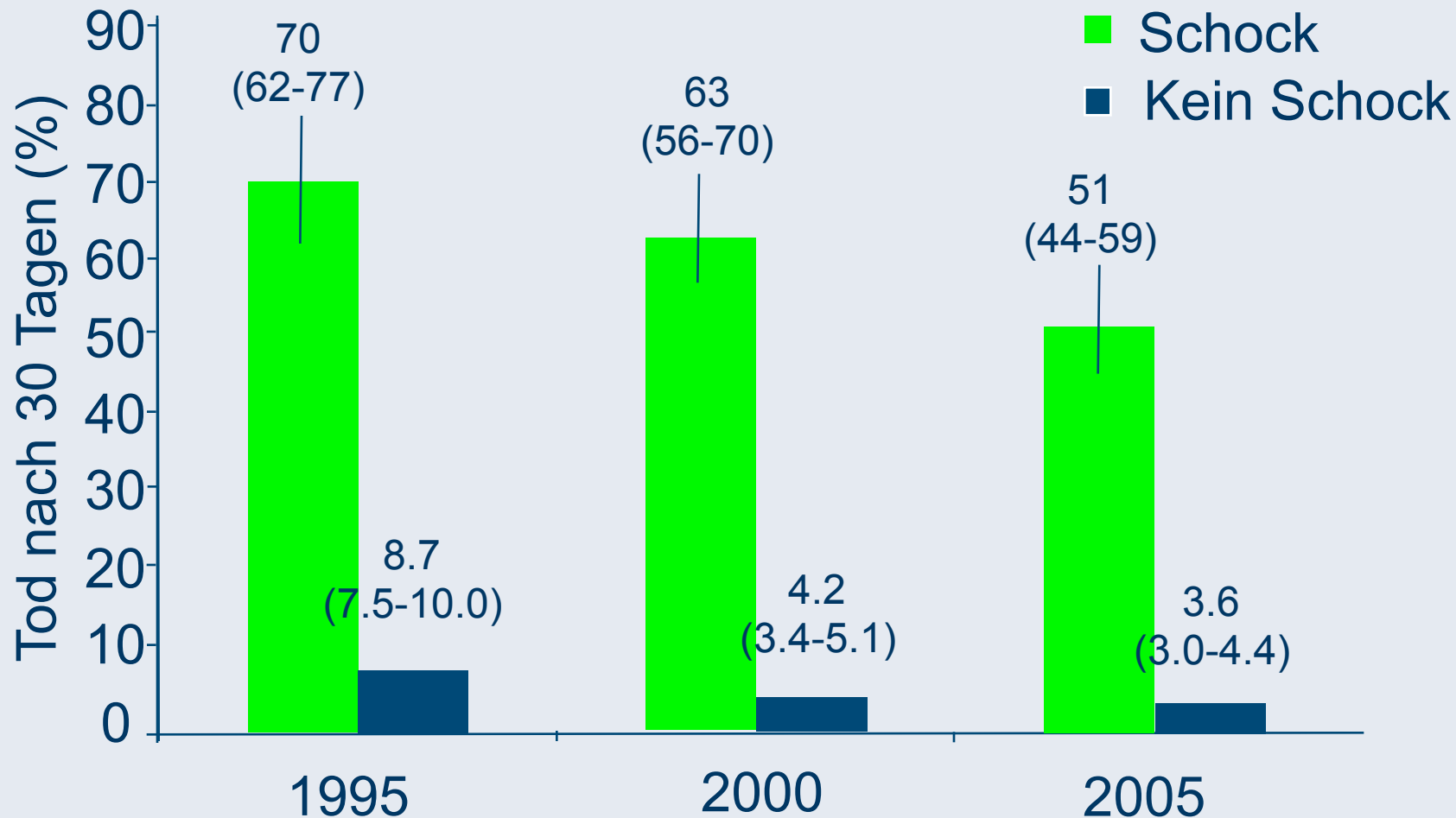
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Medizinische Klinik II (Kardiologie/Angiologie/Intensivmedizin)

In-hospitale Mortalität

USIK 1995, USIC 2000, FAST-MI France National Registry



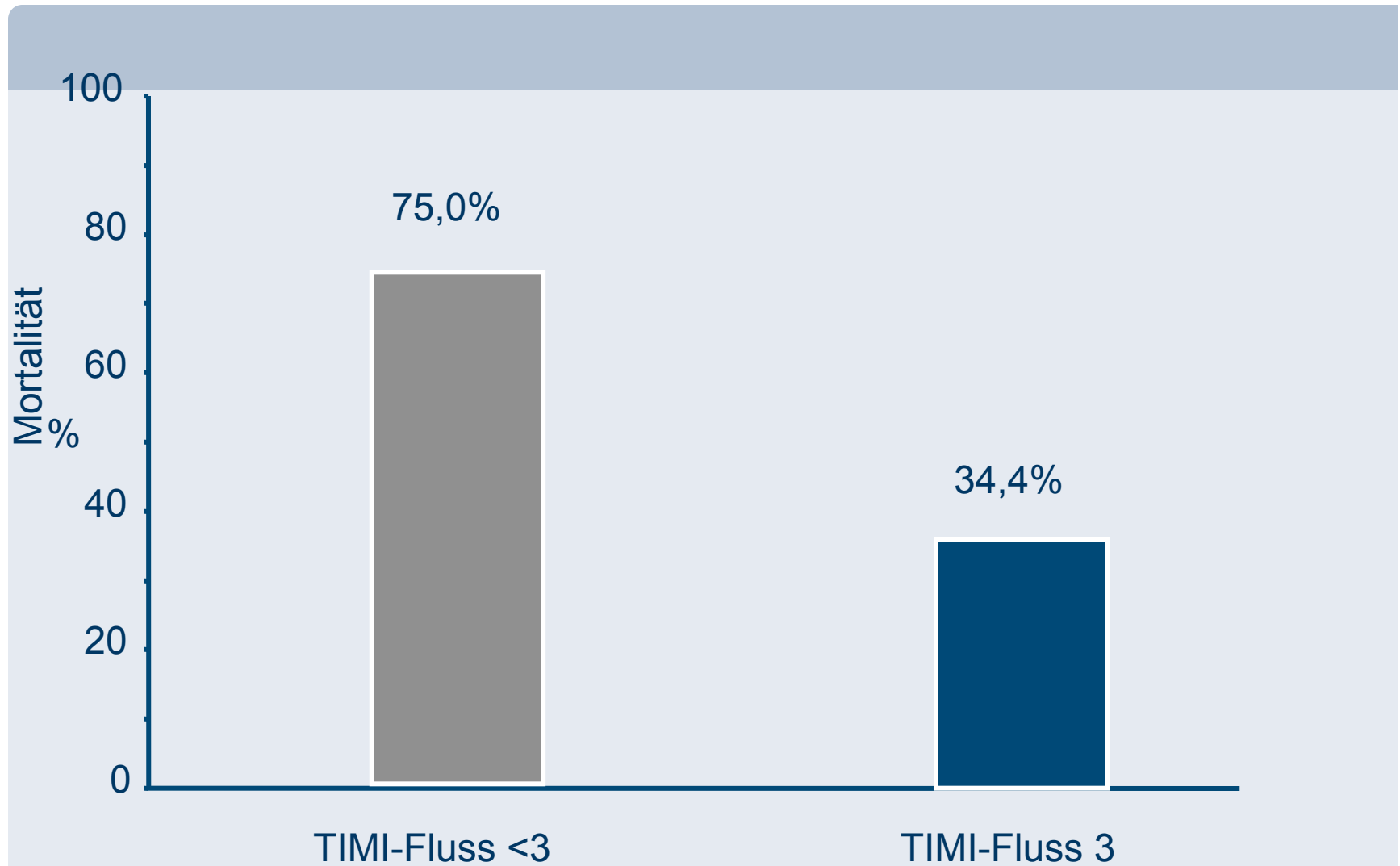
Randomisierte Studien im kardiogenen Schock

Trial	Follow-up	n/N	n/N	Relatives Risiko 95% CI	Relative Risiko 95% CI
Revaskularisation (PCI/CABG)					
SHOCK	1-Jahr	76/152	83/149		0.80 (0.66;0.98)
SMASH	30 Tage	22/32	18/23		0.87 (0.66;1.29)
Total		103/184	117/172		0.82 (0.70;0.98)

