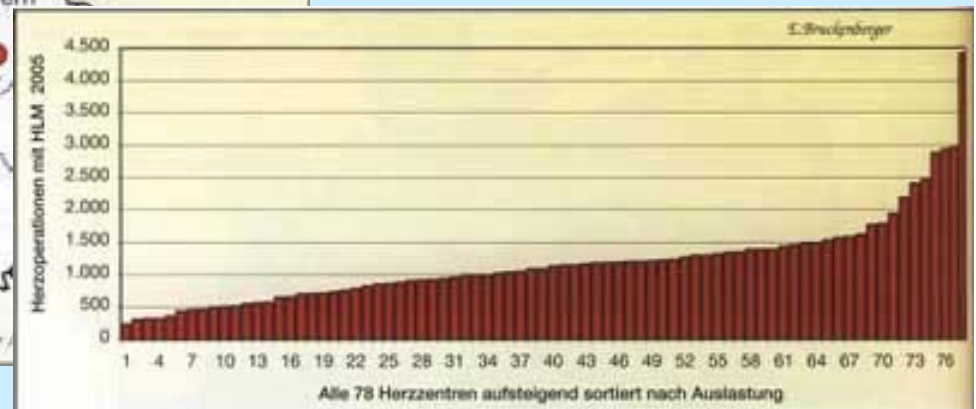
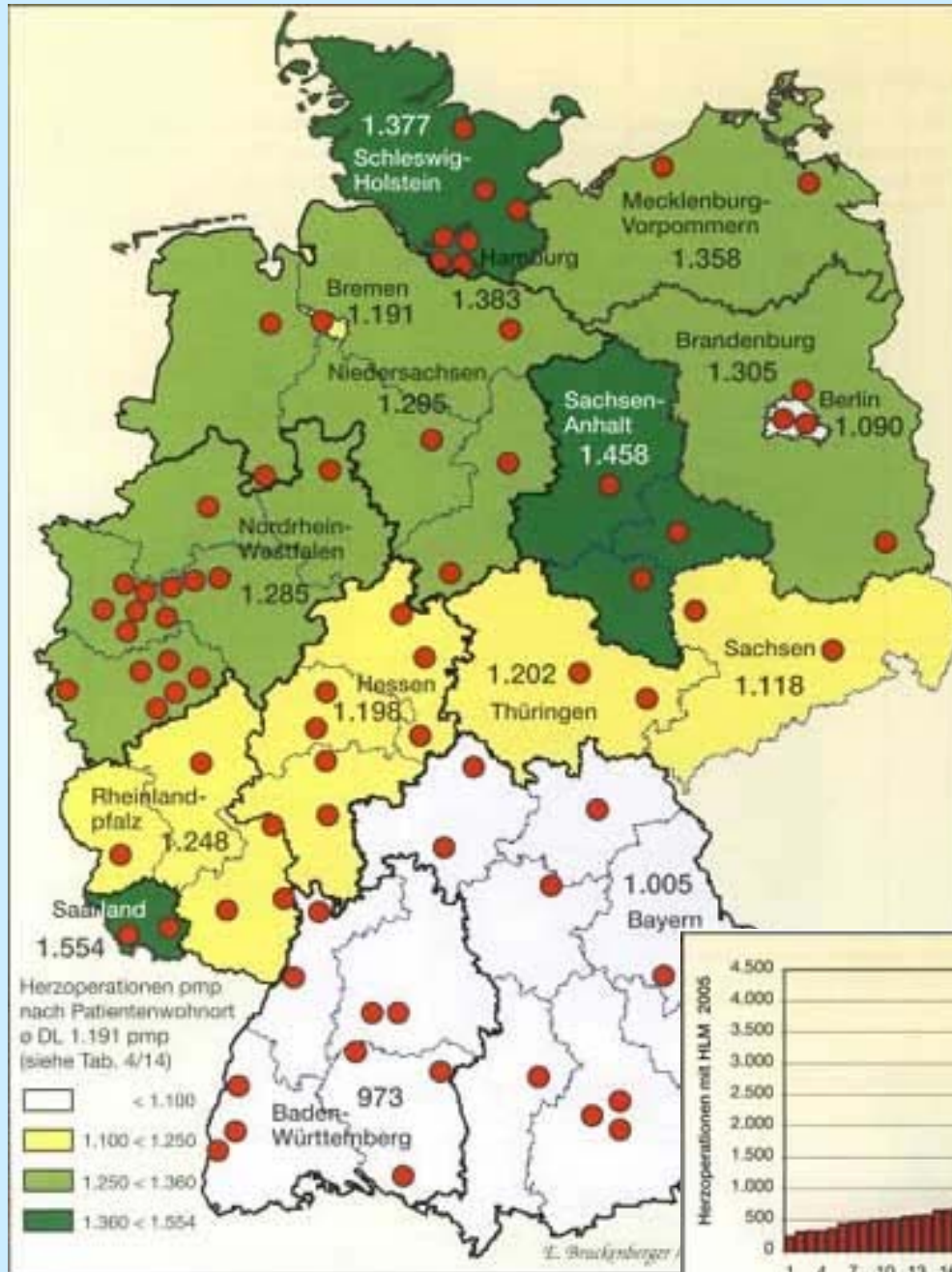




