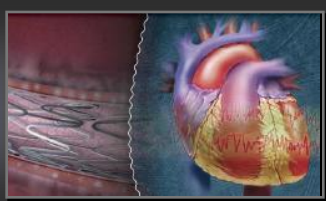


Фактори, влиящи на преживяемостта при пациенти след интервенционално лечение на STEMI

Кирил Карамфилов
УМБАЛ „Александровска“

organic@abv.bg

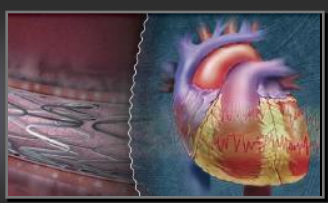


ИБС/STEMI значимост

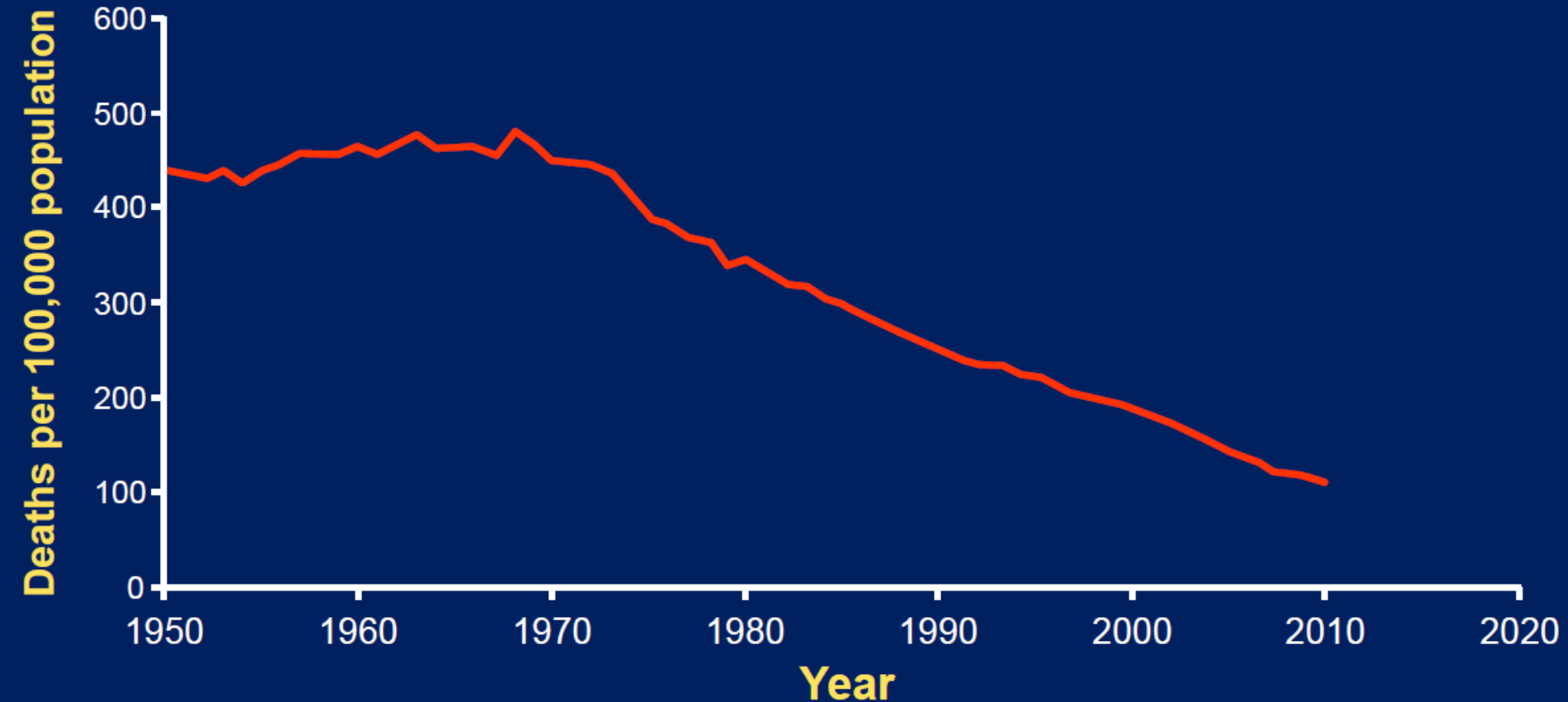
- ▶ Ишемичната болест на сърцето представлява най - честата причина за смърт и инвалидност, както при мъжете така и при жените. Над 7 милиона души годишно загиват от ИБС, което представлява около 12.8 % от всички видове причини за смърт (1).
- ▶ Всеки шести мъж и всяка седма жена в Европа загиват от остър миокарден инфаркт (ОМИ) (2)

1. WHO Fact sheet N8310, updated June 2011, <http://www.who.int/mediacentre/factsheets/fs310/en/index.html>

2. Steg, Ph Gabriel, et al. "ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation The Task Force on the management of ST-segment elevation acute myocardial infarction of the European Society of Cardiology (ESC)." *European heart journal* 33.20 (2012): 2569-2619.

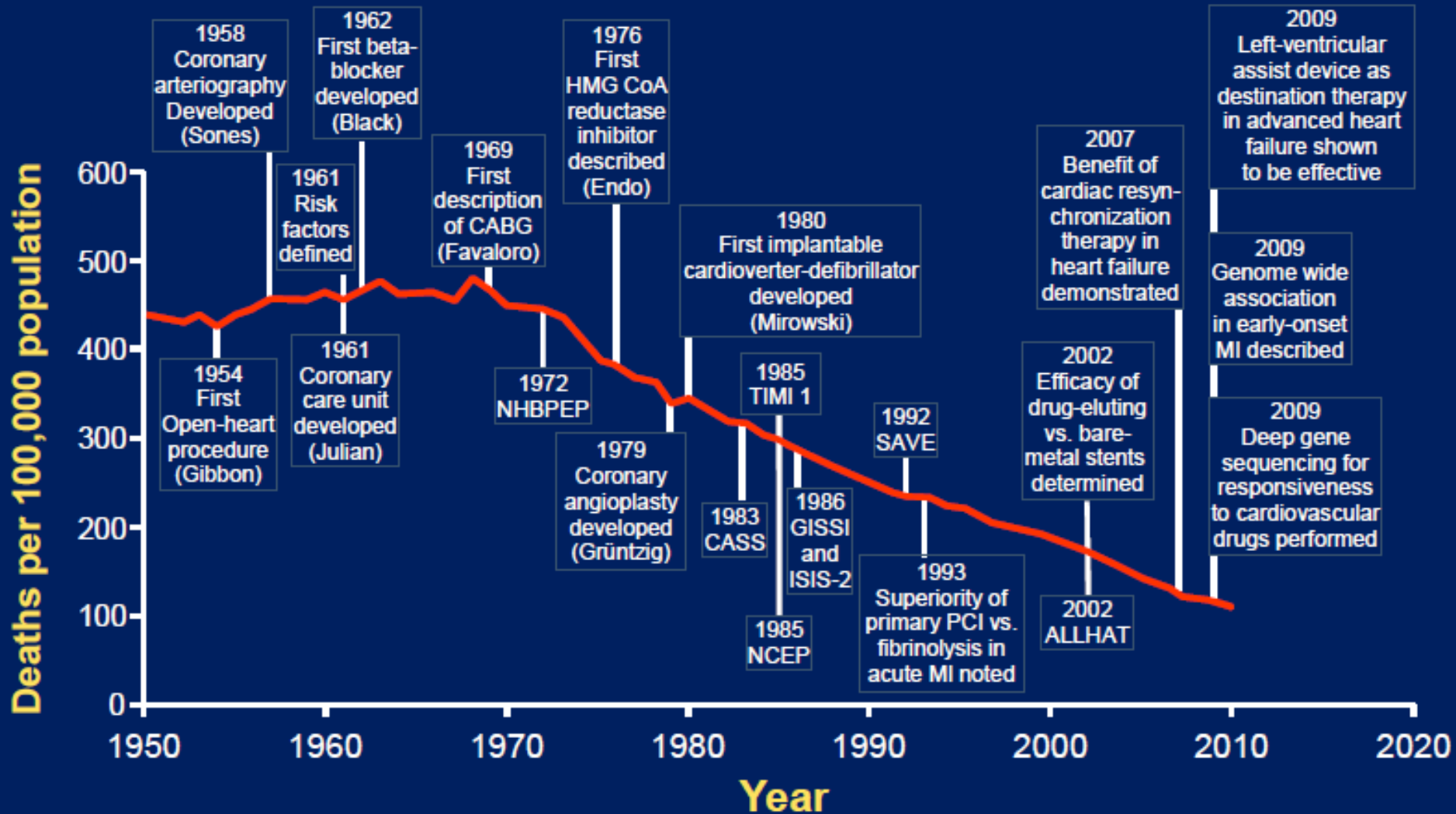
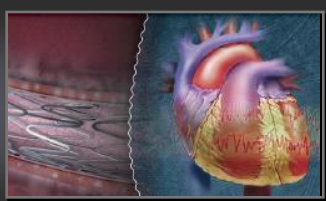