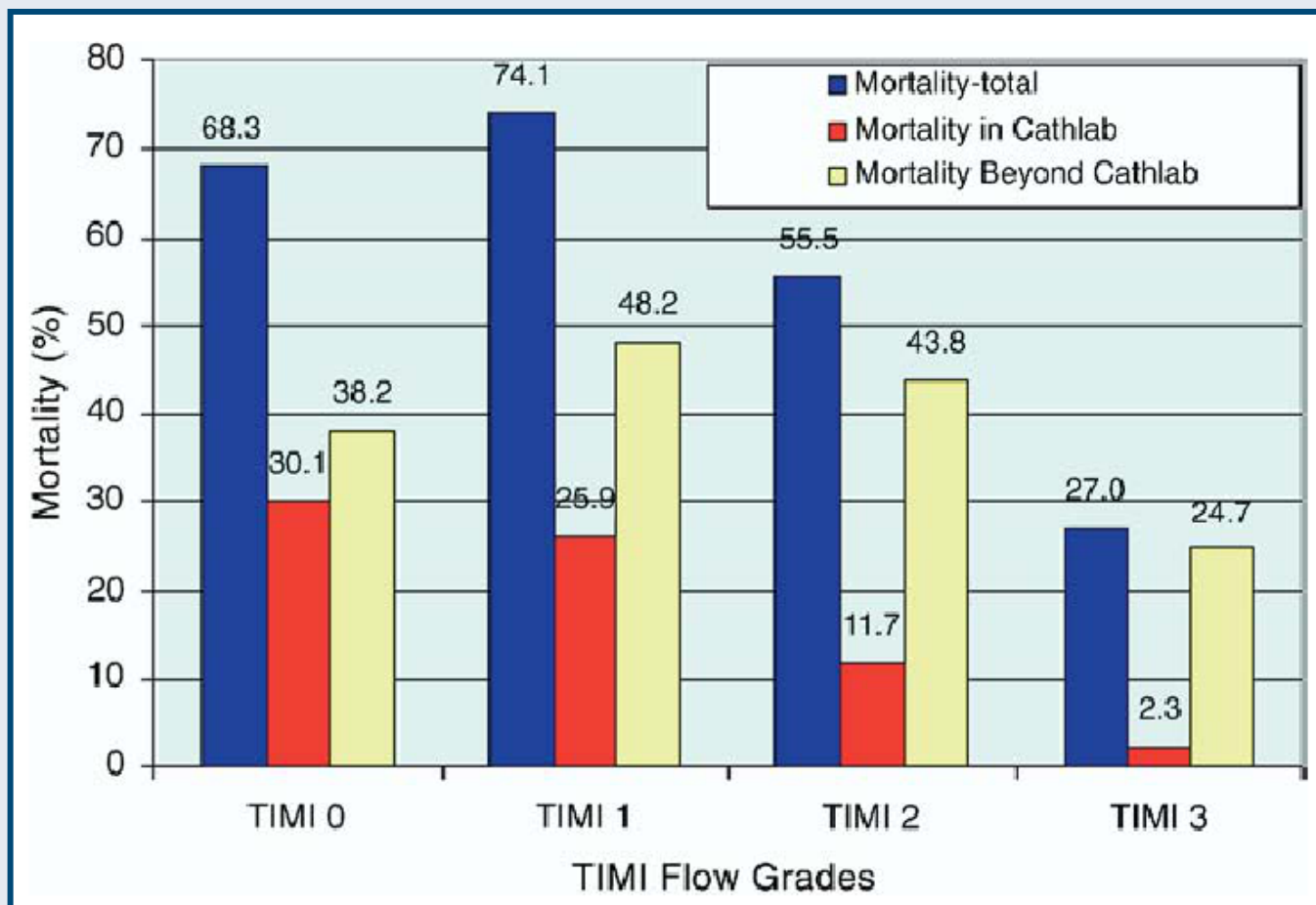
Frühe Revaskularisation
besser

Medikamentöse Therapie
besser

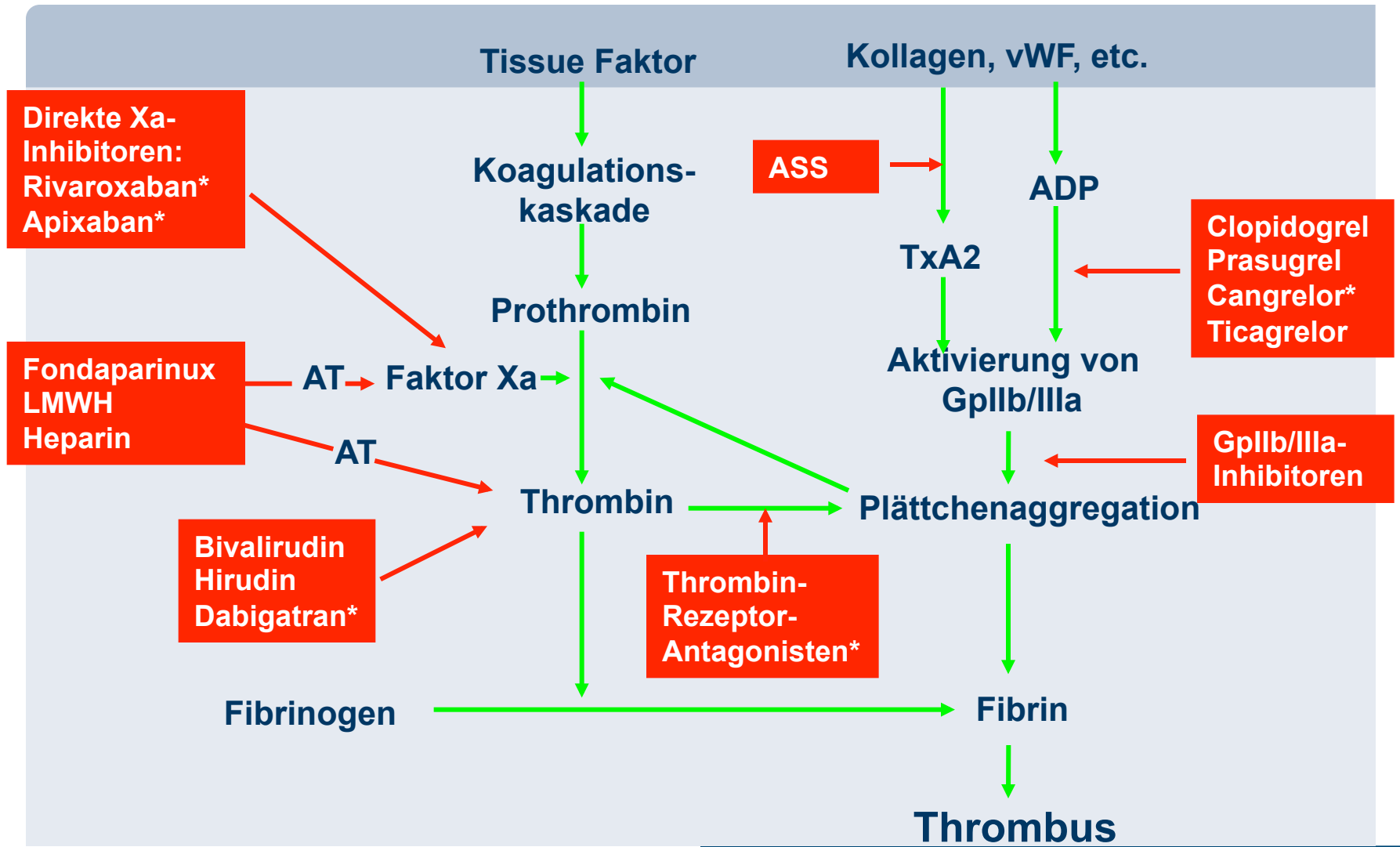
TIMI-Fluss und Sterblichkeit



TIMI-Fluss und Mortalität



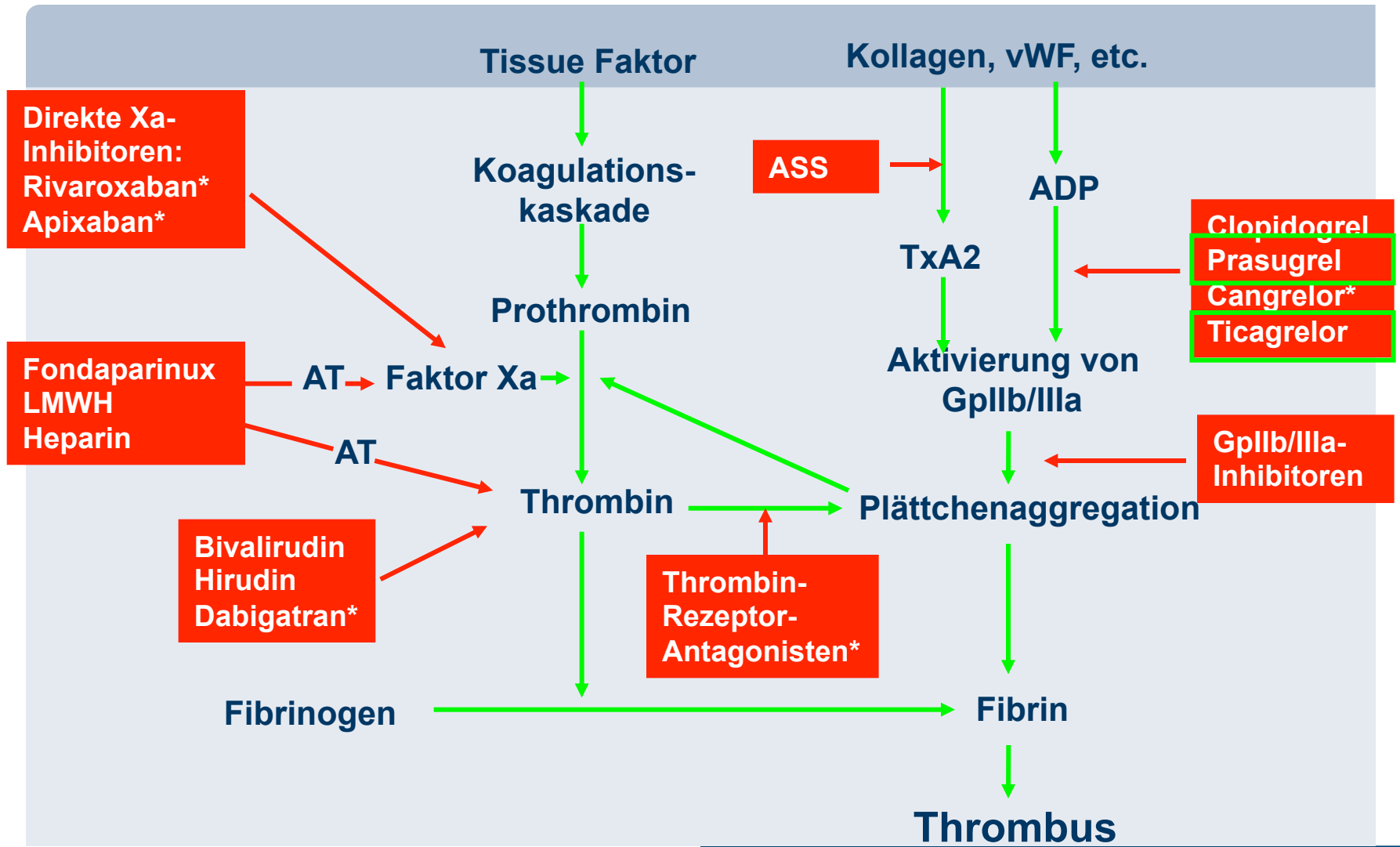
Antiplättchen-Therapie + Antikoagulation



Antithrombotische Therapie - Klinische Praxis

Antiplatelet therapy and anticoagulation; n/total (%)	IABP	Kontrolle	
Aspirin	293/299 (98.0)	284/298 (95.3)	0.07
Clopidogrel	216/299 (72.2)	206/298 (69.1)	0.40
Prasugrel	80/299 (26.8)	76/298 (25.5)	0.73
Ticagrelor*	19/234 (8.1)	15/228 (6.6)	0.52
Glycoprotein IIb/IIIa-inhibitors	138/299 (46.2)	143/298 (48.0)	0.63
Unfractionated heparin	288/299 (96.3)	275/298 (92.3)	0.03
Low molecular weight heparin	60/299 (20.1)	59/298 (19.8)	0.94

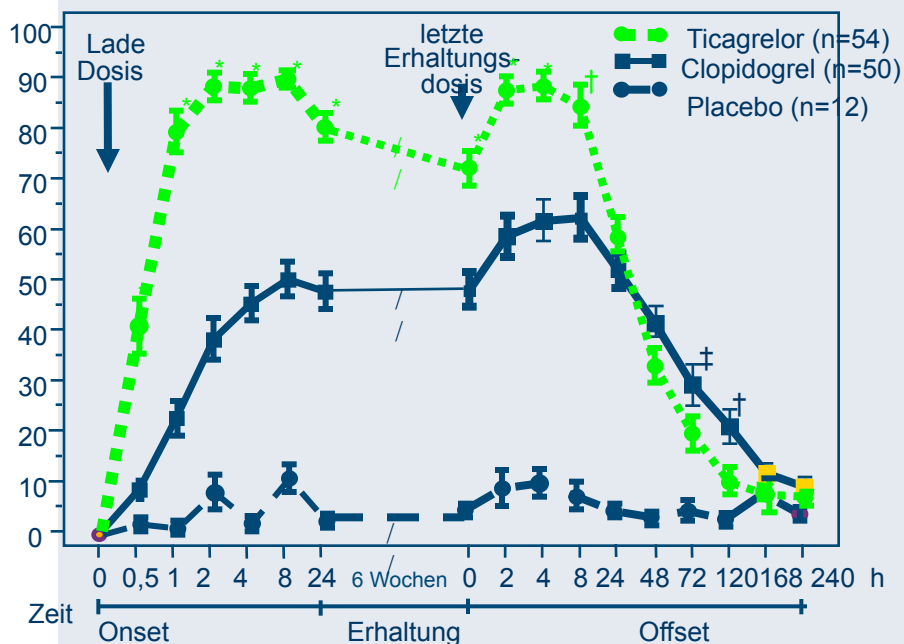
Antiplättchen-Therapie + Antikoagulation



Rascher Wirkungseintritt

Ticagrelor

Ladedosis

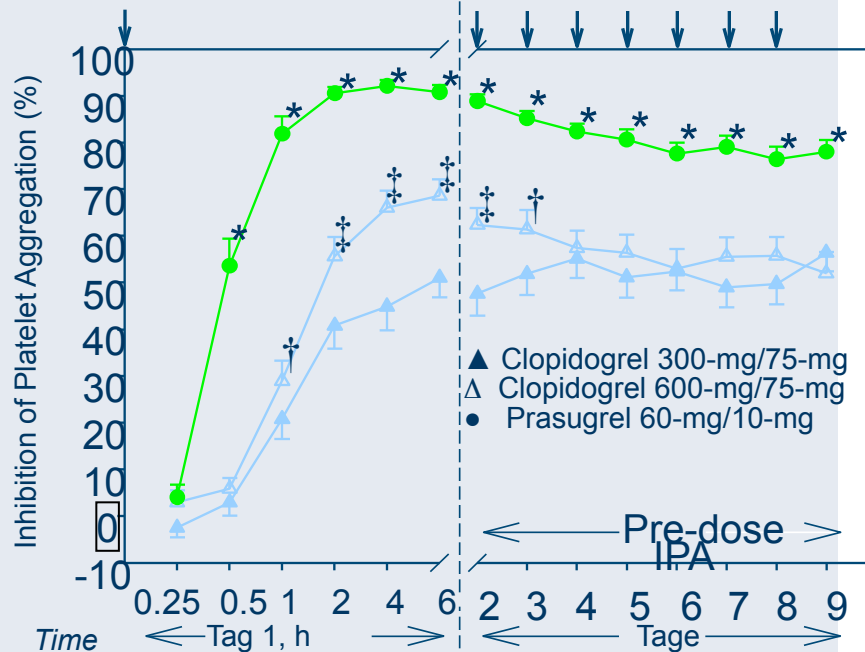


Inhibition der Plättchenaggregation (20 μ M ADP)

Prasugrel

Ladedosis

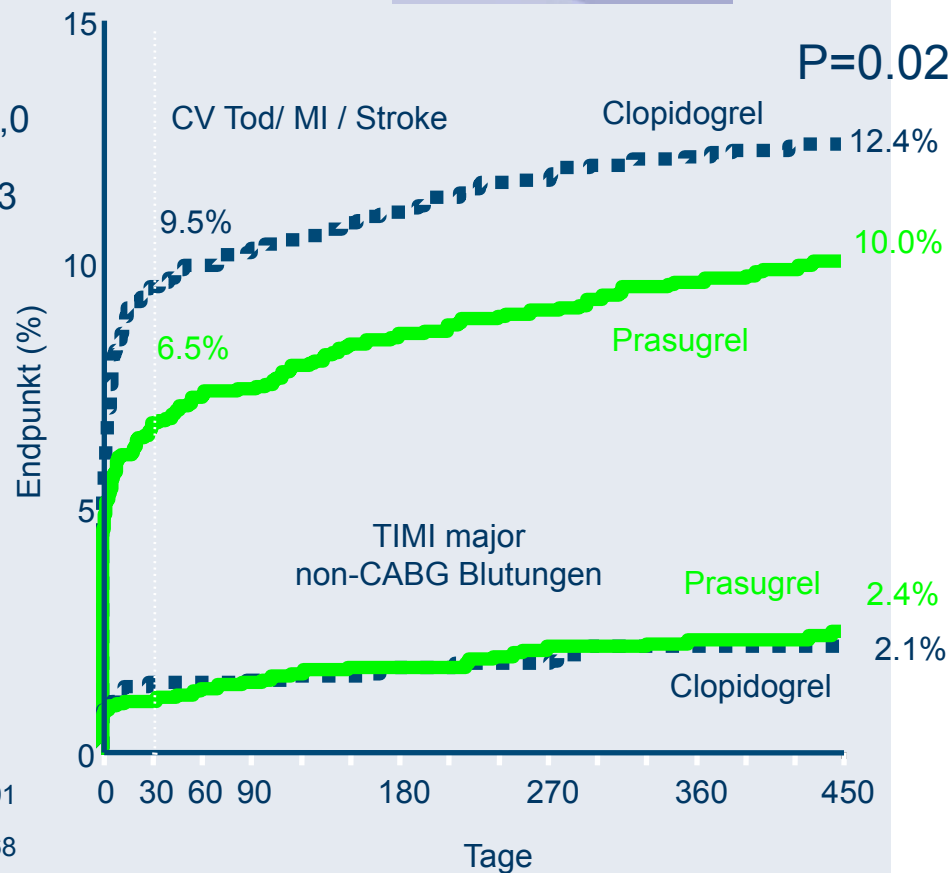
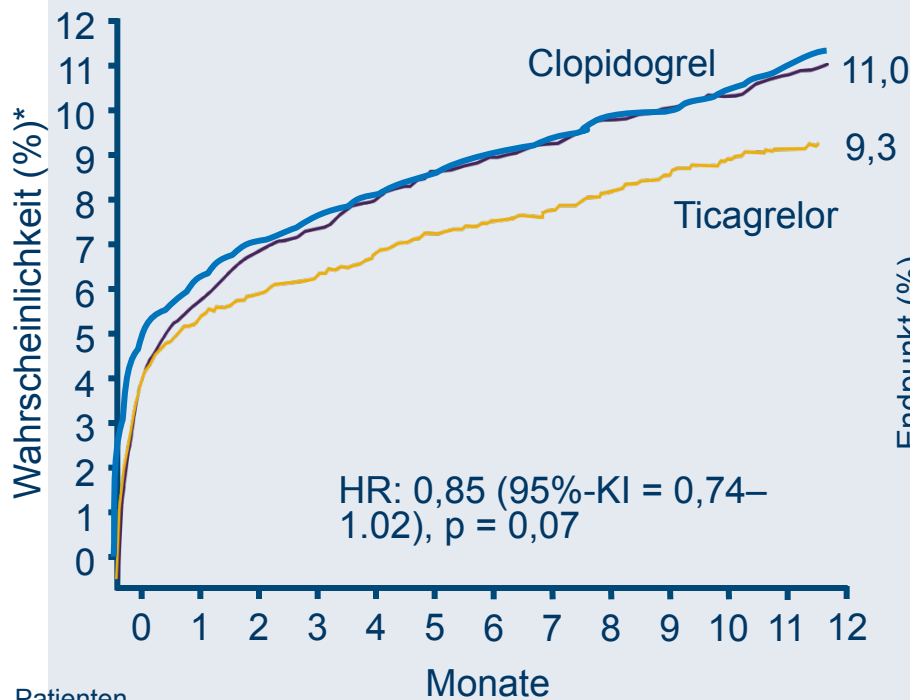
Erhaltungsdosis



STEMI-Patienten

**PLATO
STEMI**

TRITON TIMI-38

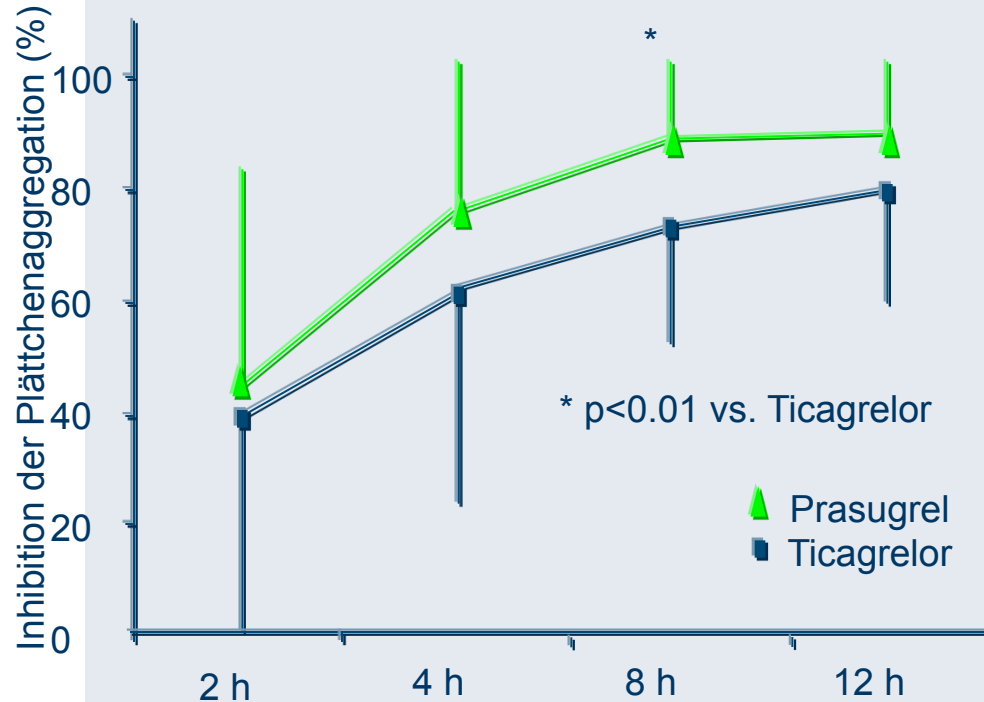


Anz. Patienten

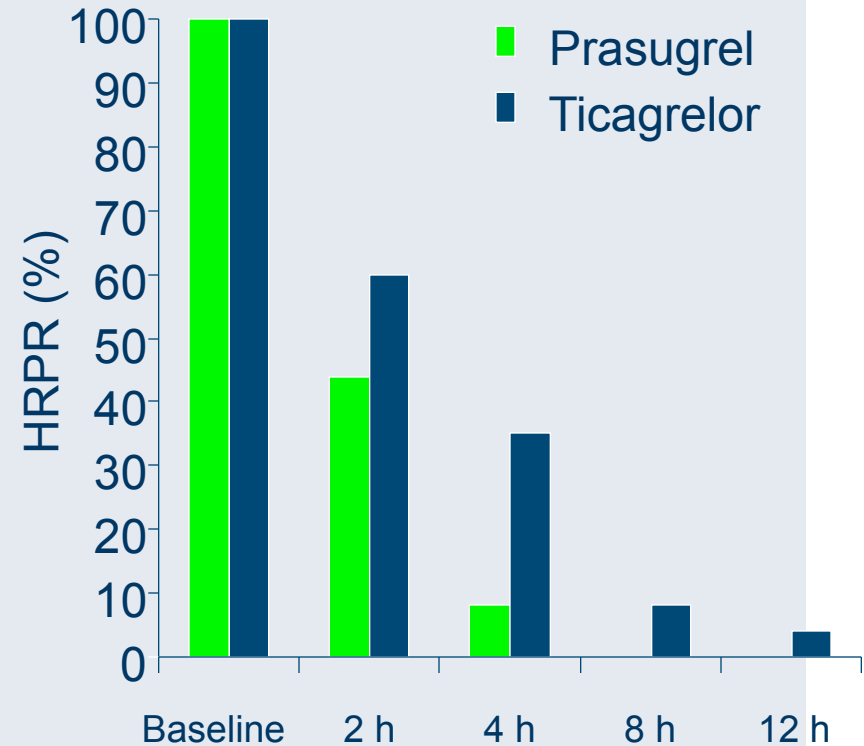
Ticagrelor	4.201	3.887	3.834	3.732	3.011	2.297	1.891
Clopidogrel	4.229	3.892	3.823	3.730	3.022	2.333	1.868