# Chirurgische Optionen beim akuten Koronarsyndrom

Henning Warnecke  
Schüchtermann-Klinik  
Bad Rothenfelde







# New York State Database

n = 32099

1991 - 1996

## Appropriate timing of surgical intervention after transmural acute myocardial infarction

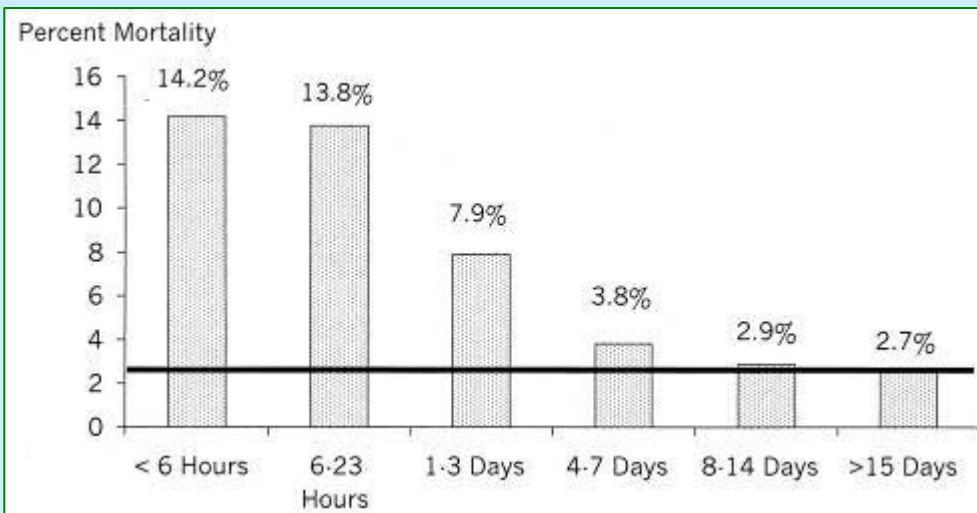
Daniel C. Lee, MD  
Mehmet C. Oz, MD  
Alan D. Weinberg, MS  
Windsor Ting, MD

**Objective:** Recommended timing of coronary revascularization after transmural acute myocardial infarction ranges from immediate surgical intervention to repair 4 weeks after infarction. Such wide variation has created a dilemma in the management of these patients. The objective of this study was to delineate the optimal timing of revascularization after transmural acute myocardial infarction in a large and contemporary patient population.

**Methods:** We performed a retrospective multicenter analysis of 32,099 patients who underwent coronary artery bypass grafting as the sole procedure after transmural myocardial infarction between 1991 and 1996 by 179 surgeons at 33 hospitals in New York State.

**Results:** Overall hospital mortality for all patients who underwent coronary revascularization with a history of transmural myocardial infarction was 3.3%. Hospital mortality decreased with increasing time interval between revascularization and transmural acute myocardial infarction: 14.2%, 13.8%, 7.9%, 3.8%, 2.9%, and 2.7% for less than 6 hours, 6 hours to 1 day, 1 to 3 days, 4 to 7 days, 7 to 14 days, and greater than 15 days, respectively. Multivariate analyses of 43 potential risk factors suggests that revascularization within 3 days of transmural acute myocardial infarction is independently associated with mortality.