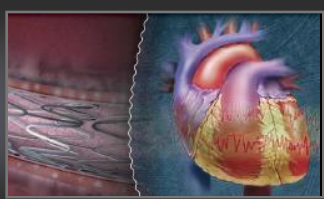
Decline in Deaths from Cardiovascular Disease



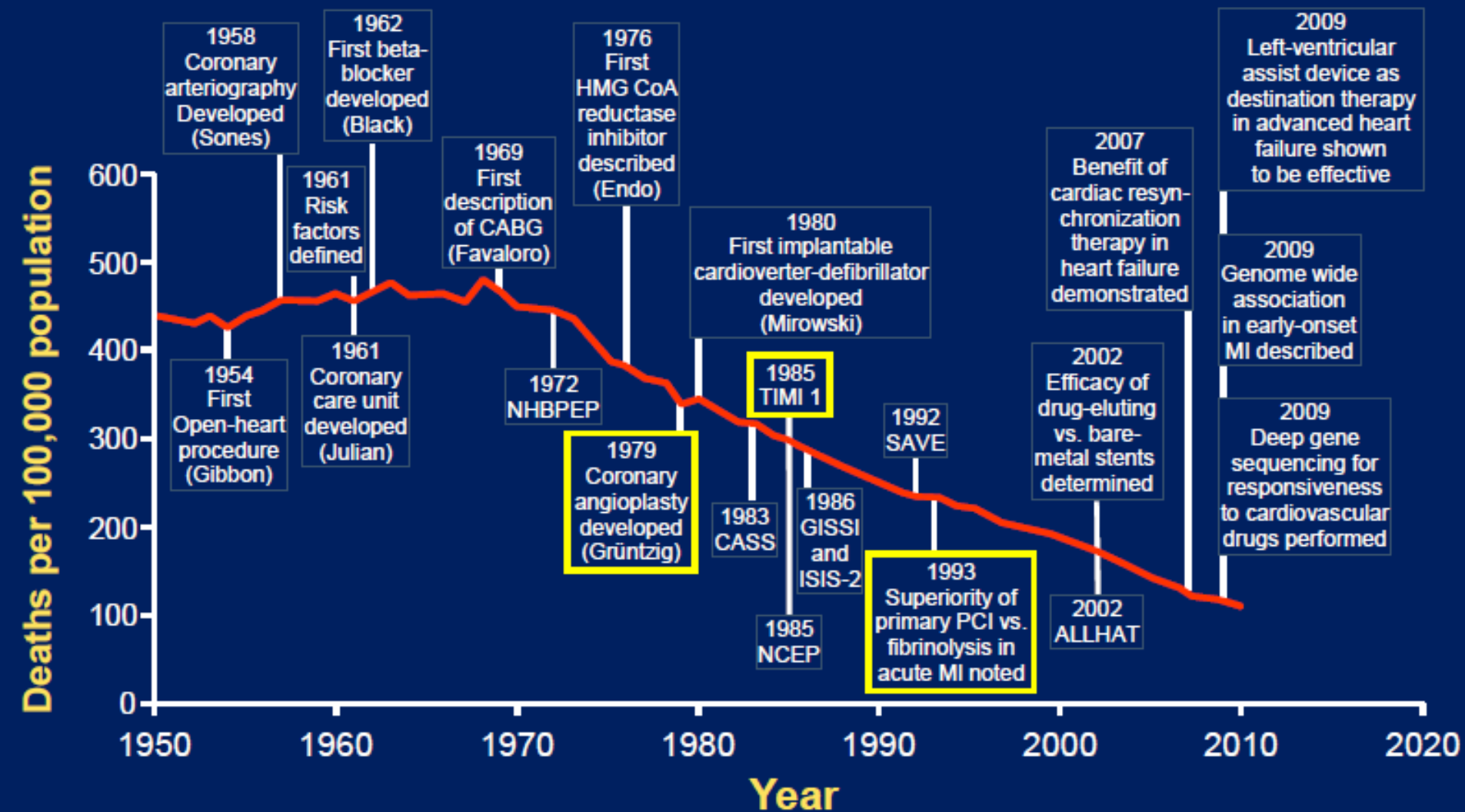
Nabel EG and Braunwald E. 2012;366:54-63

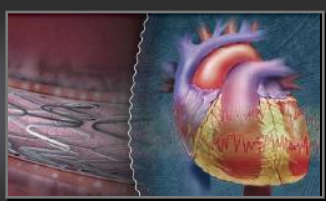
Decline in Deaths from Cardiovascular Disease in Relation to Scientific Advances