Wirkung Prasugrel + Ticagrelor in STEMI

Plättcheninhibition VerifyNow



High Residual Platelet Reactivity (HRPR)

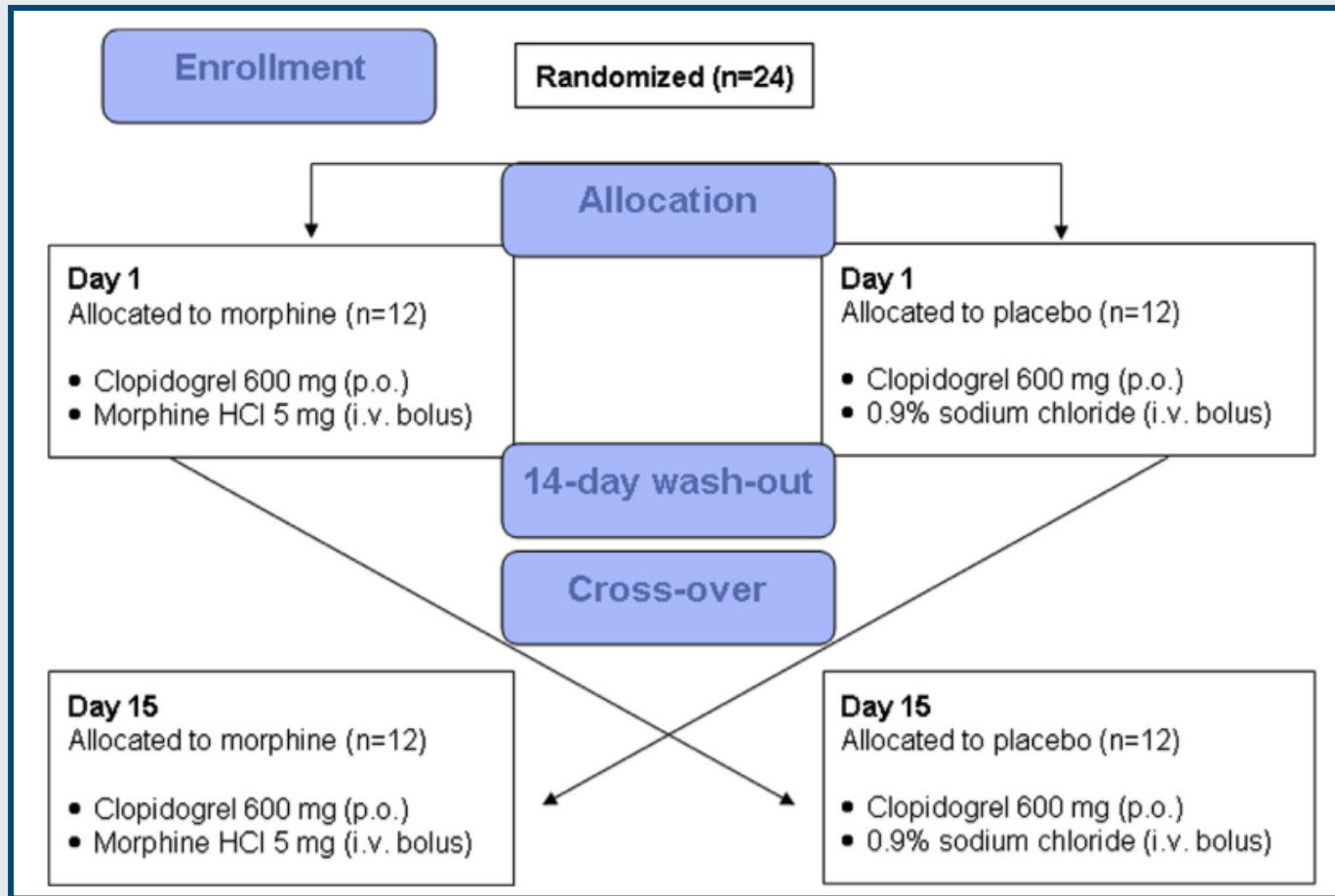


Probleme orale P2Y12-Inhibitoren

- Ca. 90% intubiert
- Gabe durch Magensonde
- Tabletten müssen zermörsert werden
- Enterale Durchblutung ↓
- Teilweise Pro-Drugs
- Stoffwechselleistung Leber ↓
- Oft zusätzliche Morphingabe
- Ca. 40% reanimiert -> Hypothermie

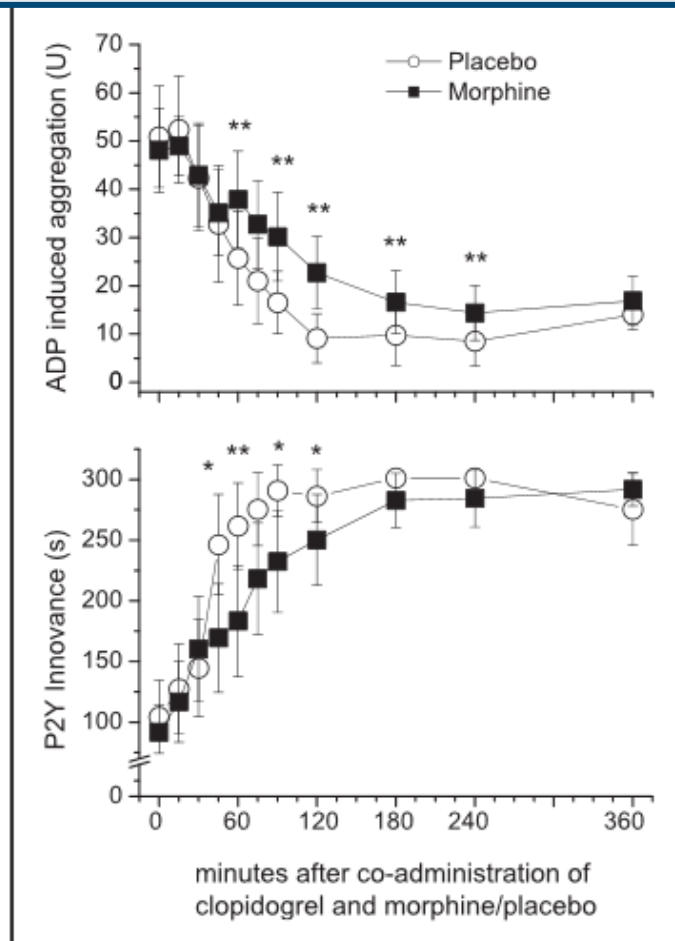
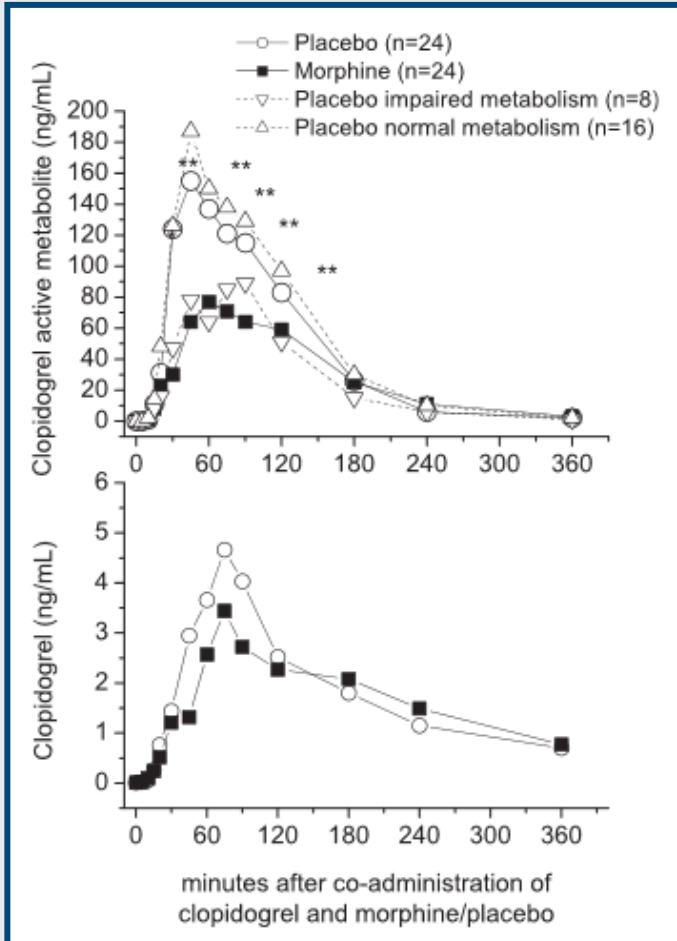
Effekt von Morphin auf Clopidogrelwirkung