**Conclusions:** Coronary revascularization within 3 days of a transmural acute myocardial infarction might be an added risk for mortality. In the absence of absolute indications for emergency surgical intervention, such as structural complications and ongoing ischemia, a 3-day waiting period before surgical revascularization should be considered.





## One-Year Survival Following Early Revascularization for Cardiogenic Shock

Judith S. Hochman, MD

Lynn A. Sleeper, ScD

Harvey D. White, DSc

Vladimir Dzavik, MD

S. Chiu Wong, MD

Venu Menon, MD

John G. Webb, MD

Richard Steingart, MD

Michael H. Picard, MD

Mark A. Menegus, MD

Jean Boland, MD

Timothy Sanborn, MD

Christopher E. Buller, MD

Sharada Modur, MS

Robert Forman, MD

Patrice Desvigne-Nickens, MD

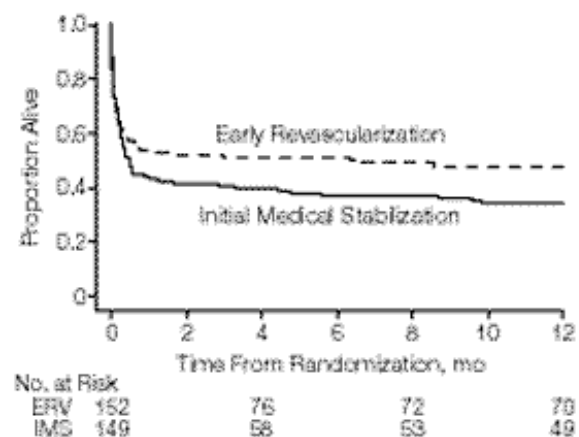
Alice K. Jacobs, MD

James N. Slater, MD

Thierry H. LeJemtel, MD

for the SHOCK Investigators

**Figure.** Kaplan-Meier Survival Curve 1-Year Postrandomization



Survival estimates for early revascularization (n = 152) and initial medical stabilization (n = 149) groups. Log-rank test  $P = .04$ . ERV indicates early revascularization group; IMS, initial medical stabilization group.

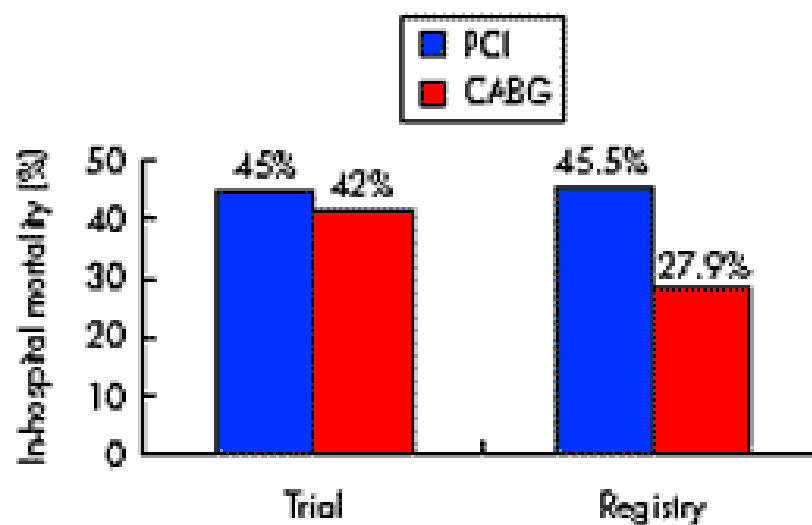


Figure 4 In-hospital mortality with percutaneous coronary intervention (PCI) and coronary artery bypass graft surgery (CABG) in the early revascularisation arm of the randomised SHOCK trial compared to the non-randomised larger SHOCK registry.