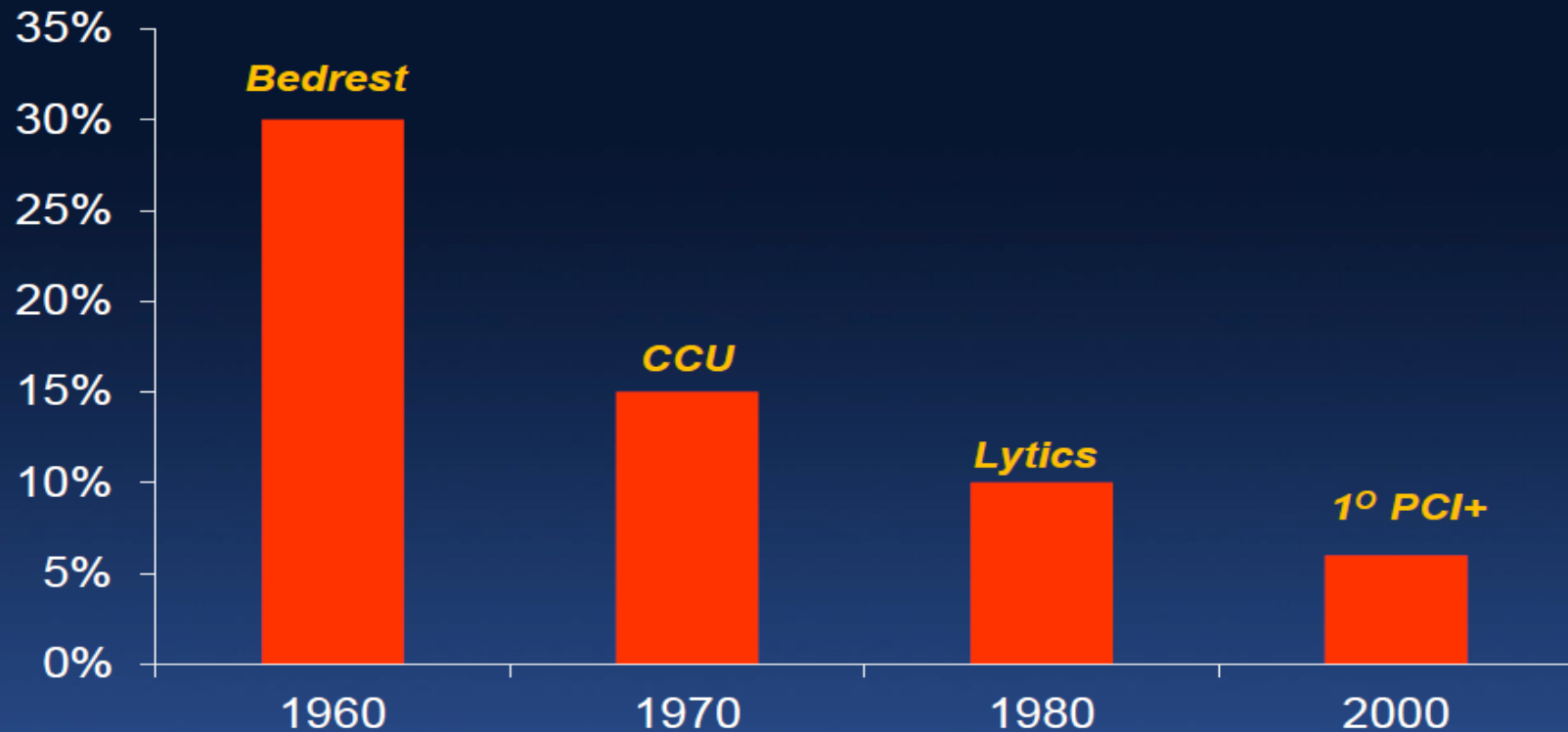
Decline in Deaths from Cardiovascular Disease in Relation to Scientific Advances



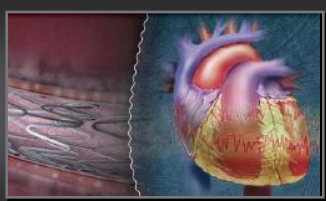


Decline in STEMI mortality

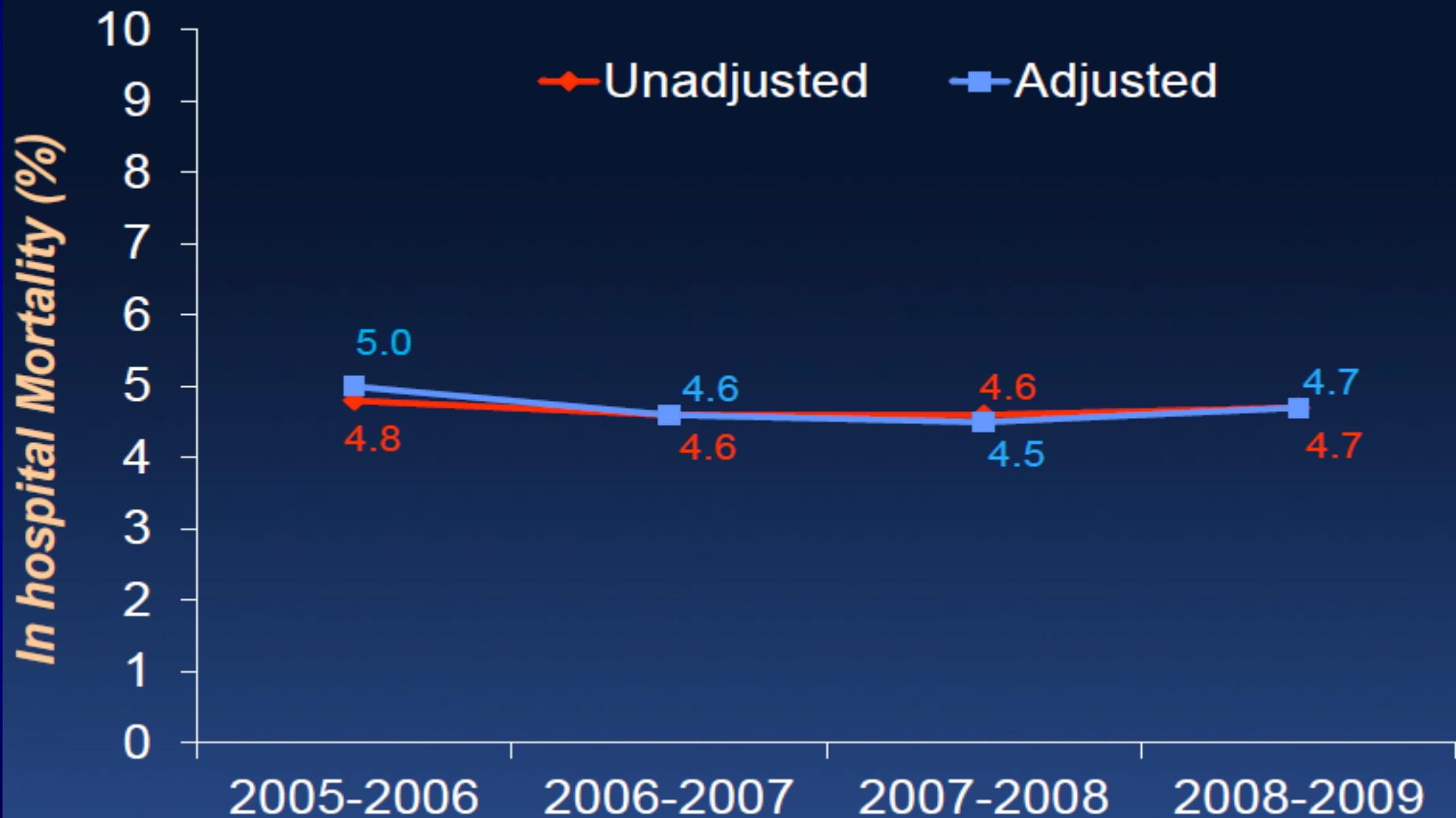
STEMI Care: Declining In-hospital Mortality 1960-2000