24 Gesunde

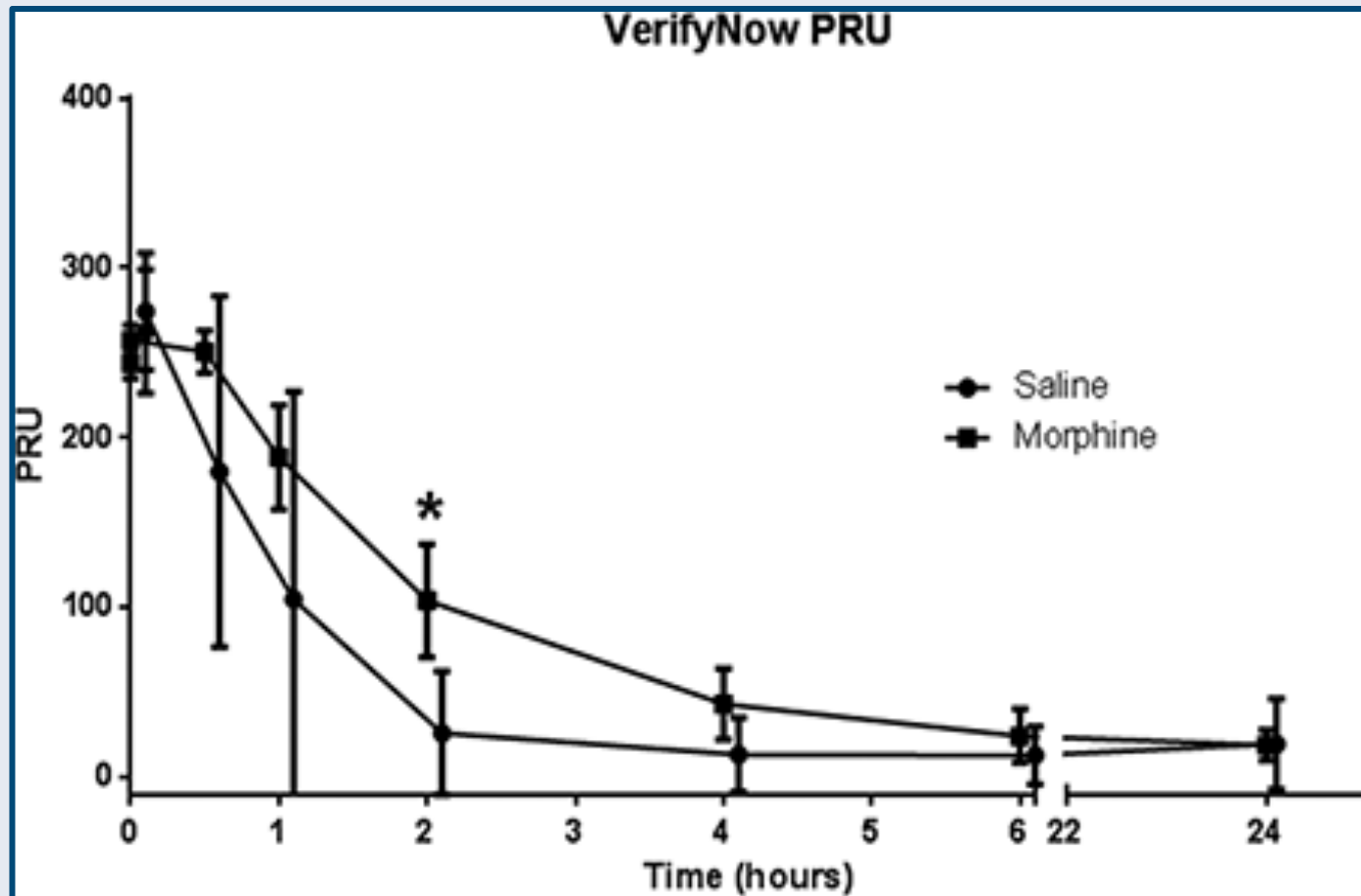


Effekt von Morphin auf Clopidogrelwirkung

24 Gesunde



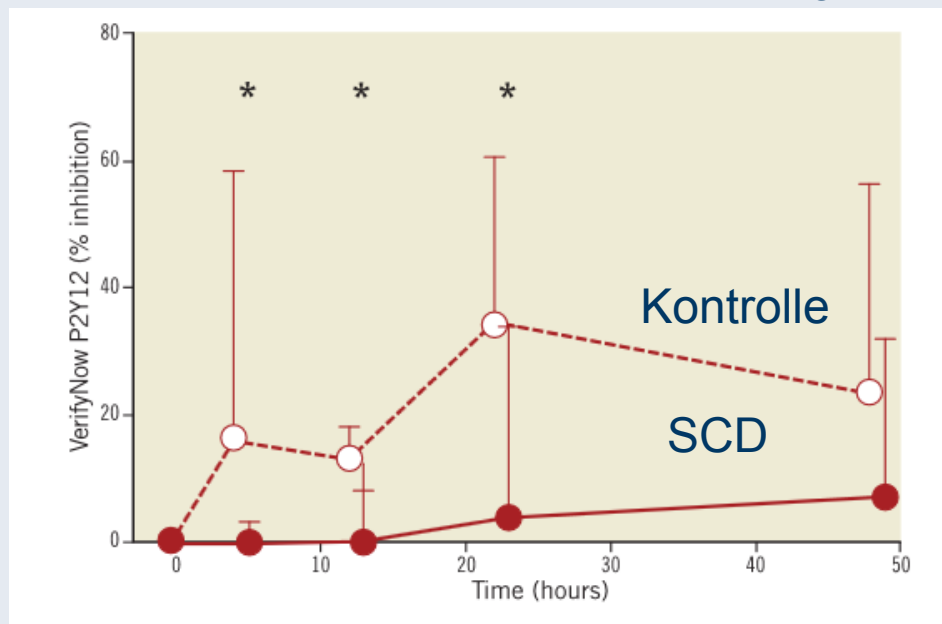
Effekt von Morphin auf Prasugrelwirkung

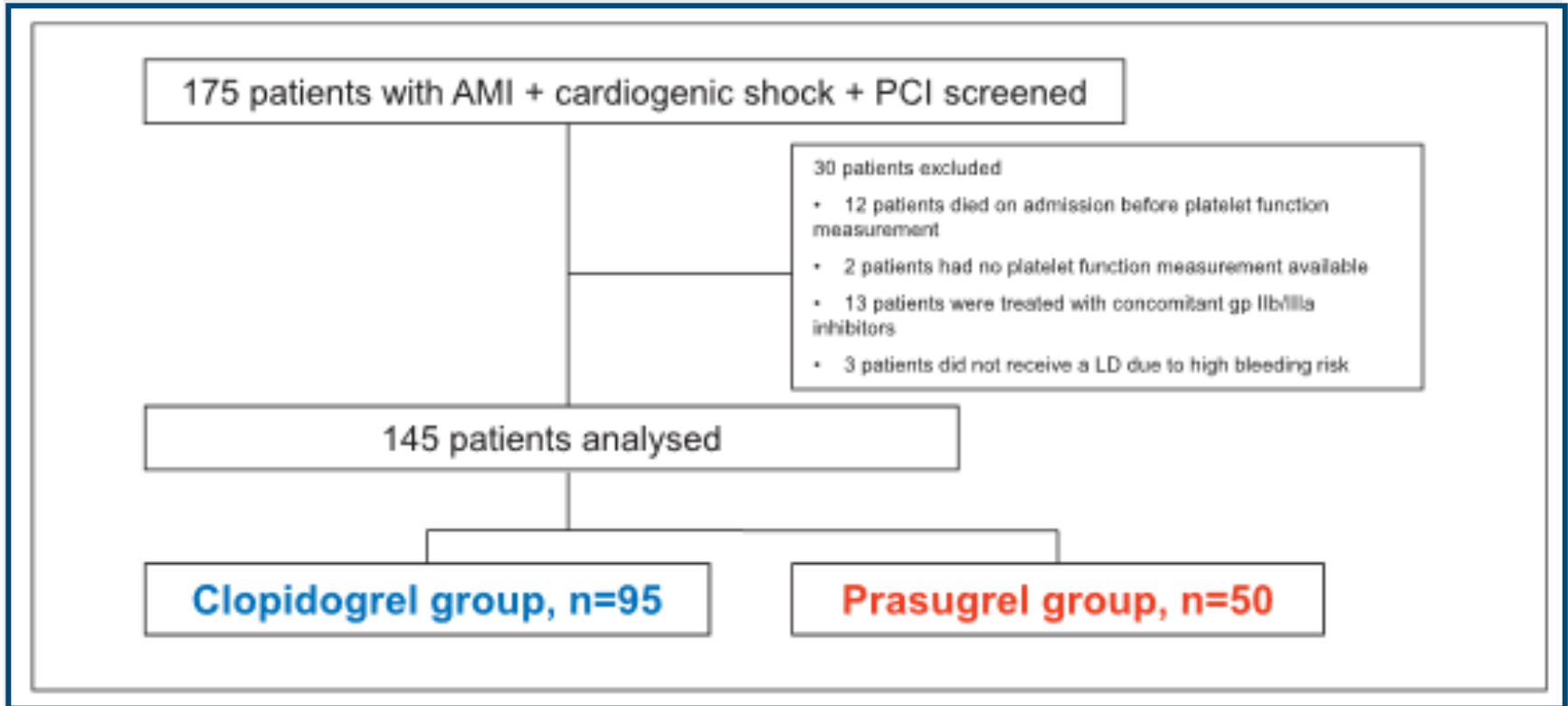


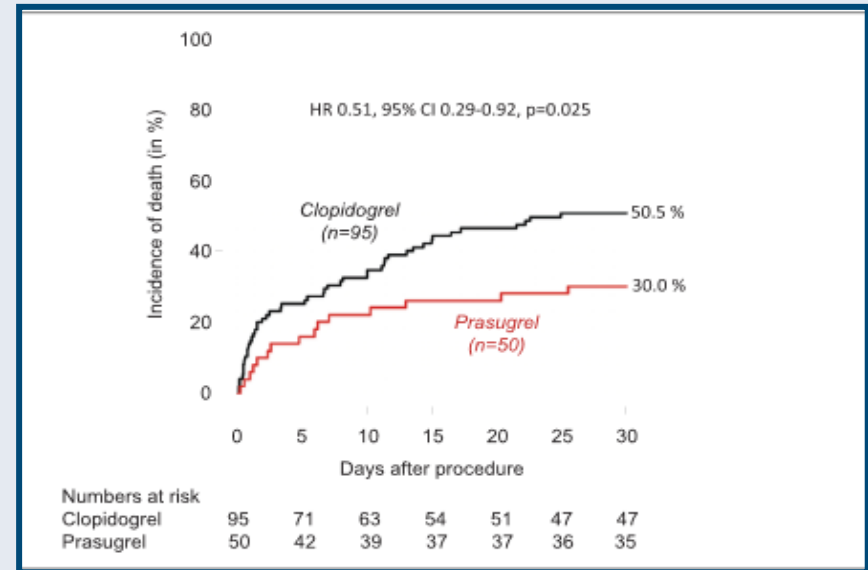
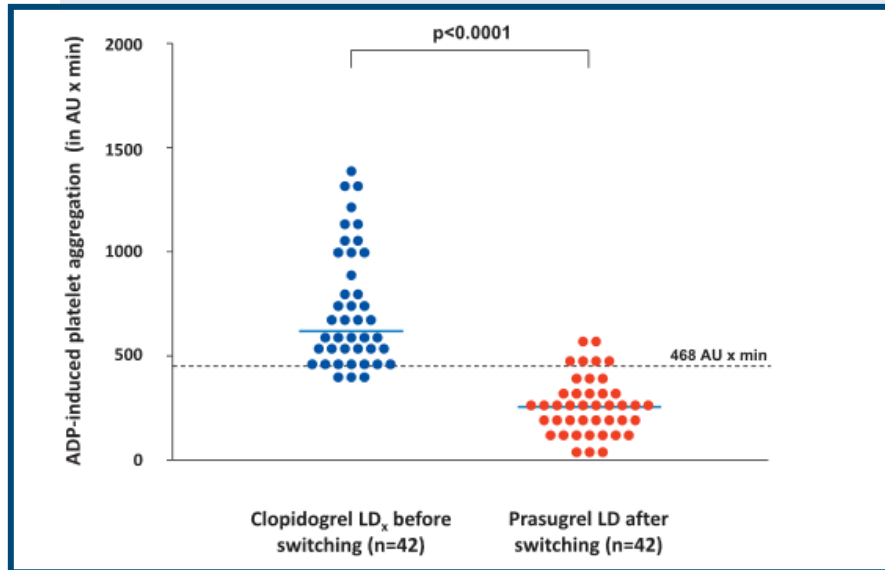
Plättcheninhibition nach SCD