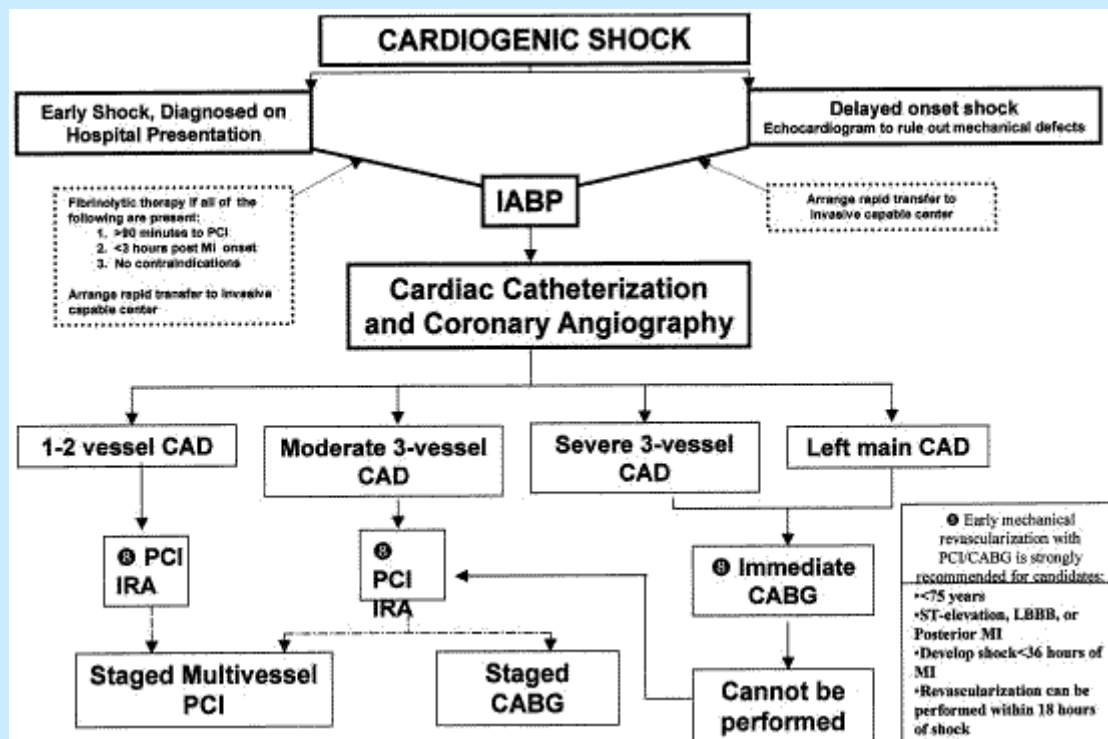
© 2004 by the American College of Cardiology Foundation and the American Heart Association, Inc.

## ACC/AHA PRACTICE GUIDELINES—FULL TEXT

# ACC/AHA Guidelines for the Management of Patients With ST-Elevation Myocardial Infarction

A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee to Revise the 1999 Guidelines for the Management of Patients With Acute Myocardial Infarction)

*Developed in Collaboration With the Canadian Cardiovascular Society*





## Schüchtermann-Klinik

CABG in acute myocardial infarction ( <24h )

1/2004 – 09/2006

n = 321 (30 day mortality 10 %)

	without shock	Cardiogenic shock
n	211	110
30 day mortality	1,4% 95% CI 0-6	27% 95% CI 8-52 (p < 0,05)
age(years)	67,3 (38-94) n.s.	66,5 (33-85) n.s.
EF < 30%	14,2%	56,3% (p < 0,05)



Cardiogenic shock  
in cath lab  
n = 110

**CABG in acute myocardial  
infarction (<24h)**  
**1/2004 – 09/2006**

with IABP  
n = 76

without IABP  
n = 34

Preoperatively  
stable  
n = 41

OP in cardiogenic shock  
n = 35

OP in cardiogenic shock  
n = 34

Preoperatively  
stable  
n = 0

1 †

survivors  
40

7 †

survivors  
28

22 †

survivors  
12

age 64,5 (53-76)

age 75,5 (65-85)