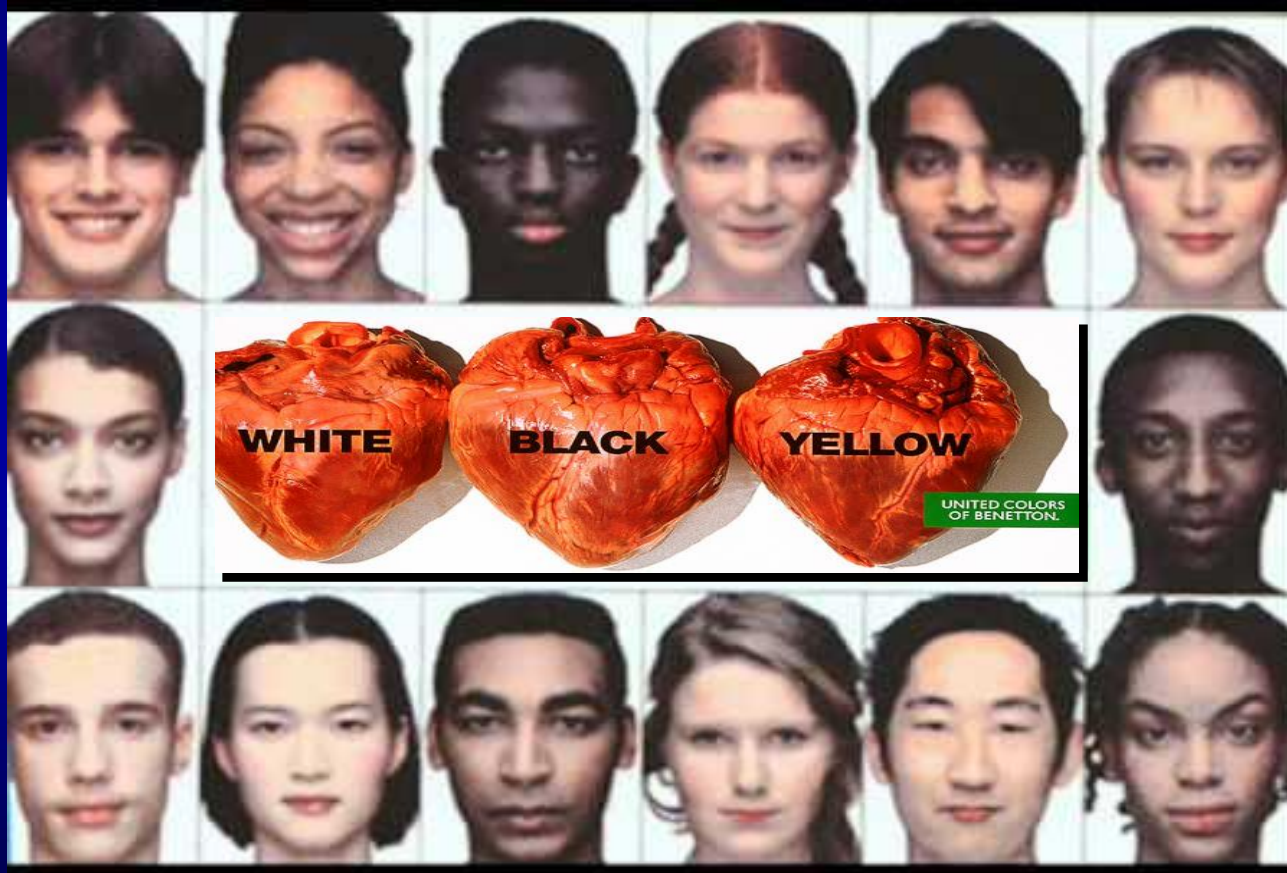
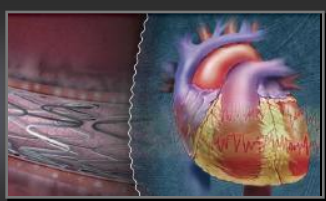
Nabel EG and Braunwald E. N Engl J Med 2012; 366:54-63

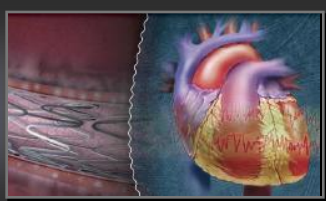


STEMI InH Mortality has Plateaued



Menees DS et al; NEJM 2013;369:901-9



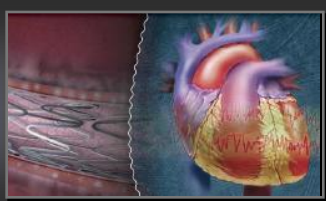


- ▶ **Основно правило, определящо поведението при STEMI пациентите е, че колкото по - рисков е пациента, толкова по - голяма е смъртността (1) и толкова по голяма е ползата от ПКИ (2, 3).**

1. Fox KA, Carruthers KF, Dunbar DR, Graham C, Manning JR, De Raedt H, Buyschaert I, Lambrechts D, Van de Werf F. Underestimated and underrecognized: the late consequences of acute coronary syndrome (GRACE UK–Belgian Study). *Eur Heart J* 2010;31:2755–2764.

2. Thune JJ, Hoefsten DE, Lindholm MG, et al. Simple risk stratification at admission to identify patients with reduced mortality from primary angioplasty. *Circulation* 2005;112:2017–2021.

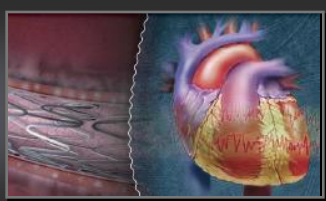
3. Kent DM, Schmid CH, Lau J, et al. Is primary angioplasty for some as good as primary angioplasty for all? Modeling across trials and individual patients. *J Gen Intern Med* 2002;17:887–894.



Фактори

Наличието на определни фактори (вариабилни) определят неблагоприятен изход (резултати от проучвания – GUSTO-I, GISSI, TIMI and GRACE)

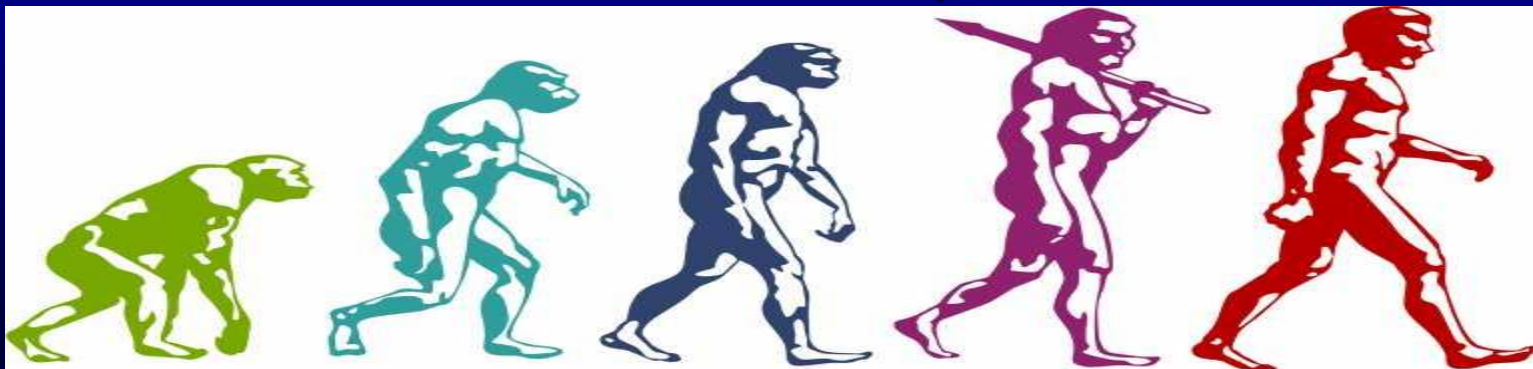
На базата от съвкупността от тези вариабилни се формират скали определящи риска от неблагоприятен изход при ОКС и STEMI пациентите (GRACE, KAMIR; PAMI, CADILLAC, APEX-AMI)

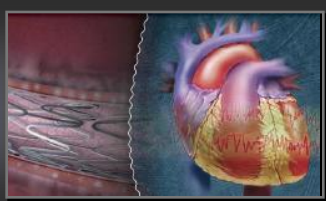


Скали

Еволюция на скалите

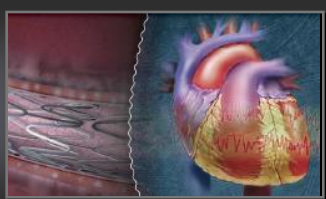
- Общоважаща за пациентите с ОМИ предимно клинични фактори (**Килип 1967**)
- Фибринолитични- (без ангиохарактеристики)
- ПКИ (при нискорискови пациенти)
- ПКИ на всички
- ПКИ на всички + Ехо
- ПКИ + Ехо отчитайки и вероятността за СН