24 komatöse SCD-Patienten mit PCI und Hypothermie
Gabe von Clopidogrel

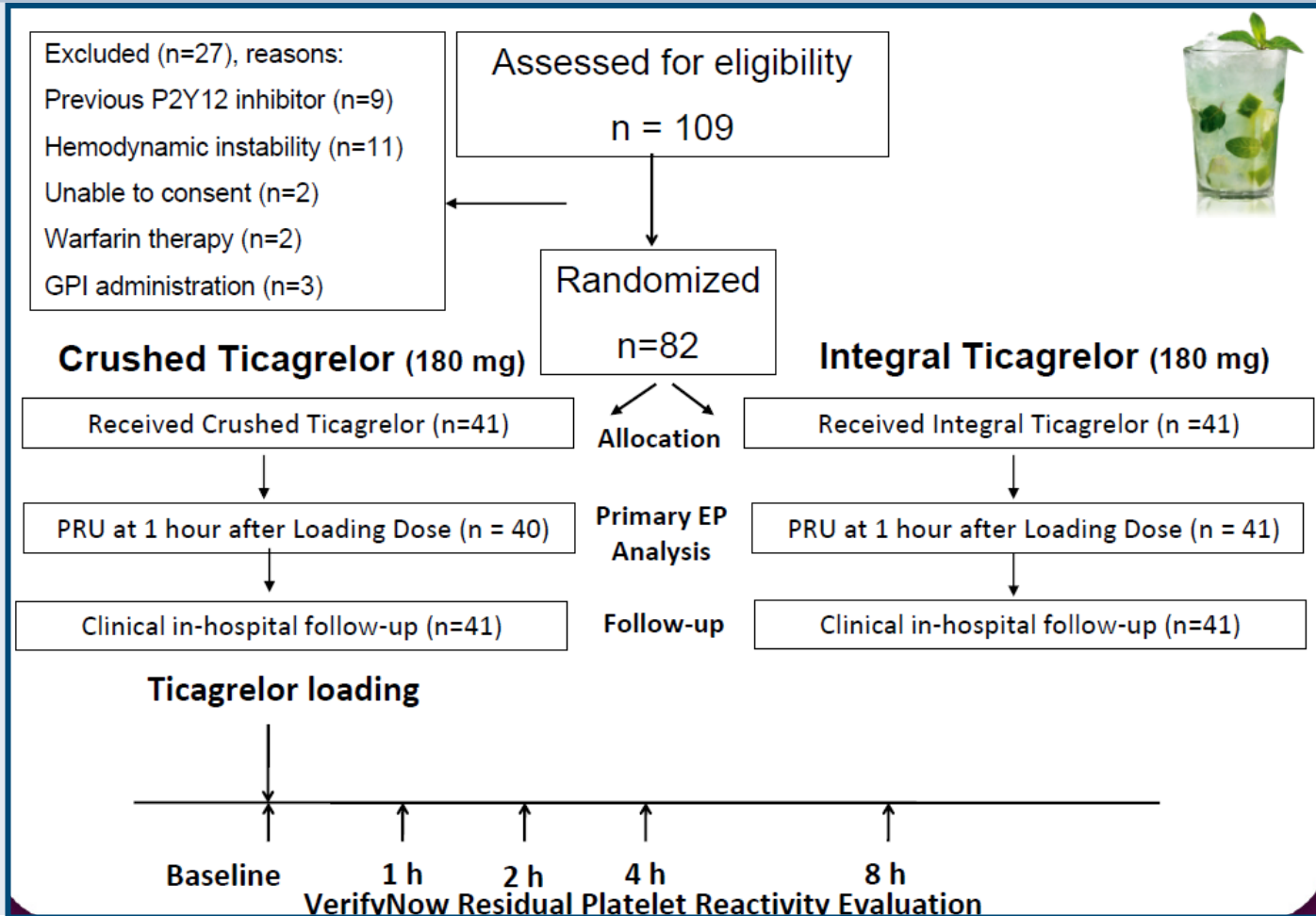
Plättcheninhibition nach Clopidogrel





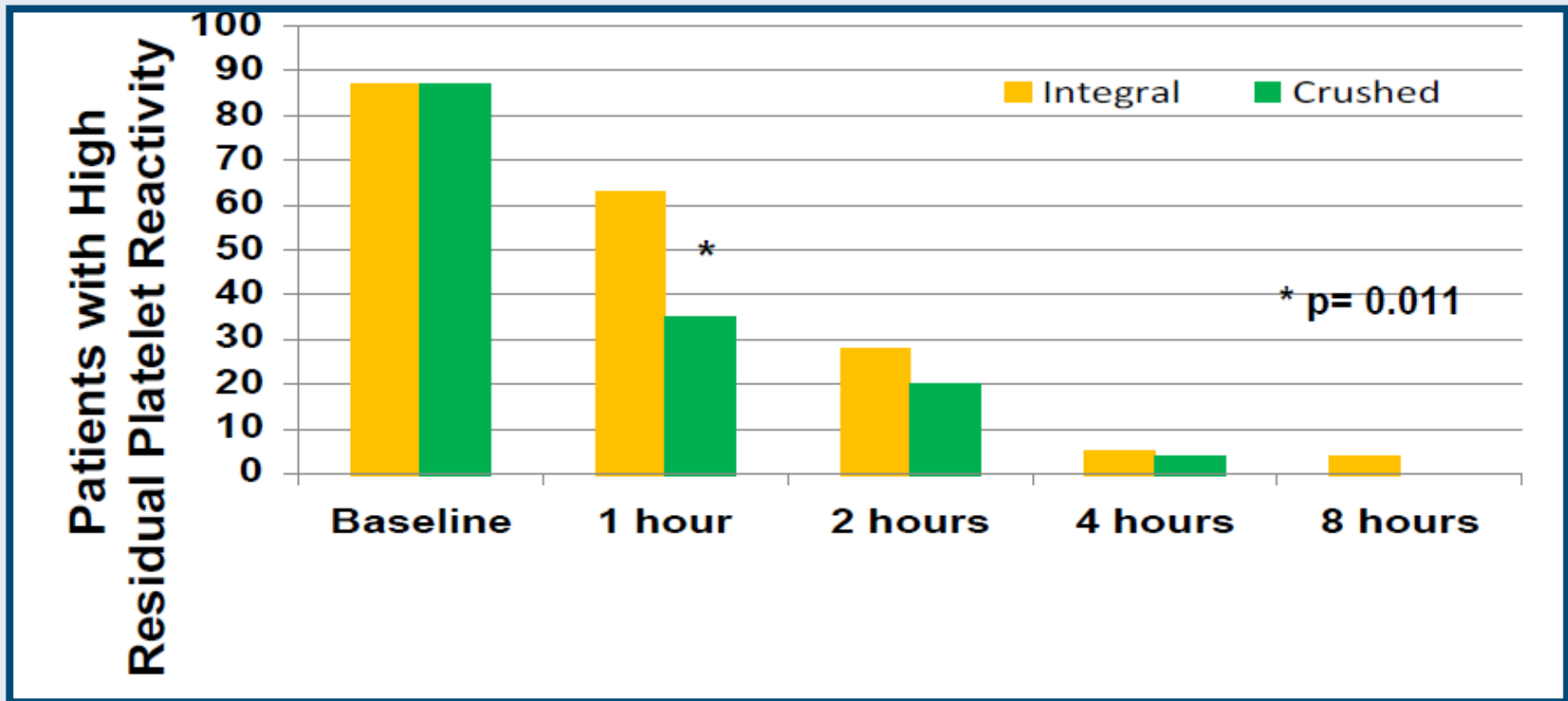


Crushed Ticagrelor

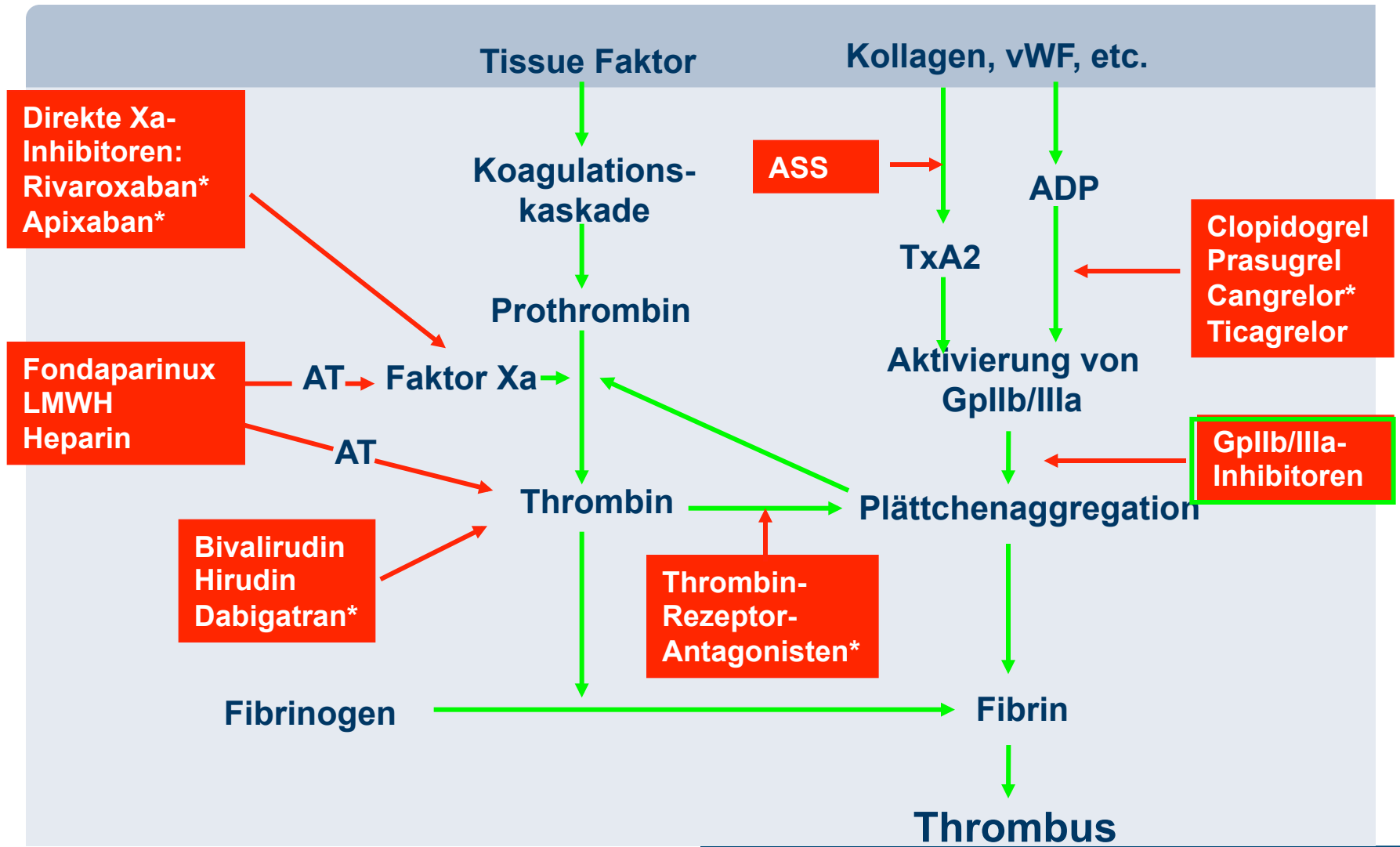


Crushed Ticagrelor

HRPR (>208 PRU)



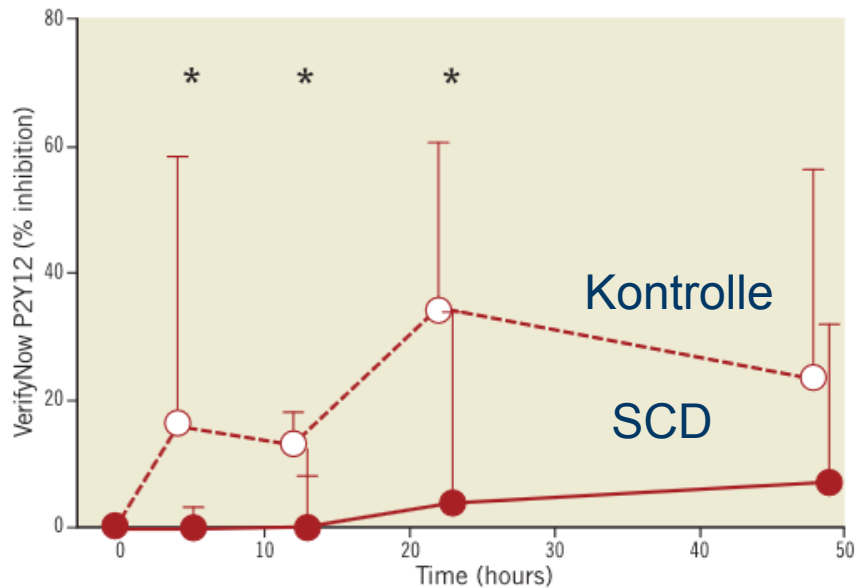
Antiplättchen-Therapie + Antikoagulation



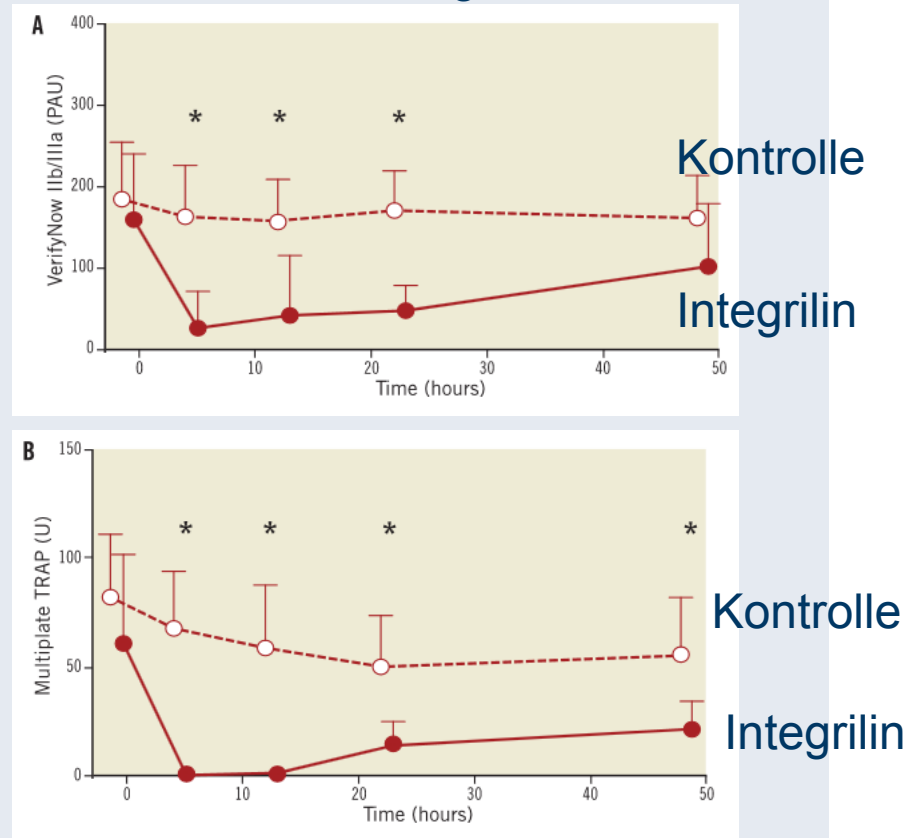
Plättcheninhibition nach SCD

24 komatöse SCD-Patienten mit PCI und Hypothermie
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Plättcheninhibition nach Clopidogrel