† 10,5 %

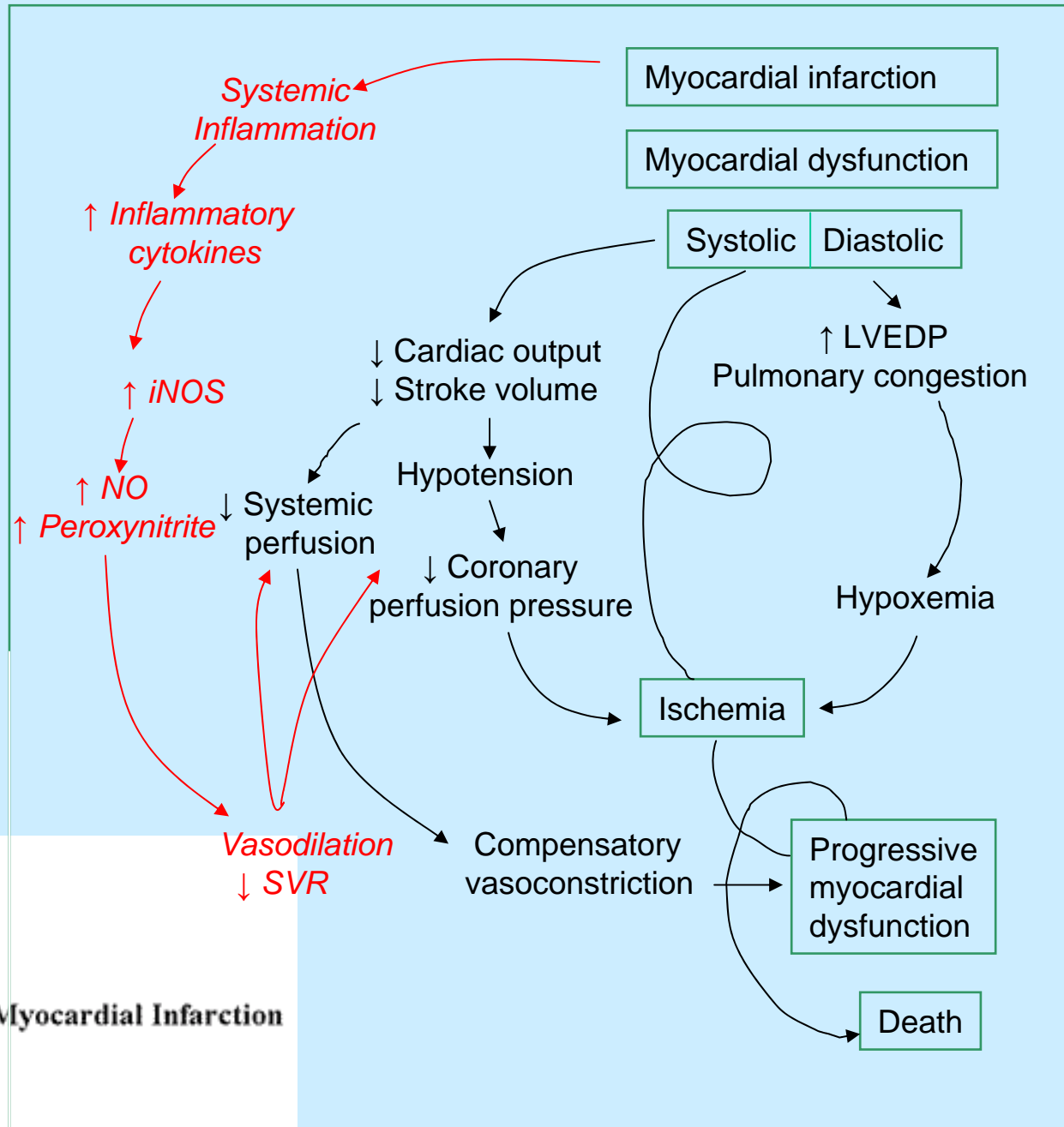
† 65 %



## Operative Revaskularisation im akuten Koronarsyndrom

- Patienten aus Bielefeld -

		2004	2005	2006
AMI	IABP +	1/0	6/1	9/2
	IABP -	11/3	15/4	13/1
instabile AP		15/1	10/2	12/1
Patienten gesamt		27	31	34



(Circulation. 2003;107:2998.)  
© 2003 American Heart Association, Inc.