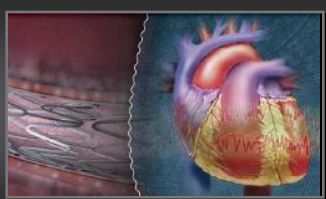
Фактори – Демографски & Клинични

- ▶ Пол – мъже/жени
- ▶ Възраст
- ▶ Наличие на рискови фактори
 - Хипертония
 - Дислипидемия
 - Диабет
 - Тютюнопушене
 - ИМИ
 - Фамилна анамнеза
- ▶ ВМІ – норма, патология
- ▶ Клинична изява
 - Болка - степен*
 - Killip клас 1,2,3,4
 - Шок
- ▶ Придружаващи заболявания – сериозни (сърдечни, неопластични, системни)



Фактори – Организационни

- ▶ Транспорт – БМП, собствен
- ▶ Забавяне – от начало на болката до интервенционалното лечение
- ▶ Работно/извънработно време
- ▶ Наличие на предшестваща тромбоза



Фактори – **Инструментални**

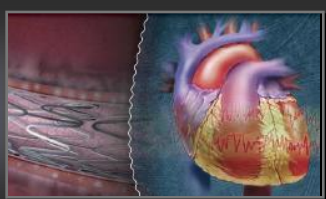
ЕКГ - Ритъм – синусов, несинусов ритъм,
ЛББ, AV блок
СЧ – <60 , >100

Локализация - преден, долен,
латерален, деснокамерен

Лаб Тропонин, ЦПК, МБ, креатинин, CRP

ЕхоКГ **ЛКФИ**

налични **сегментни** нарушения



Фактори - Процедурни

Достъп – radialis, femoralis

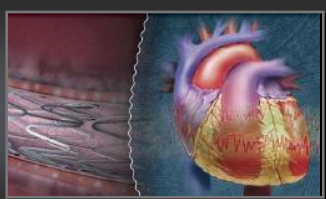
Съдово засягане – локализация и брой (стволови, едноклонови, двуклонови, триклонови)

Третиран съд – LM, LAD, Сх, RCA

Първично стентирание

Успех на процедурата

Едноетапни, двуетапни



Фактори - Ангиографски

Морфология на таргетната лезия

остиална

калций

наличие на тромб

Използване на тромбаспирация

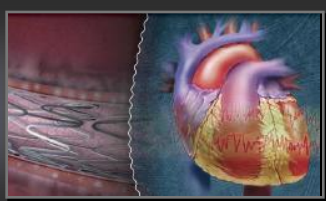
Балонна дилатация или стент

Наличие на остатъчна стеноза

GP – IIb/IIIa – има или няма

TIMI кръвоток пред и пост процедурно

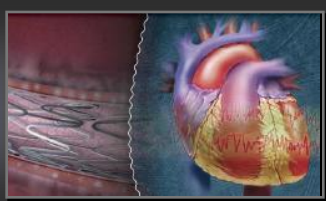
No reflow



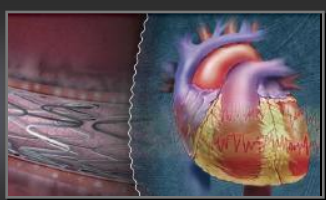
ПОЛ

Table 1. Studies on differences in treatment for and outcome after ST-elevation myocardial infarction related to sex

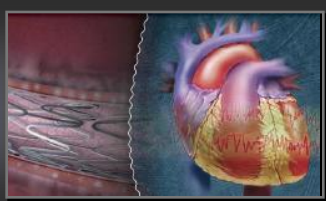
Author, year, country	N	Study design	Study population	Outcome	Results
Sex-related differences present					
Benamer et al., 2011, France ⁷³	16,760	Cohort	STEMI. PPCI	In-hospital mortality	Women 9.8%, men 4.3%, P<0.0001 Female sex independent predictor of mortality, Adj. OR 1.38 (1.16–1.63)
Lawesson et al., 2010, Sweden ⁷⁴	2132	Cohort	STEMI. PPCI or TT	In-hospital, 1 year, and long-term (1–10 years) mortality	Acute reperfusion: women 78.1%, men 80.5%, P=0.28 PPCI: women 41.4%, men 41.5%, P=0.98 TT: women 44.6%, men 48.4%, P=0.19 In-hospital: Adj. OR 2.85 (1.31–6.19) 1-year: Adj. OR 2.00 (1.03–3.89) Long-term: Adj. OR 0.93 (0.60–1.45)
Berger et al., 2009, USA ⁷⁵	136,247	Cohort	STEMI or NSTEMI	30-day mortality	STEMI: women 12.3%, men 5.8%, NSTEMI: women 6.4%, men 4.3%



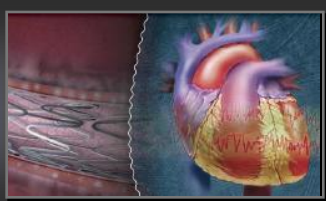
					<p>STEMI: OR 2.29 (2.18–2.40)</p> <p>NSTEMI: OR 1.50 (1.28–1.75)</p> <p>STEMI: Adj. OR 1.15 (1.06–1.24)</p> <p>NSTEMI: Adj. OR 0.55 (0.43–0.70)</p> <p>Subgroup with angiographic data</p> <p>STEMI: women 4.8%, men 2.3%</p> <p>NSTEMI: women 3.5%, men 2.7%</p> <p>STEMI: OR 2.16 (1.83–2.56)</p> <p>NSTEMI: OR 1.28 (0.94–1.74)</p> <p>STEMI: Adj. OR 1.23 (0.96–1.57)</p> <p>NSTEMI: Adj. OR 0.76 (0.53–1.10)</p>
Champney et al., 2009, USA ⁷⁶	361,429	Cohort	STEMI or NSTEMI	In-hospital mortality	<p>STEMI, 50–59 years: Adj. OR 1.22 (1.08–1.38)</p> <p>STEMI, 80–89 years: Adj. OR 1.03 (0.98–1.08)</p>
Pathak et al., 2008, USA ⁷⁷	58,308	Cohort	STEMI	PPCI	<p>Men vs. women</p> <p>OR=1.2 (1.1–1.4)</p>



Jneid et al., 2008, USA ⁷⁸	78,254	Cohort	STEMI or NSTEMI	Clinical performance measures, invasive procedures, in-hospital death	Aspirin within 24 h: Adj. OR 0.86 (0.81–0.90) β-blockers within 24 h: Adj. OR 0.90 (0.86–0.93) Reperfusion therapy: Adj. OR 0.75 (0.70–0.80) Door-to-needle time <30 min: Adj. OR 0.78 (0.65– 0.72) Door-to-balloon time <30 min: Adj. OR 0.87 (0.79– 0.95) PPCI: Adj. OR 0.83 (0.78–0.87) In-hospital death (overall): Adj. OR 1.04 (0.99–1.10) In-hospital death (STEMI): Adj. OR 1.12 (1.02–1.23)
Berger et al., 2006, USA ⁷⁹	9015	Cohort	STEMI. PPCI	In-hospital mortality	Overall: women 6.7%, men 3.4%, P<0.001 <75 years: women 4.8%, men 2.6%, P<0.001 >75 years: women 11.8%, men 9.7%, P=0.20 Overall: Adj. OR 1.25 (0.98–1.58) <75 years: Adj. OR 1.37 (1.01–1.98) >75 years: Adj. OR 1.00 (0.68–1.49)
Lansky et al.,	2082	Subgroup	STEMI.	In-hospital, 30 days and	In-hospital: women 6.4%, men 3.2%, P=0.002