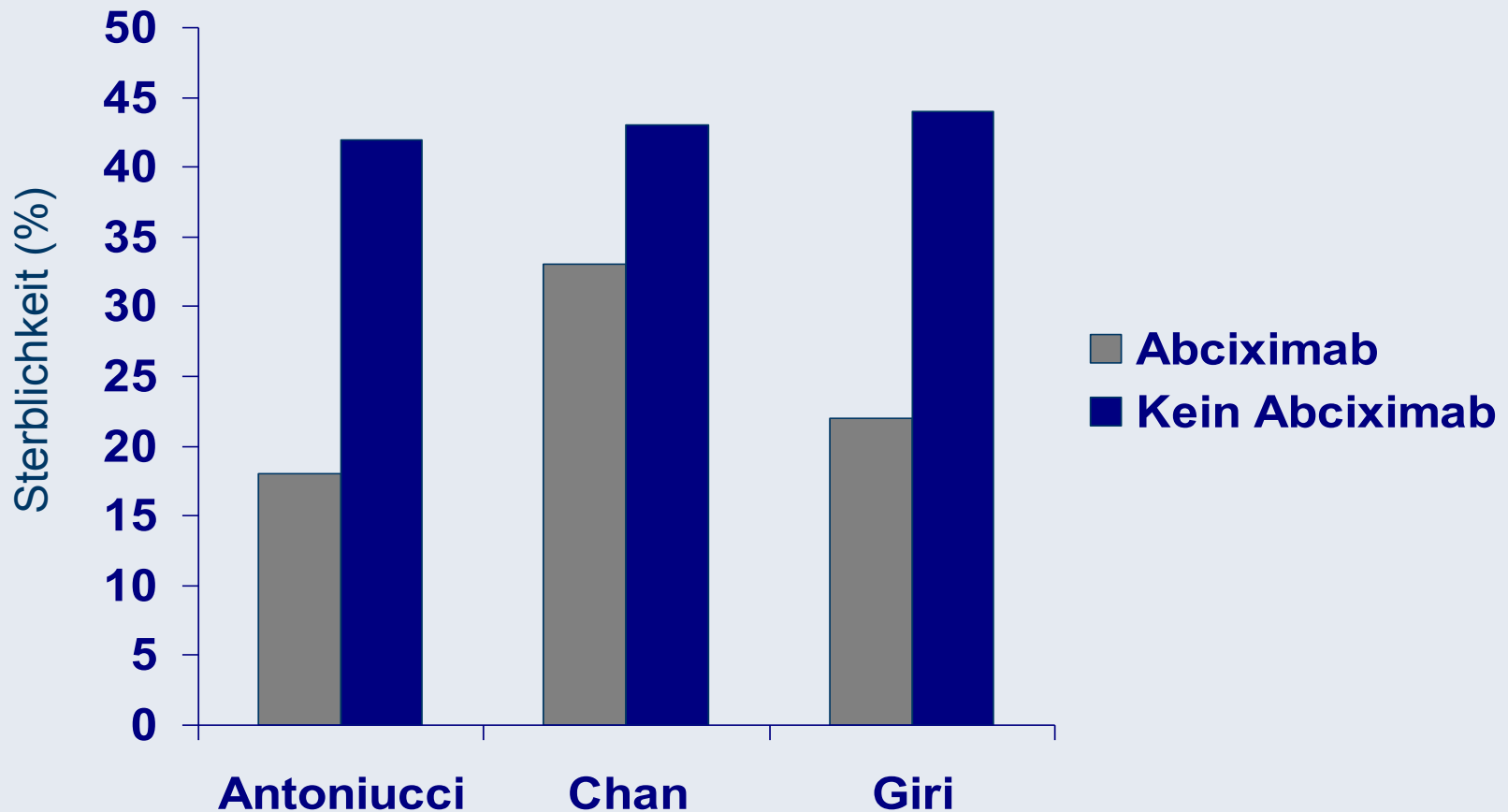


Effekt von Integrilin

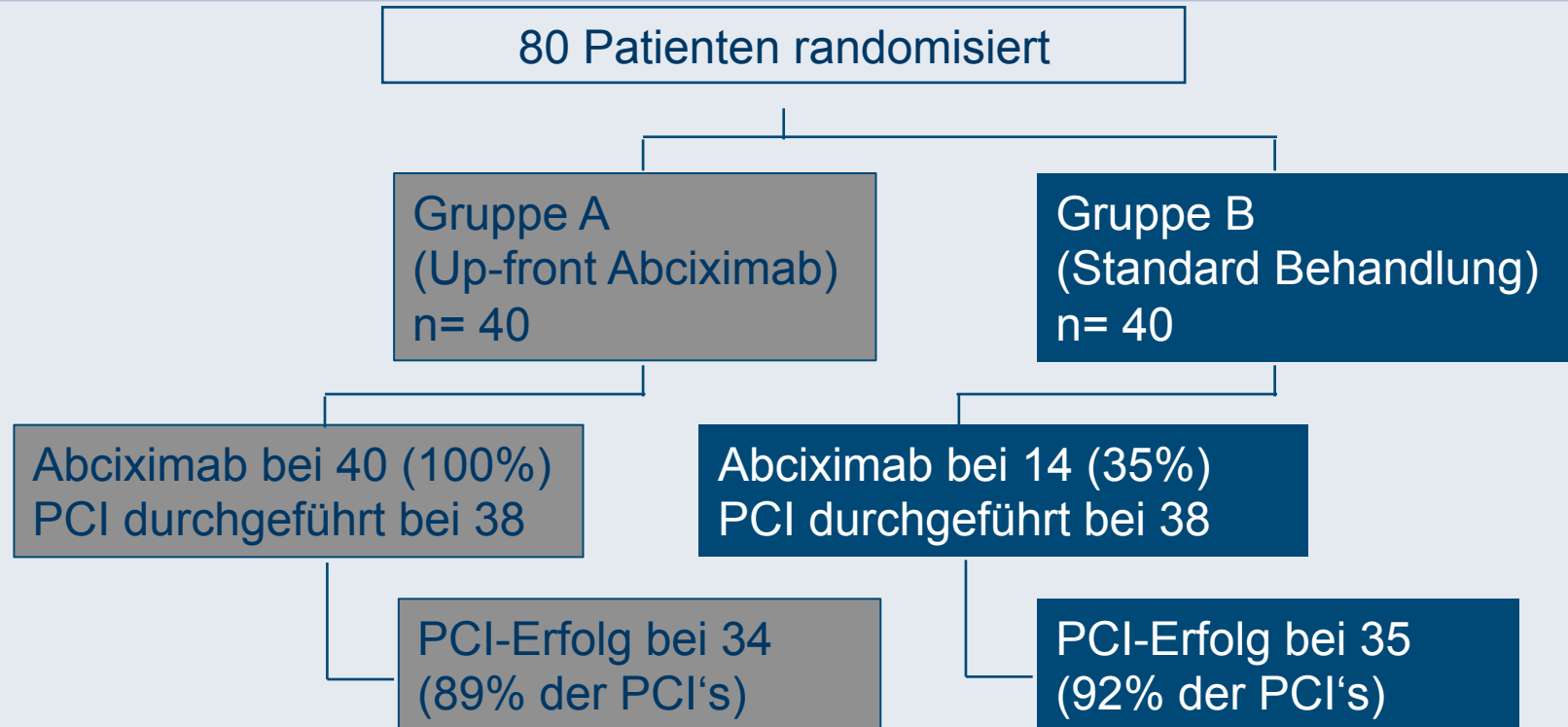


Gp IIb/IIIa-Inhibitoren im kardiogenen Schock

Register-Daten



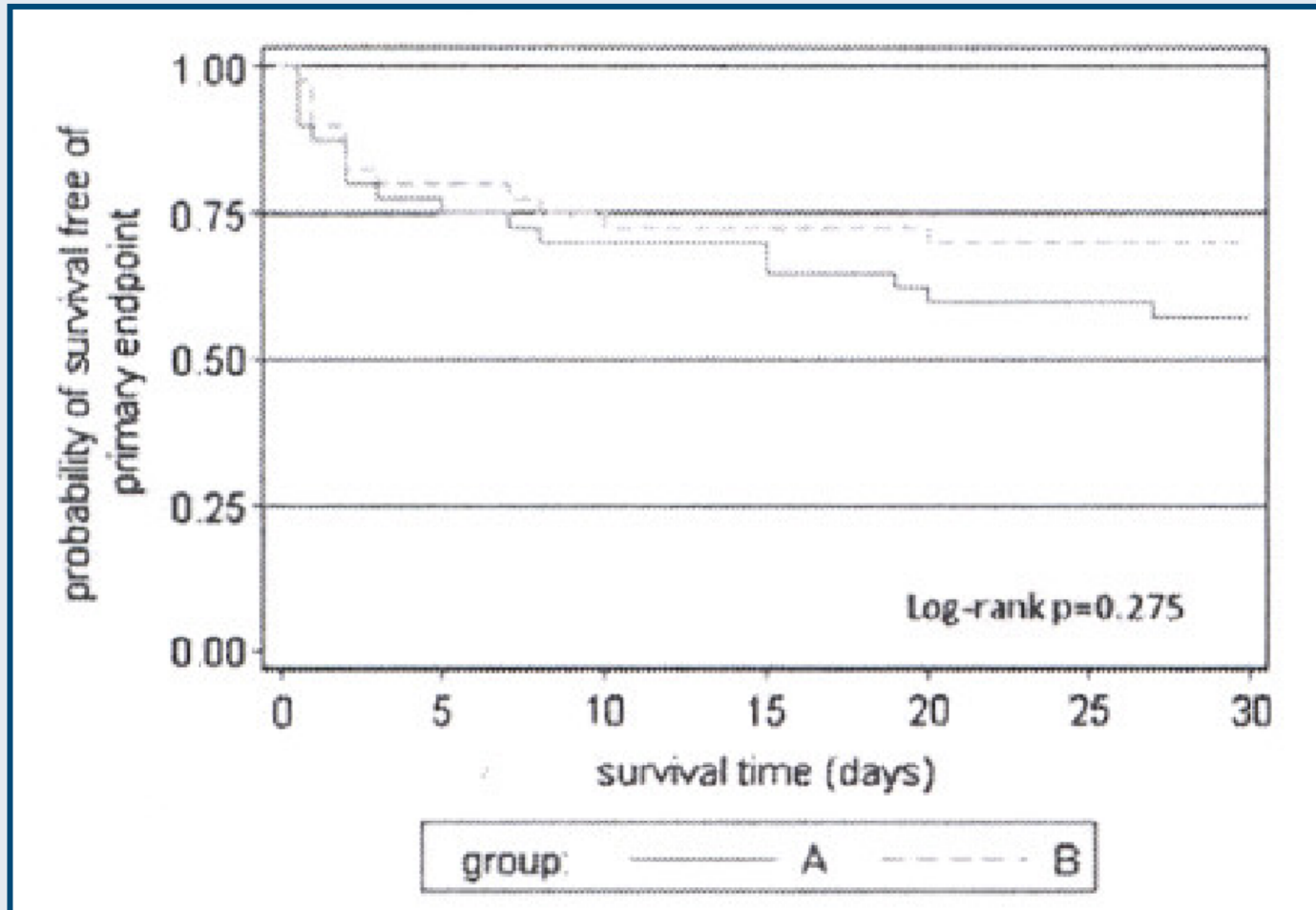
Randomisierte Studie



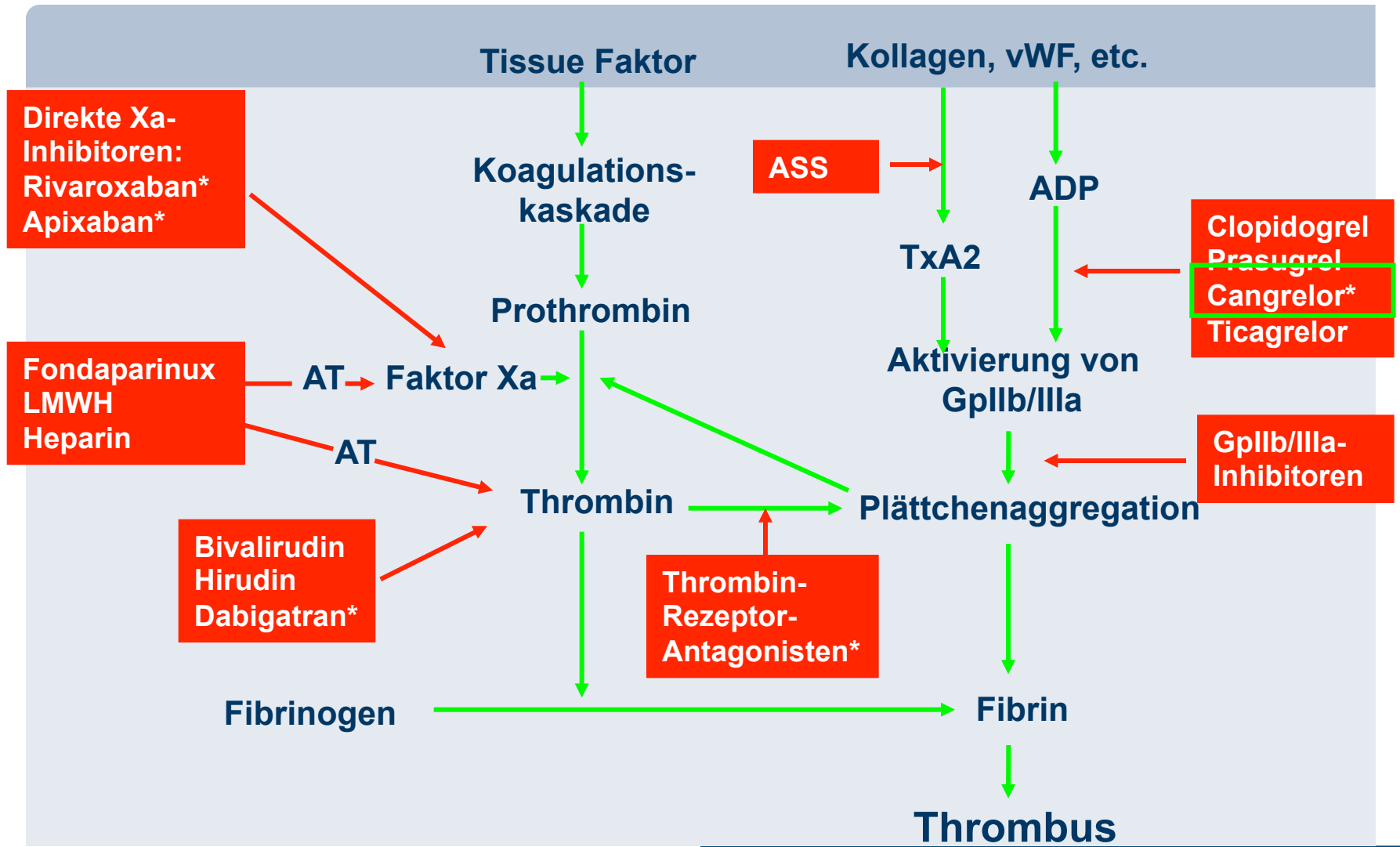
Randomisierte Studie

	Gruppe A (Upfront Abciximab)	Gruppe B (Standard Behandlung)
Primärer Endpunkt	17 (42%)	17 (27%)
Krankenhaus-Mortalität	15 (37%)	13 (32%)
TIMI Major Blutung	4 (10%)	2 (5%)
Apoplex	4 (2,5%)	2 (5%)

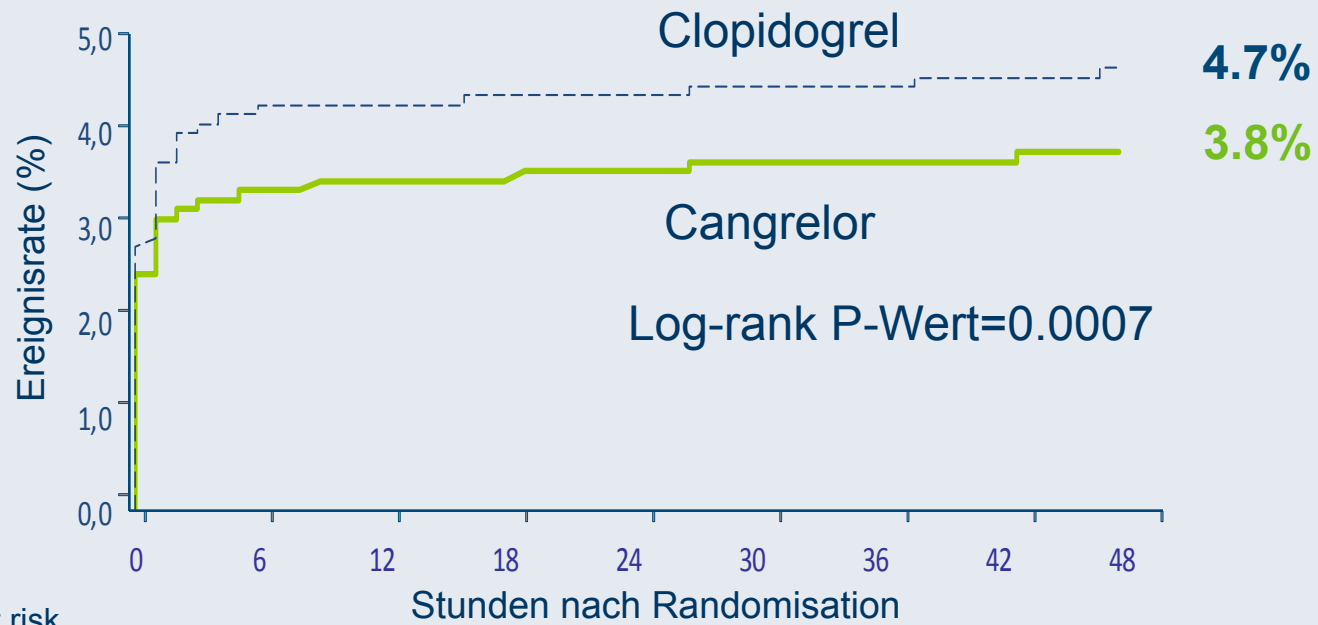
Randomisierte Studie



Antiplättchen-Therapie + Antikoagulation



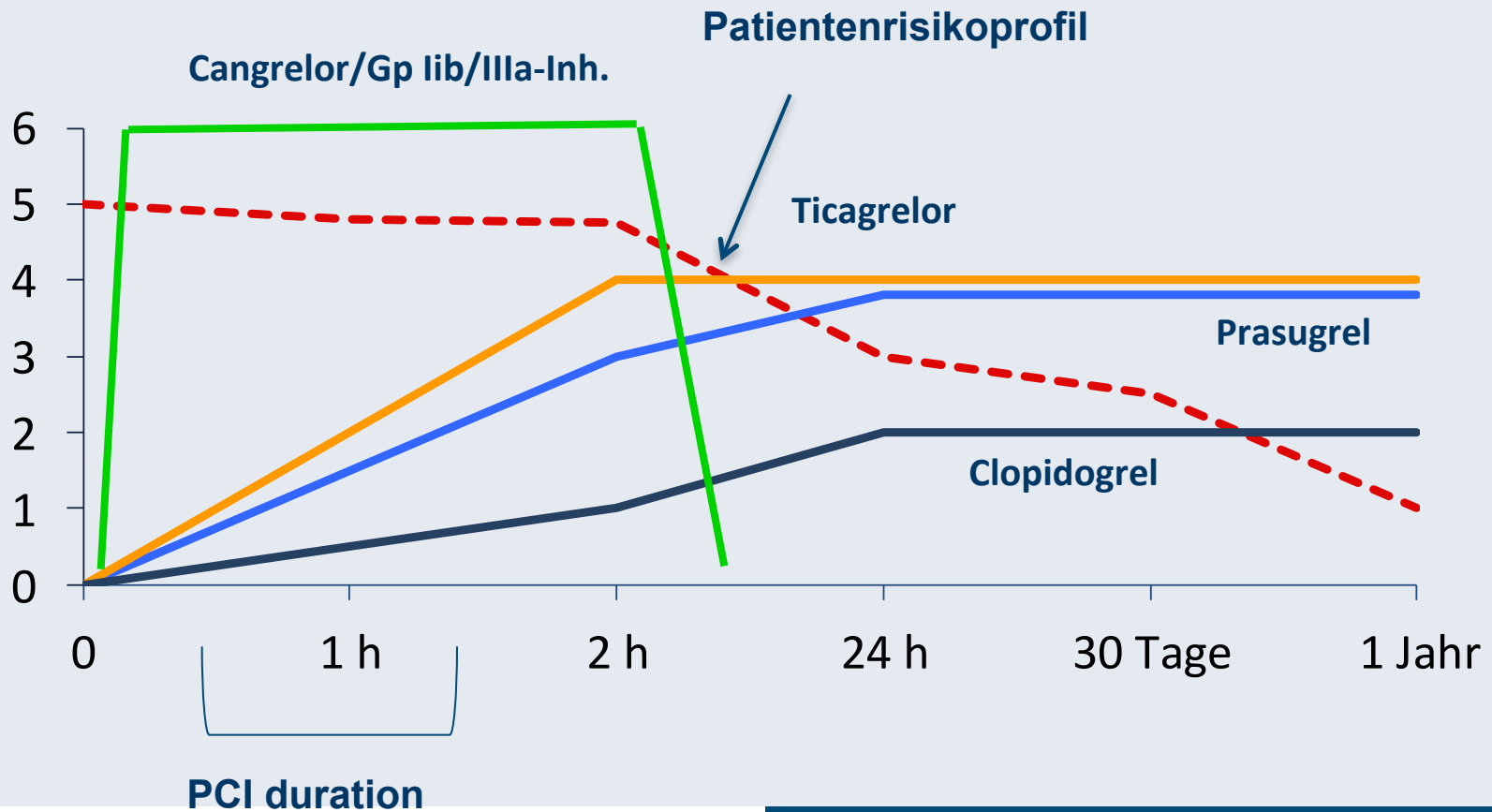
Tod/ MI/ IDR/ Stentthrombose < 48 h



No. patients at risk

	0	6	12	18	24	30	36	42	48
Cangrelor:	12,475	12,053	12,040	12,033	12,021	12,006	12,002	11,994	11,985
Clopidogrel:	12,435	11,903	11,897	11,891	11,882	11,874	11,866	11,853	11,843