### Clinician Update

## Cardiogenic Shock Complicating Acute Myocardial Infarction

### Expanding the Paradigm

Judith S. Hochman, MD

From the Division of Cardiology, New York University School of Medicine, New York.

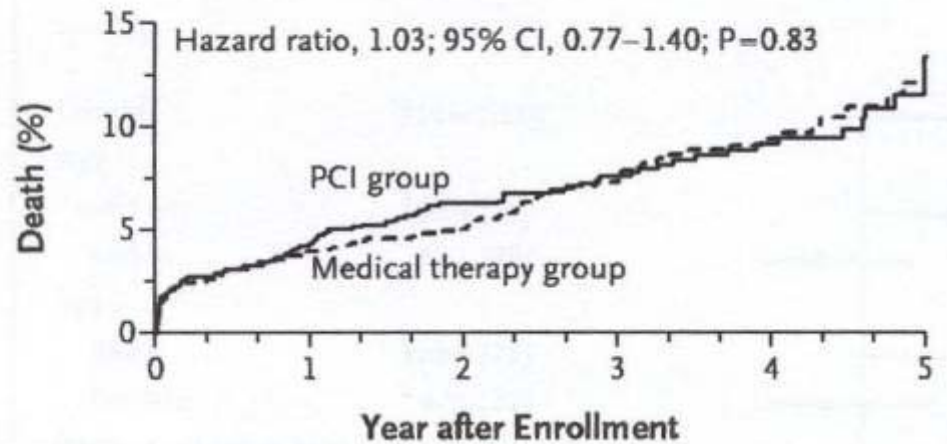


# OPEN ARTERY TRIAL

NEJM 355:2395,2006



A



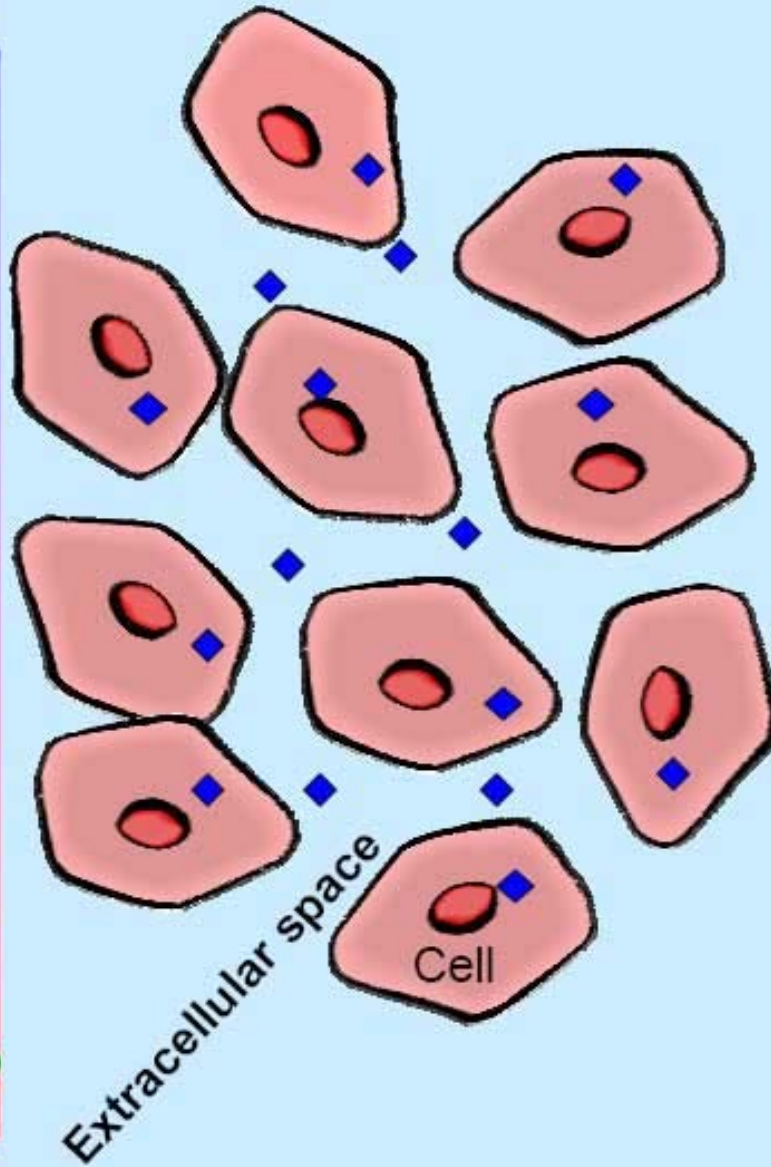
**No. at Risk**

PCI group	1082	959	777	528	296	95
Medical therapy group	1084	965	770	517	298	84



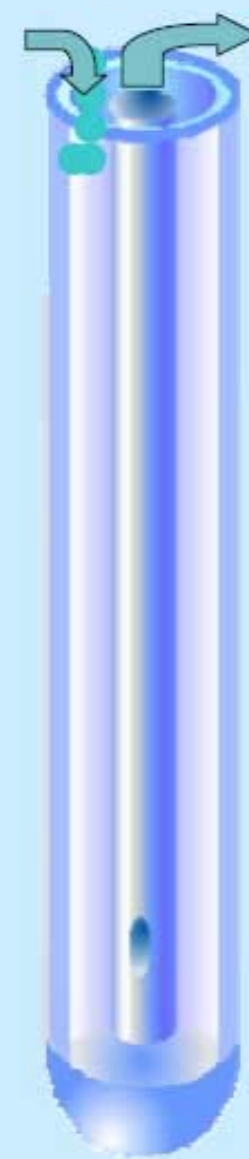
# Myocardial microdialysis

Blood capillary



Extracellular space

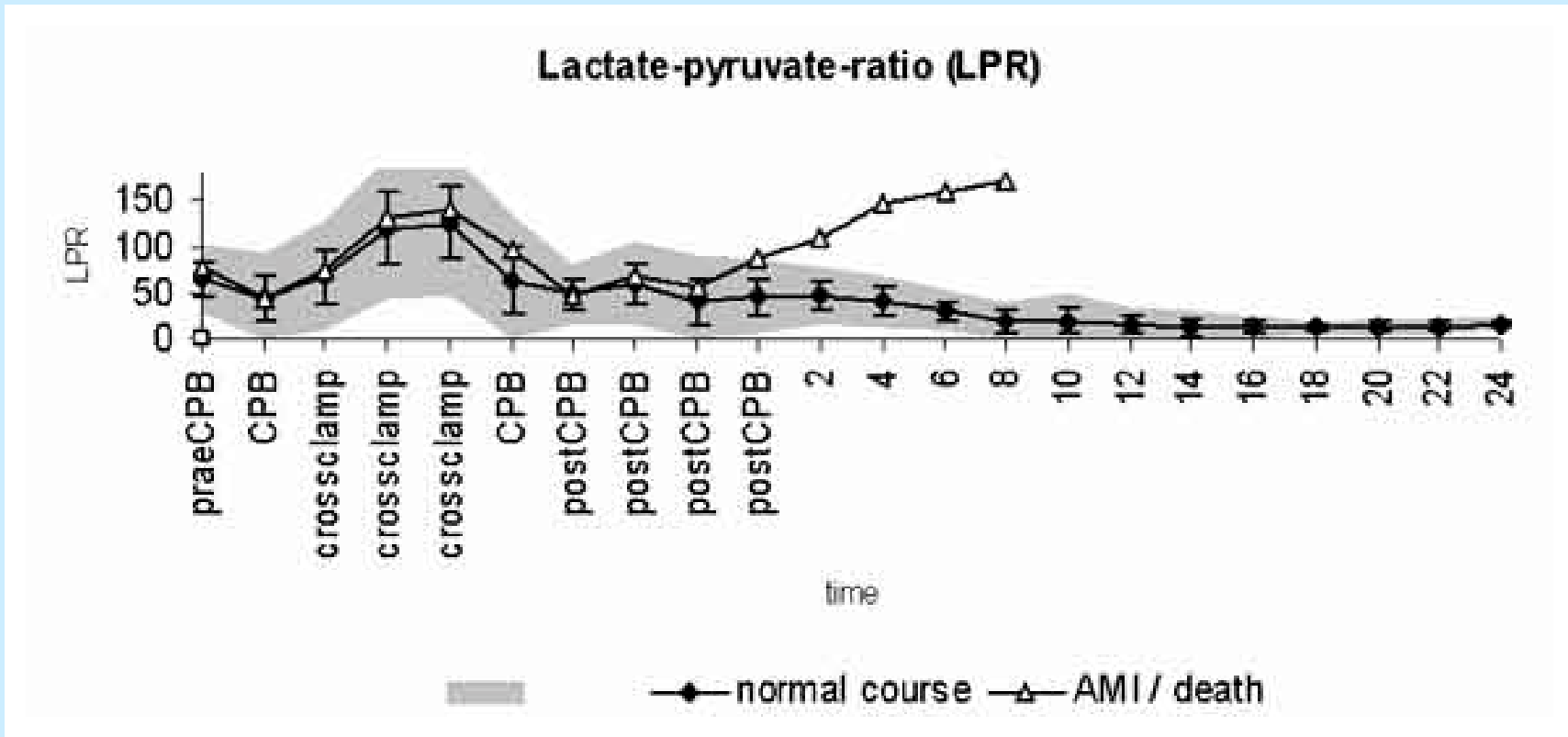
Cell



Dialysate

- Glucose
- Lactate
- Pyruvate
- Glycerol
- Urea

Microdialysis-  
membrane





## Schlußfolgerungen

- Die sofortige ACVB-OP ist der Sofort-PTCA zumindest gleichwertig
- Die schlechte Prognose des kardiogenen Schocks kann verbessert werden durch
  - sofortige IABP
  - Sofort-Operation
- Es bleibt derzeit ungewiß, wie lange nach Infarkteintritt die Revaskularisation sinnvoll ist