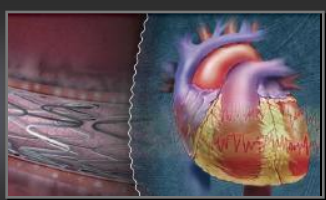
2005, USA ⁸⁰		analysis in RCT	PPCI	1 year MACE (death, reinfarction, TVR, or stroke)	30 days: women 9.5%, men 4.4%, P<0.001 1 year: women 23.9%, men 15.4%, P<0.001 Female sex predictor of 1 year MACE: Adj. OR 1.64 (1.24–2.17)
Vakili et al., 2001, USA ⁸¹	1044	Cohort	STEMI. PPCI	In-hospital mortality	Adj. OR 2.33 (1.2–4.6)
Barron et al., 1998, USA ⁸²	84,663	Cohort	STEMI. TT or no reperfusion	Reperfusion therapy In-hospital mortality	Reperfusion therapy: Adj. OR 0.88 (0.83–0.92) In-hospital mortality: Adj. OR 1.5 (1.3–1.7)
No sex-related differences after adjustment					
Eitel et al., 2011, Germany ⁸³	335	Cohort	STEMI. PPCI	Myocardial salvage, in- hospital, 30-day, and 6- month mortality	Myocardial salvage: Female sex not an independent predictor (P=0.63) In-hospital mortality: Crude HR 2.81 (1.09–7.30) Adj. HR 1.93 (0.72–5.30) 30-day mortality: Crude HR 6.21 (1.00–4.86)



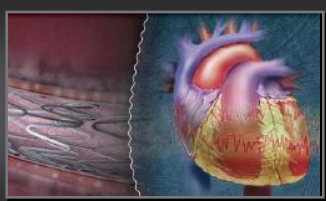
Възраст

Table 2. Studies on differences in treatment for and outcome after ST-elevation myocardial infarction related to age

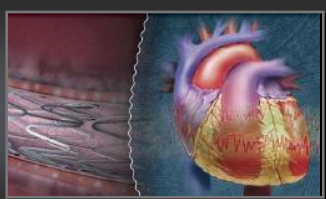
Author, year, country	N	Study design	Study population	Outcome	Results
Age-related differences present					
Gharacholou et al., 2011, USA ⁹⁸	5745	Subgroup analysis in RCT	STEMI. PPCI	30-day & 90-day mortality	30-day: <65y 1.8%, 65–74y 4.0%, ≥75y 10.0% 90-day: <65y 2.1%, 65–74y 4.4%, ≥75y 12.5% Age independent predictor of 90-day mortality 65–74y vs. <65y, Adj. OR 2.04 (1.46–2.86) ≥75y vs. <65y, Adj. OR 5.64 (4.20–7.56)
Gottlieb et al., 2010, Israel ⁹⁹	1026	Cohort	STEMI. PPCI, TT, or no reperfusion	Reperfusion, 7-day, 30-day, & 1-year mortality	Reperfusion: <65y 64%, 65–74y 63%, >75 46%, P<0.0001 7-day: <65y 1.7%, 65–74y 4.8%, >75y 11.1%, P<0.0001. Adj. RR (>75y vs. <65y) 4.7 (2.0–11.3) 30-day: <65y 2.7%, 65–74y 7.4%, >75y 17.3%, P<0.0001. Adj. RR (>75y vs. <65y) 2.5 (1.3–5.1) 1-year: <65y 4.3%, 65–74y 10.5%, >75y 27.9%,



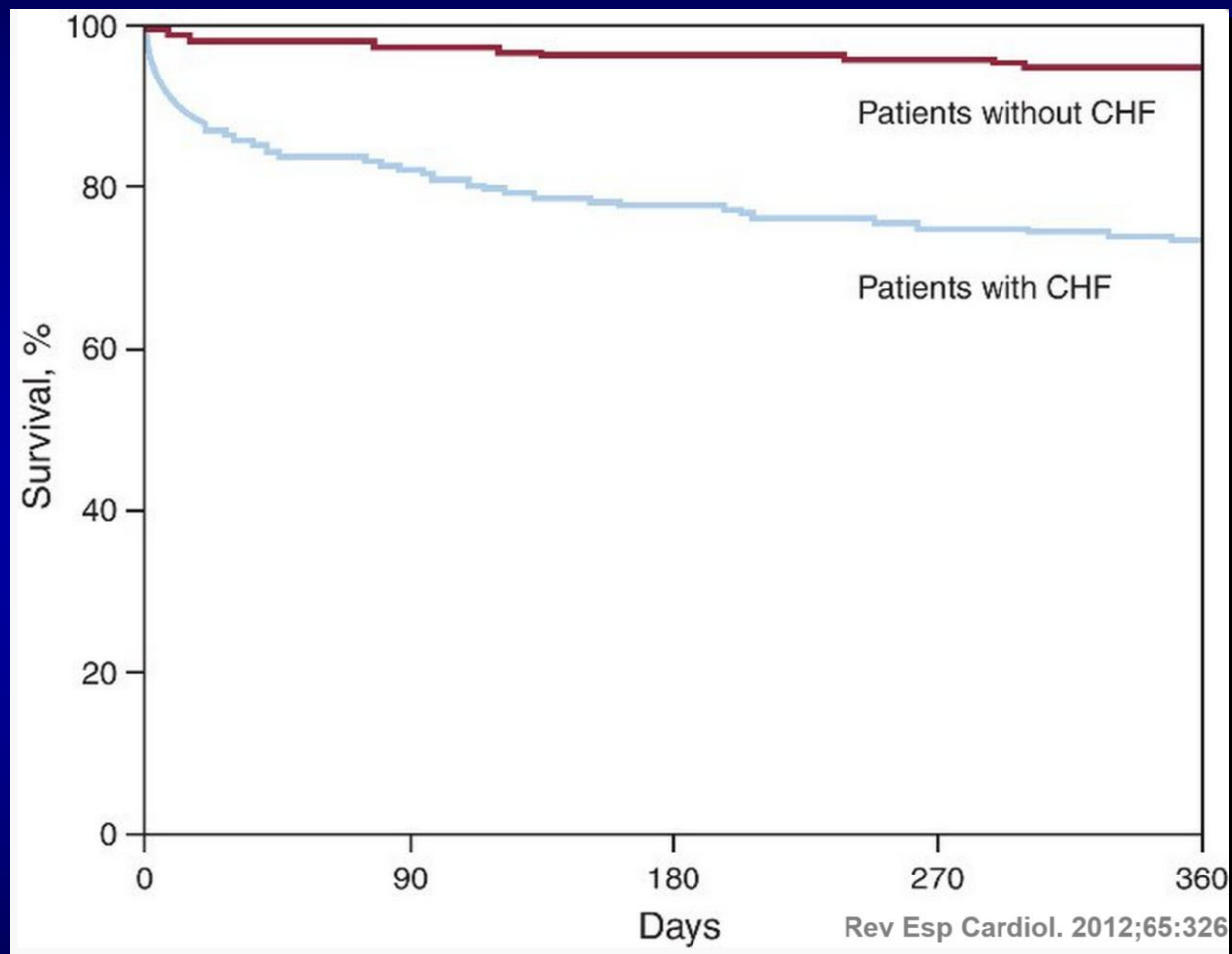
					P<0.0001. Adj. RR (>75y vs. <65y) 2.7 (1.6–4.8)
Ergelen et al., 2010, Turkey ¹⁰⁰	2424	Cohort	STEMI, PPCI	In-hospital & intermediate-term (median 21–22 months) mortality	In-hospital: young 1.2%, old 5.4%, P<0.001 Intermediate: young 1.3%, old 5.0%, P=0.001 Age predictor of intermediate mortality, Adj. OR=1.07 (1.03–1.10)
Zimmermann et al., 2009, Germany ¹⁰¹	504	Cohort	STEMI, PPCI	30-day & 1-year mortality	30-day: <75 6.4%, ≥75 13.0%, P<0.001 30-day: age predictor of death, Adj. OR 1.05 (1.01–1.09) 1-year: <75 9.9%, ≥75 24.3%, P<0.001 1-year: age predictor of death, Adj. OR 1.04 (1.00–1.08)
Forman et al., 2009, USA ¹⁰²	11,160	Pooled analysis of 5 RCTs and 2 registries	STEMI, PPCI	Mortality	RCTs: age predictor of 5 year mortality Adj. OR 1.06 (1.04–1.08) Registries: age predictor of 2-year mortality Adj. OR 1.16 (1.09–1.23)
Pathak et al., 2008, USA ⁷⁴	58,308	Cohort	STEMI	PPCI	OR=0.6 (0.5–0.7)