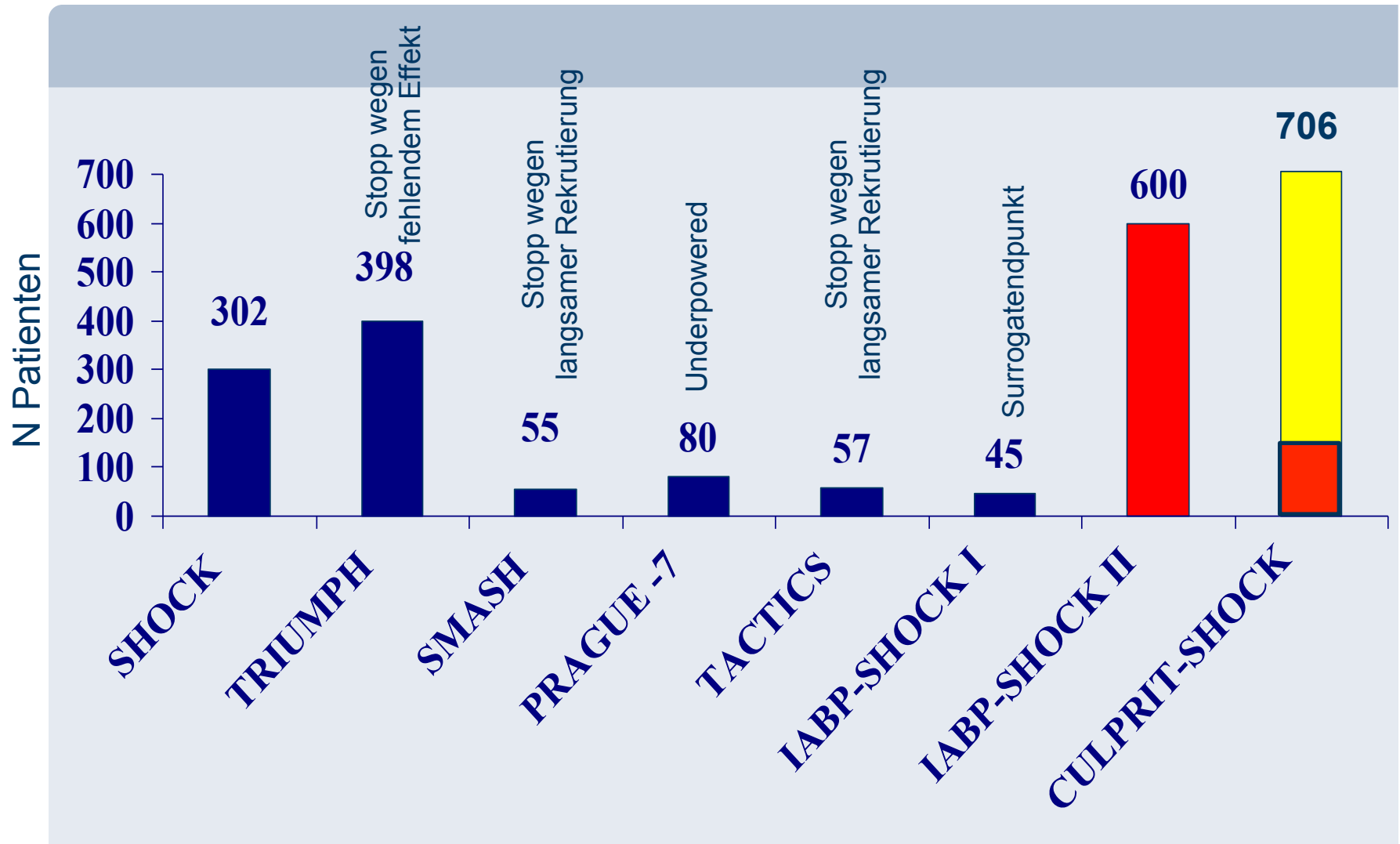
Risiko und Zeit bei PCI im ACS



Kardiogener Schock - Leitlinien

Oxygen/mechanical respiratory support is indicated according to blood gasses.	I	C
Urgent echocardiography/Doppler must be performed to detect mechanical complications, assess systolic function and loading conditions.	I	C
High-risk patients must be transferred early to tertiary centres.	I	C
Emergency revascularization with either PCI or CABG in suitable patients must be considered.	I	B
Fibrinolysis should be considered if revascularization is unavailable.	IIa	C
Intra-aortic balloon pumping may be considered.	IIb	B
LV assist devices may be considered for circulatory support in patients in refractory shock.	IIb	C
Haemodynamic assessment with balloon floating catheter may be considered.	IIb	B
Inotropic/vasopressor agents should be considered:	IIa	C
• Dopamine		
• Dobutamine	IIa	C
• Norepinephrine (preferred over dopamine when blood pressure is low).	IIb	B

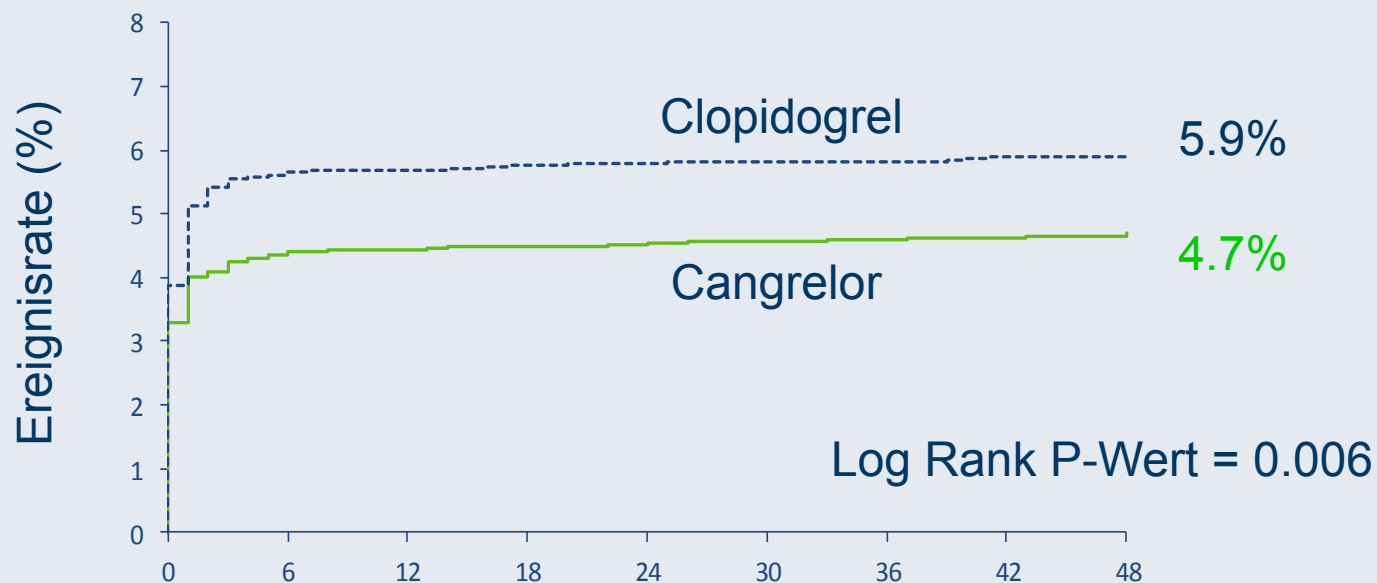
Patienteneinschluss in kardiogene Schock-Studien



Vielen Dank für die Aufmerksamkeit

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Tod/ MI/ IDR/ Stentthrombose < 48 h

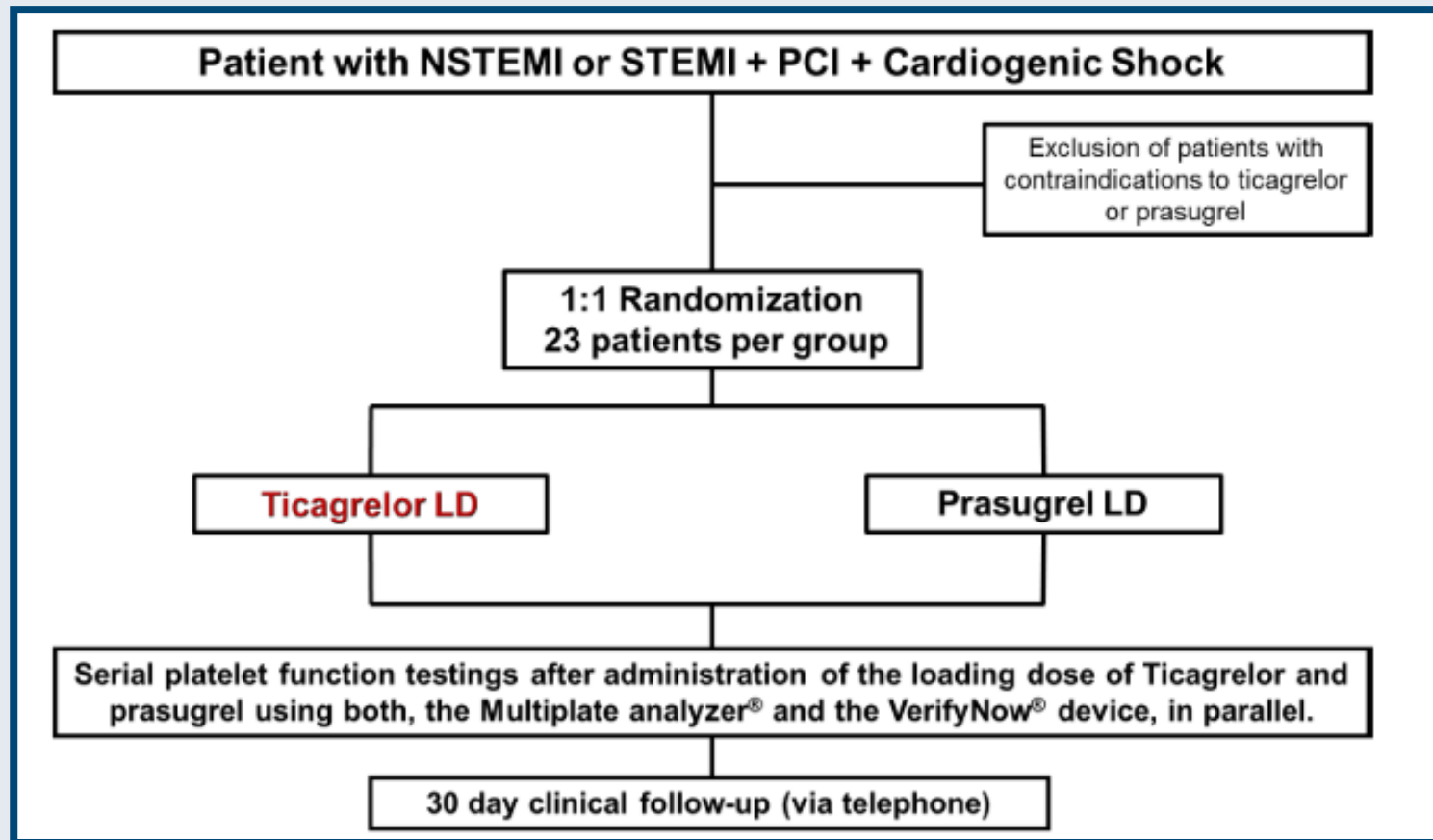


Patient at Risk

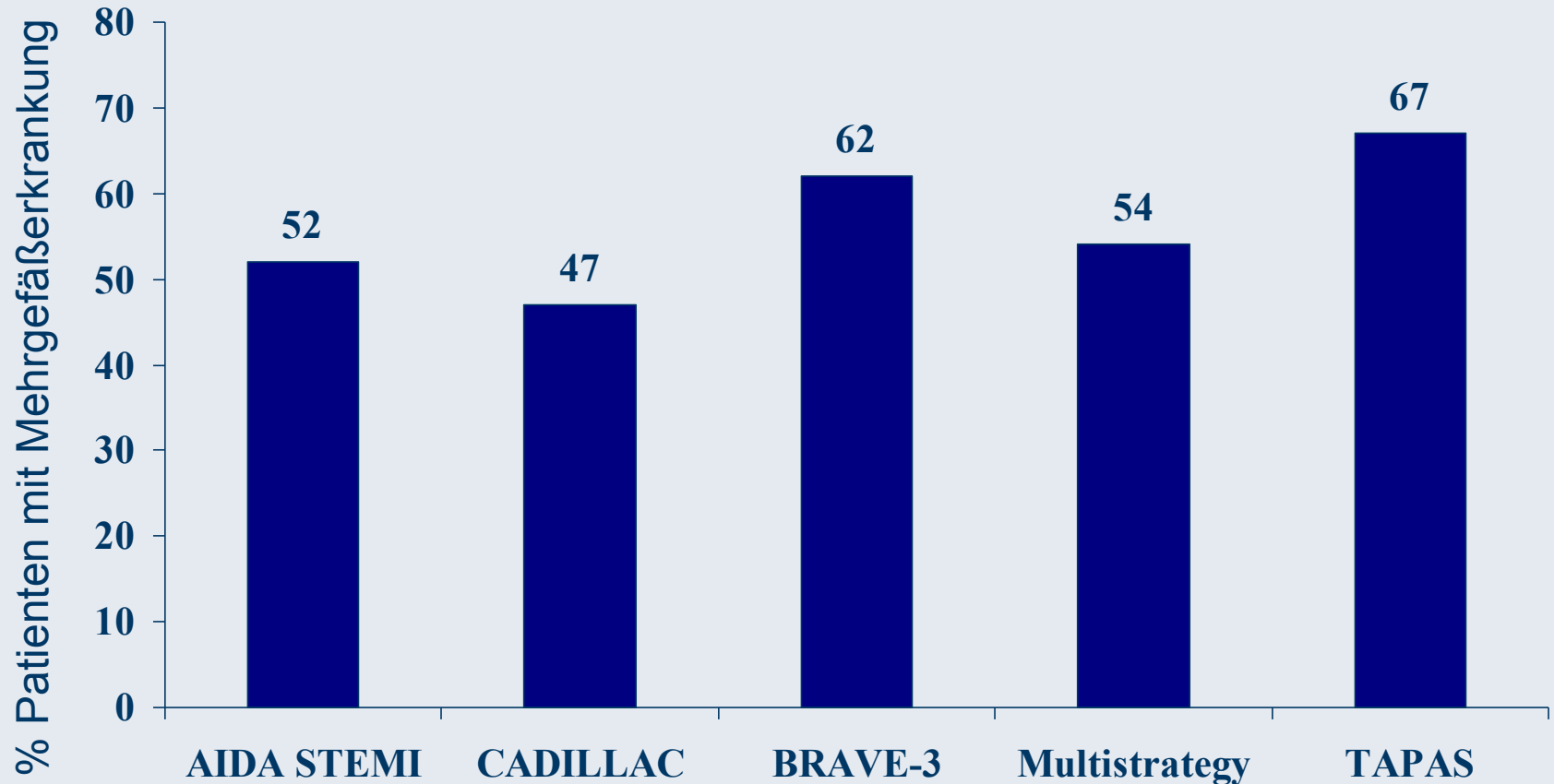
H nach Randomisation

Cangrelor:	5472	5233	5229	5225	5223	5221	5220	5217	5213
Clopidogrel:	5470	5162	5159	5155	5152	5151	5151	5147	5147

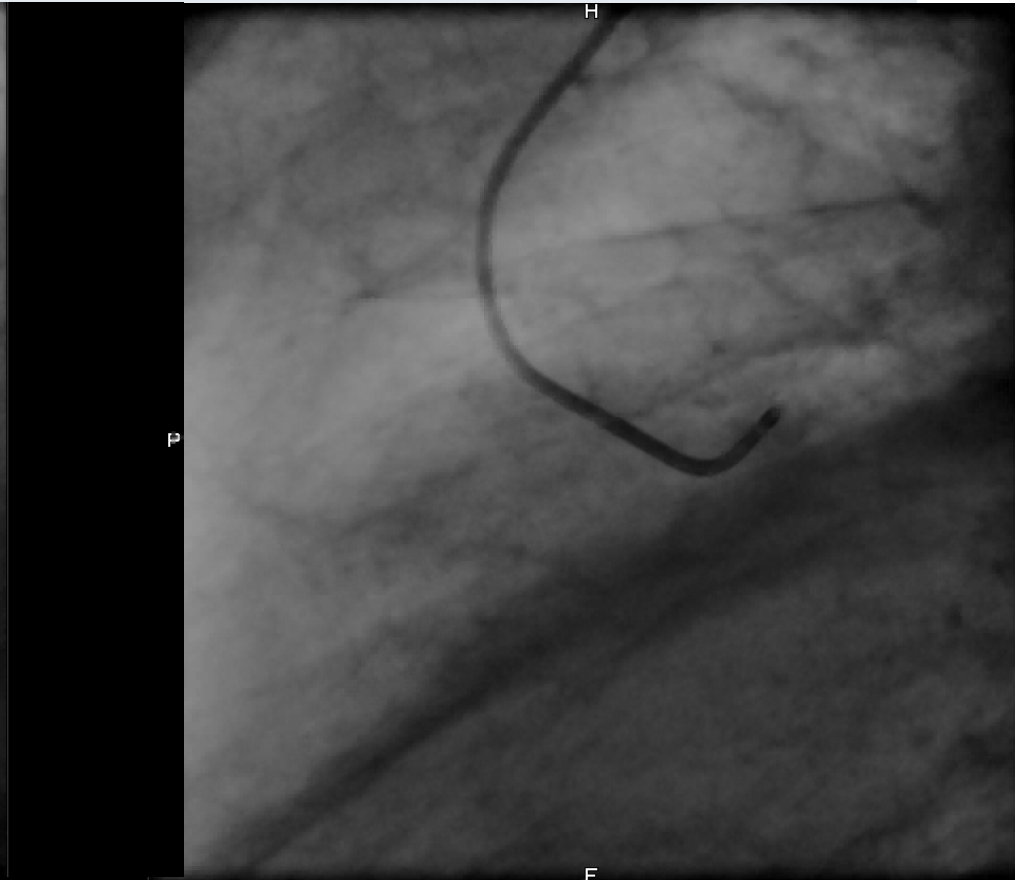
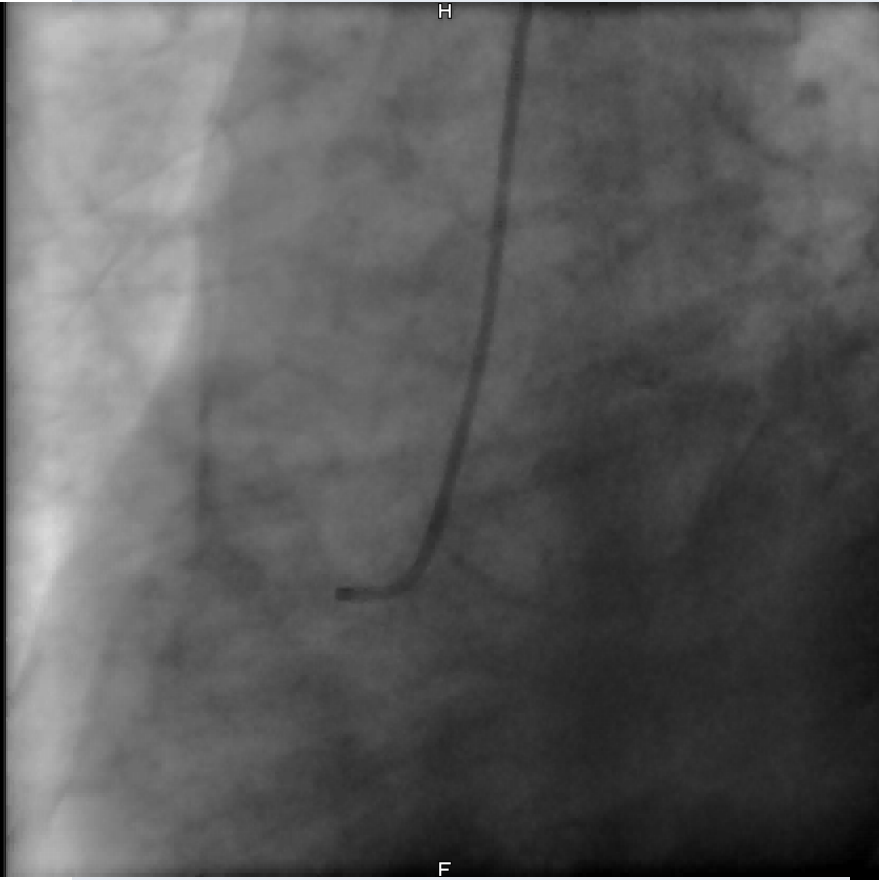
TICA-SHOCK