## Hypothesen und Faustregeln

- Sofort oder gar nicht
- IABP lieber zu früh als zu spät
- Eine offene Arterie ist besser als eine verschlossene



Pöling J , Rees W, Klaus S, Bahlmann L, Gumniah M, Ziaukas V, Warnecke H.  
Cardiac biochemical monitoring for the detection of acute myocardial ischemia. *Intensive Care Med* 2006; 32: 628-9.

Bahlmann L, Oltmanns K M, Peters A, Pöling J, Schwemmer U, Heringlake M, Klaus S.  
Metabolic stress during hypoglycaemia clamp assessed by microdialysis. *Minerva Anaesthesiol* 2005; 71: 711-6.

Rees W, Pöling J, Hübner N, Ritter F, Ziaukas V, Christmann U, Warnecke H.  
Fast-track-Medizin in der Herzchirurgie. *Anästhesie-CME* 4-2006.

Pöling J, Leptien A, Klaus S, Rees W, Kraatz , Wiebe K, Bahlmann L.  
Analysis of the myocardial metabolism by microdialysis during open beating heart surgery. *Scand Cardiovasc J.* in press.

Pöling J, Rees W, Klaus S, Bahlmann L, Hübner N, Mantovani V, Warnecke H.  
Perioperatives Gewebemonitoring von bypassoperierten Patienten. *Intensivmedizin und Notfallmedizin*, in press;

Pöling J, Rees W, Mantovani V, Klaus S, Bahlmann L, Ziaukas V, Hübner N, Warnecke H.  
Evaluation of myocardial metabolism with microdialysis during bypass surgery with cold blood or Calafiore cardioplegia. *Eur J Cardiothorac Surg* 2006; 30: 597-603.

Pöling J, Rees W, Klaus S, Bahlmann L, Hübner N, Mantovani V, Warnecke H.  
Metabolic monitoring with the microdialysis technique during and after open heart surgery. *Acta Anaesthesiol Scand*; 2007: Jan 25.

Klaus S, Heringlake M, Pöling J, Hermes D, Bahlmann L.  
Focussing cellular function- Metabolic monitoring in perioperative and intensive care medicine. *Minerva Anaesthesiol* 2006; 30: epub.

Klaus S, Pöling J, Warnecke H, Rees W, Bahlmann L.  
Metabolische Gewebemonitoring mit der Mikrodialyse im perioperativen und intensivmedizinischen Umfeld  
*Intensivmedizin und Notfallmedizin.* 2006; 43: 556-562.