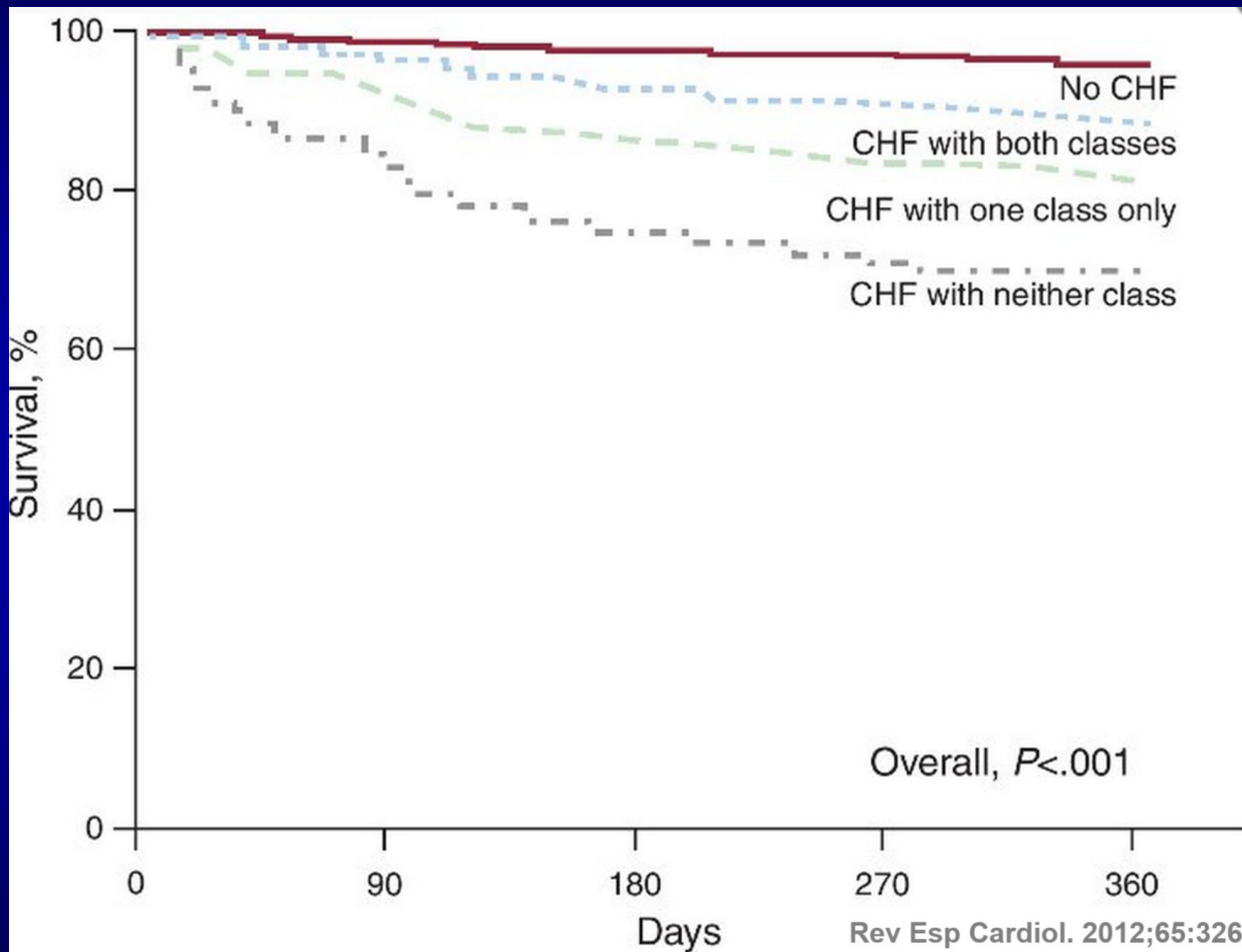
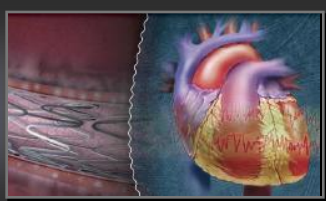
Guagliumi et al., 2004, multi centre ¹⁰³	2082	Subgroup analysis in RCT	STEMI. PPCI	1-year mortality	1-year: <55y 1.6%, 55–65y 2.1%, 65–75y 7.1%, >75 11.1%, P<0.0001. Adj. OR 1.06 (1.04–1.09)
Cohen et al., 2003, USA ¹⁰⁴	4620	Cohort	STEMI. PPCI	In-hospital & 1-year mortality	In-hospital: <65y 0.6%, 65–79y 2.2%, ≥80 4.6% In-hospital: <65 vs. 65–74 Adj. RR 2.91 (1.48–5.72) In-hospital: <65 vs. ≥80 Adj. RR 3.64 (1.48–8.94) 1-year: <65y 2.1%, 65–79y 4.9%, ≥80 11.0% 1-year: <65 vs. 65–74 Adj. RR 1.87 (1.27–2.75) 1-year: <65 vs. ≥80 Adj. RR 3.02 (1.78–5.13)
Eagle et al., 2002, multi centre ¹⁰⁵	1763	Cohort	STEMI	Reperfusion	≥75 vs. <75, OR 2.63 (2.04–3.38) Adj. OR 2.37 (1.82–3.08)
DeGeare et al., 2000, USA ¹⁰⁶	3032	Pooled analysis of 3 RCTs	STEMI. PPCI	In-hospital mortality	<75 1.8%, ≥75 10.2%, P=0.001 Age independent predictor of death
Barron et al., 1998, USA ⁸²	84,663	Cohort	STEMI. TT or no	Reperfusion therapy In-hospital mortality	Reperfusion, <65y vs. >75y OR 0.40 (0.36–0.43) Age >65y independent predictor of mortality



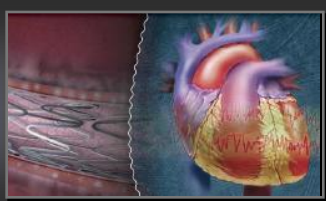
Сърдечна недостатъчност



Yves Juillière et al. Heart Failure in Acute Myocardial Infarction, a Comparison Between Patients With or Without Heart Failure Criteria From the FAST-MI Registry, Rev Esp Cardiol. 2012;65:326-33. - Vol. 65 Num.04 DOI: 10.1016/j.rec.2011.10.028



Yves Juillière et al. Heart Failure in Acute Myocardial Infarction, a Comparison Between Patients With or Without Heart Failure Criteria From the FAST-MI Registry, Rev Esp Cardiol. 2012;65:326-33. - Vol. 65 Num.04 DOI: 10.1016/j.rec.2011.10.028