Inzidenz Mehrgefäß-KHK - STEMI \emptyset Schock

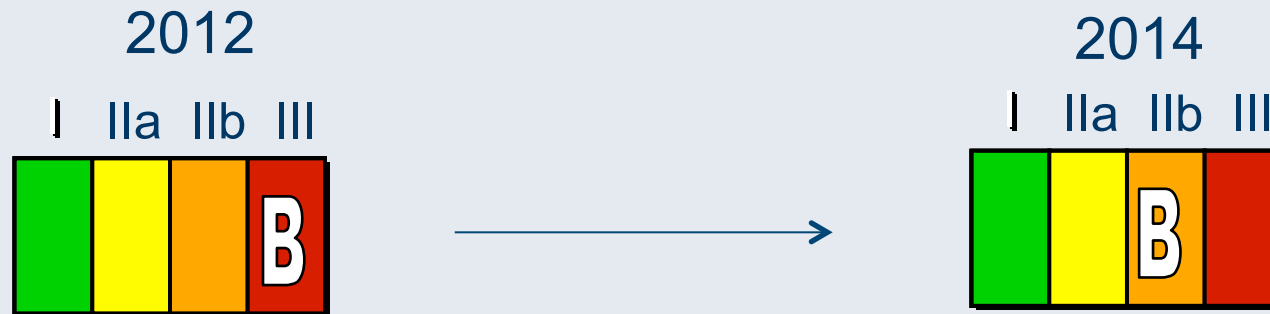


Anteriorer STEMI



Multivessel PCI bei ACS?

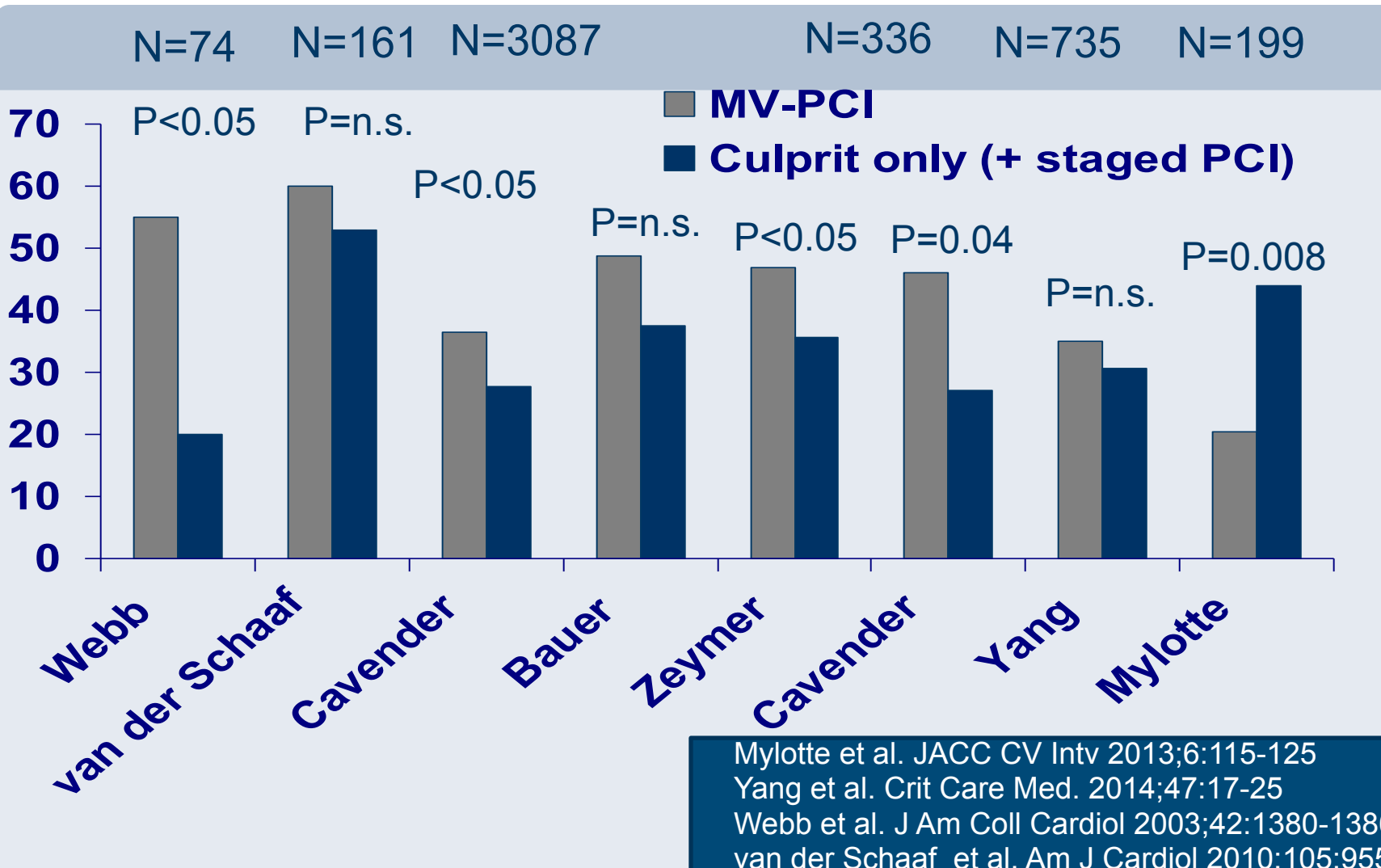
STEMI, kein Schock



STEMI, Schock



Multivessel PCI or Culprit Lesion Only PCI

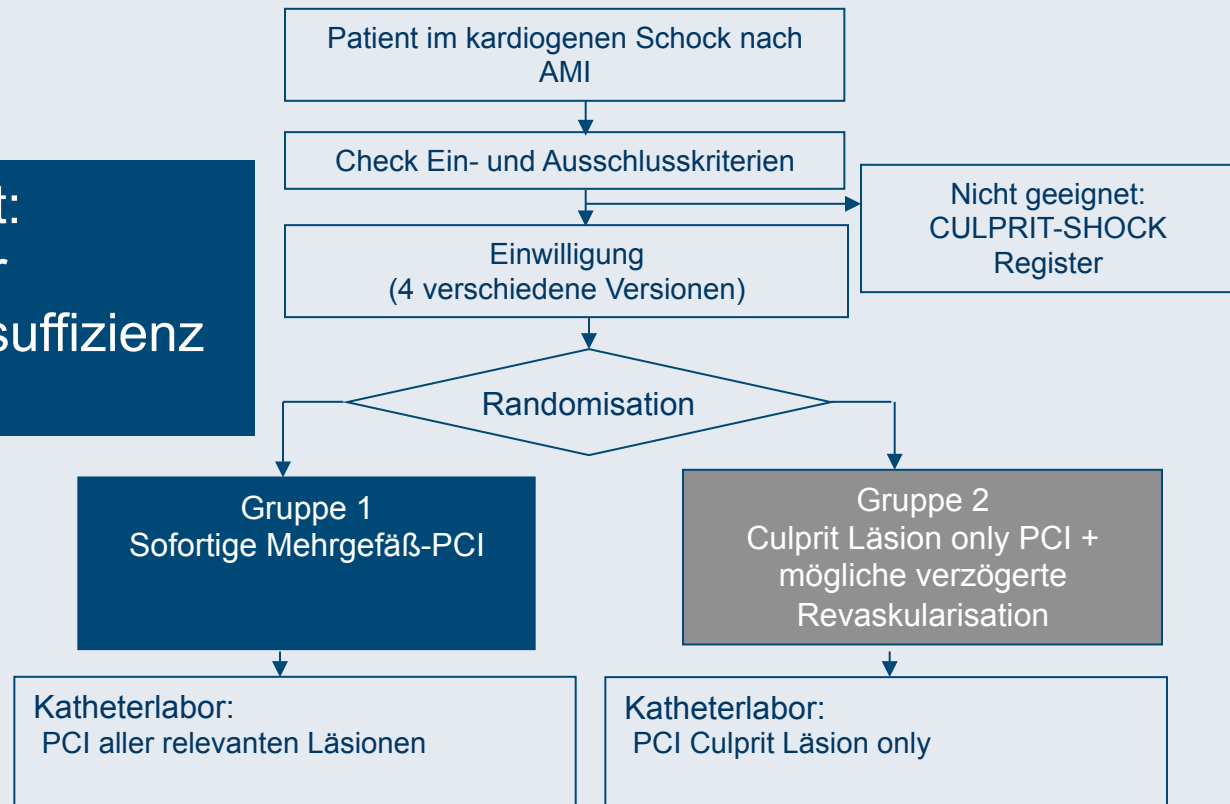


Mylotte et al. JACC CV Intv 2013;6:115-125
 Yang et al. Crit Care Med. 2014;47:17-25
 Webb et al. J Am Coll Cardiol 2003;42:1380-1386.
 van der Schaaf et al. Am J Cardiol 2010;105:955-959
 Cavender et al. Am J Cardiol 2009;104:507-513
 Bauer et al. Am J Cardiol 2012;109:941-946
 Zeymer et al. EuroIntervention 2014;epub
 Cavender et al. J Invasive Cardiol 2013;25:218-224

If you don't know: Randomize!

CULPRIT-SHOCK Trial

**Primärer Endpunkt:
Mortalität und/oder
Schwere Niereninsuffizienz
30 Tage**



CULPRIT-SHOCK Trial



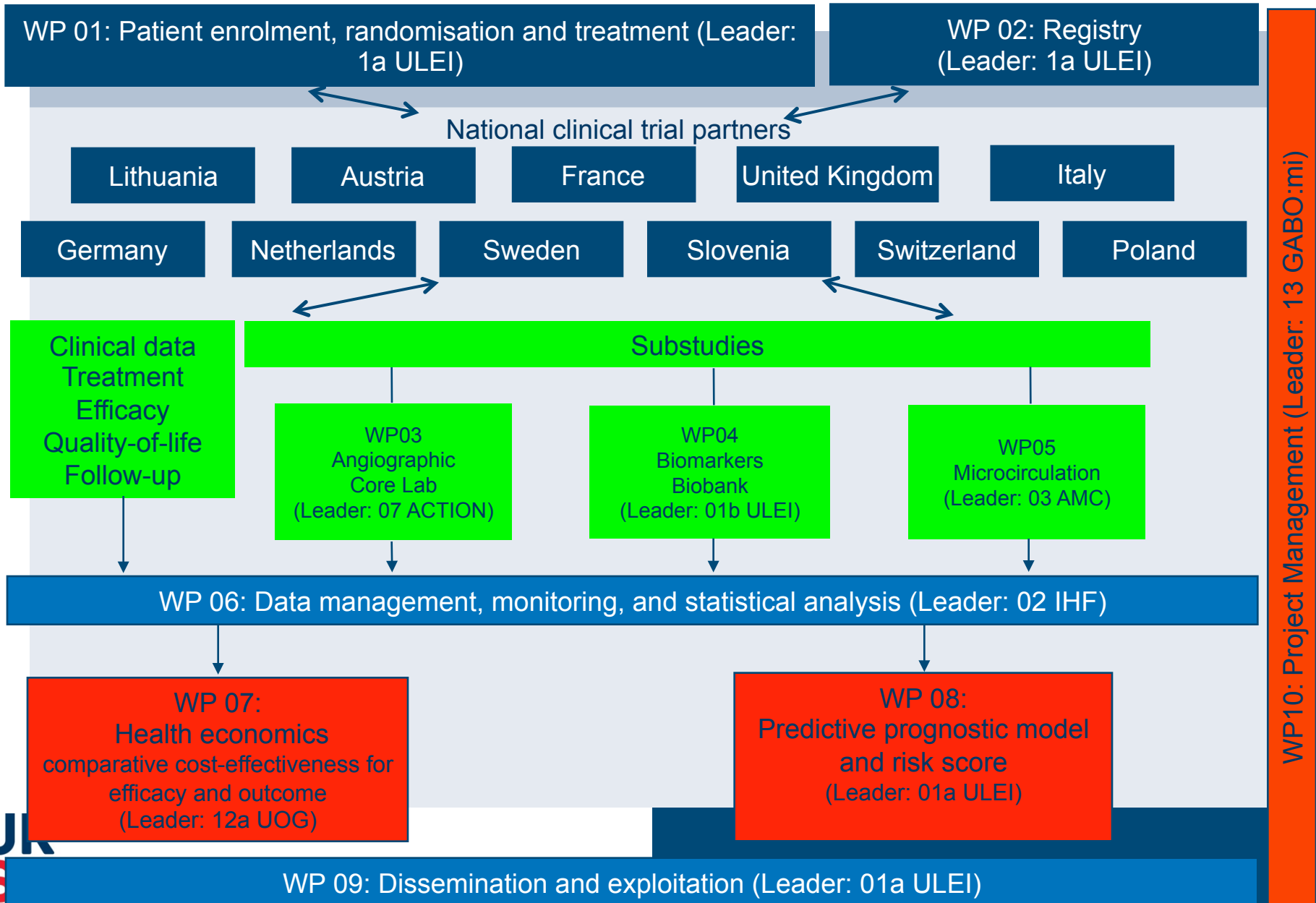
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Co-PI:
Steffen Desch
Uwe Zeymer

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- Gilles Montalescot
- Jan Piek
- Holger Thiele
- Pranas Serpytis
- Janina Stepinska
- Christiaan Vrints
- Marko Noc
- Keith Oldroyd
- Stefan Windecker
- Stefano Savonitto

Studienorganisation



Anteriorer STEMI