Време на забавяне

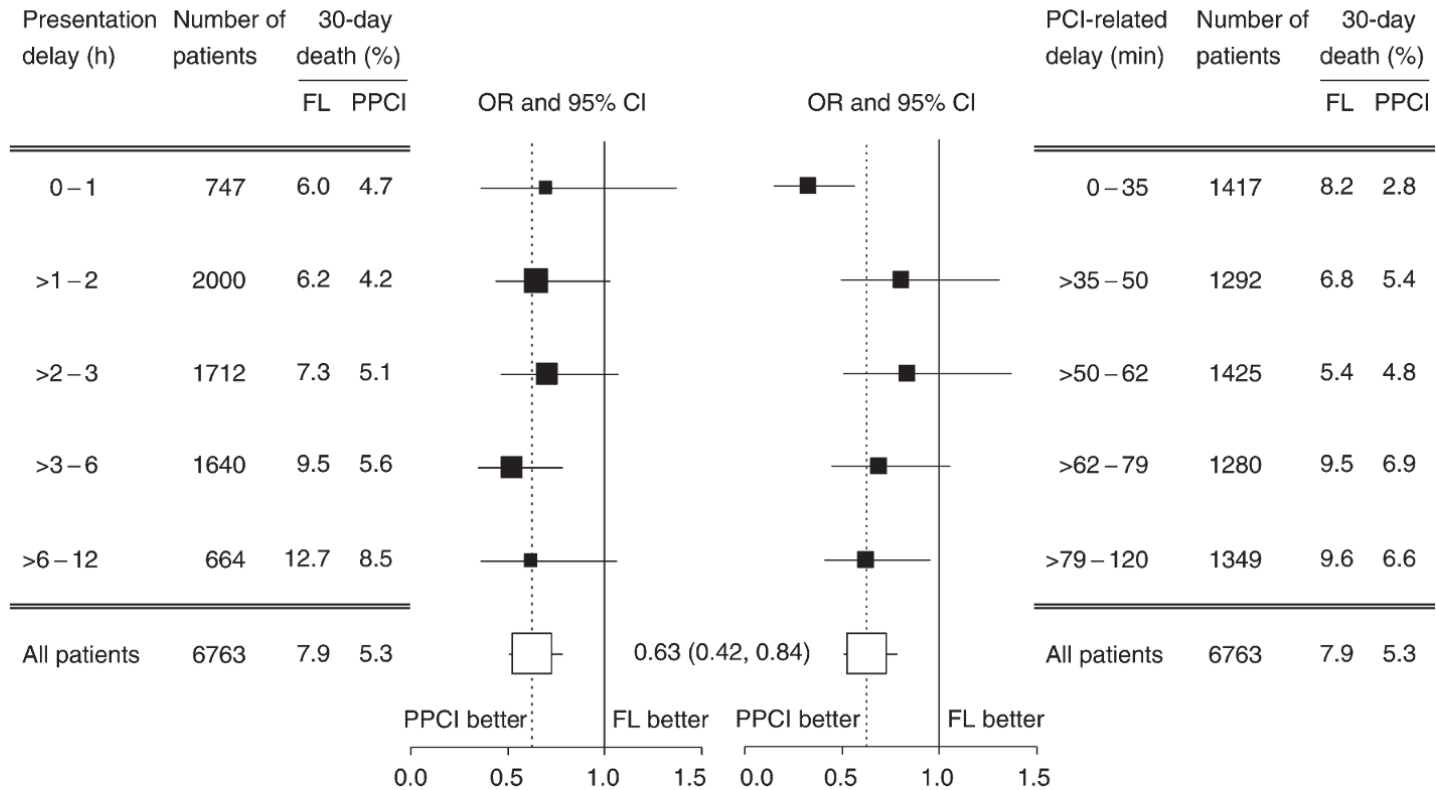
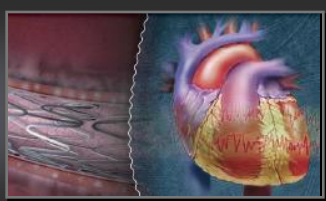
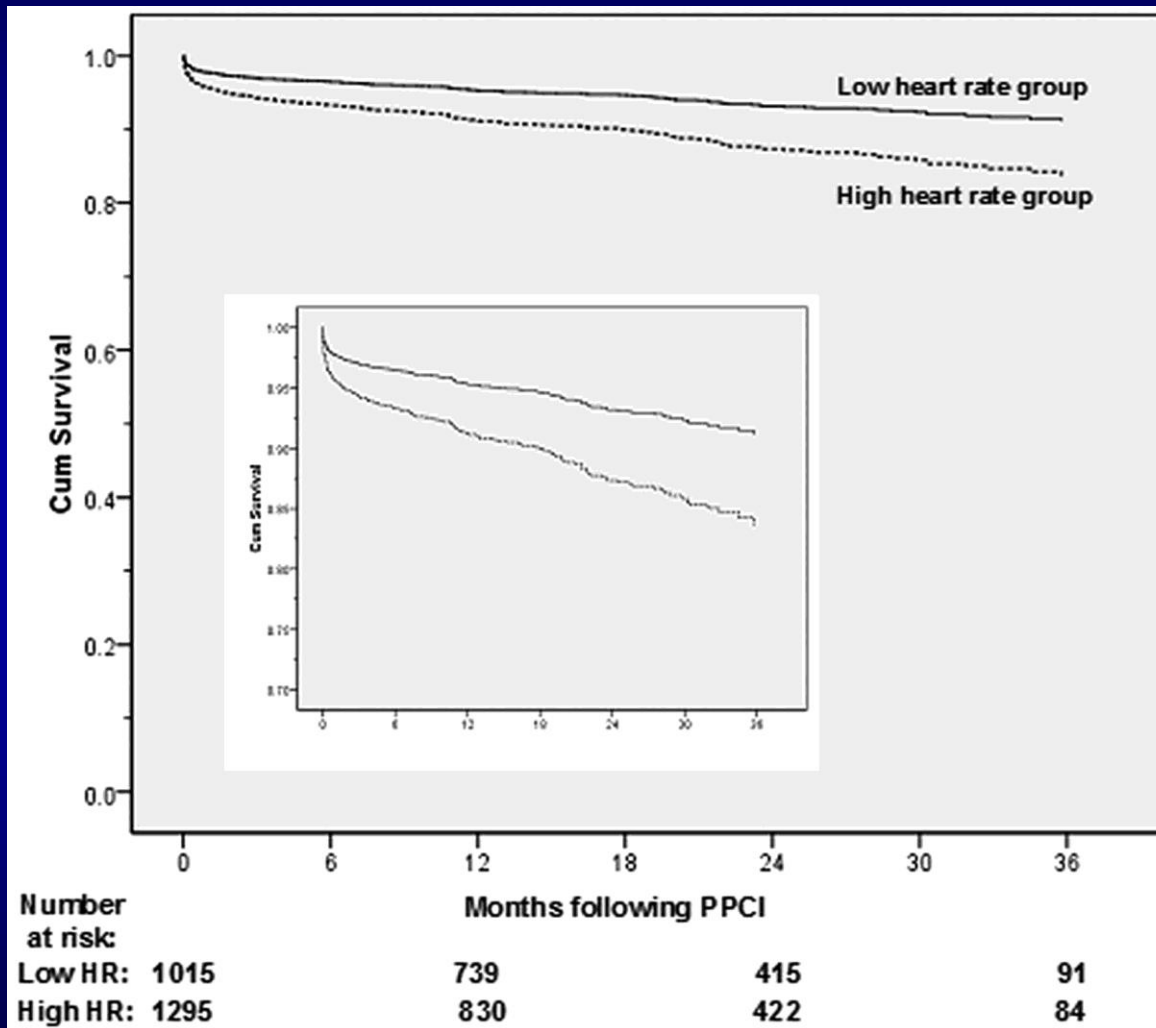


Figure 3 OR and 95% CI for 30-day death in patients randomized to PPCI when compared with FL according to presentation delay (left panel) and PCI-related delay (right panel). OR were adjusted for patient-, hospital-, and study-level covariates.

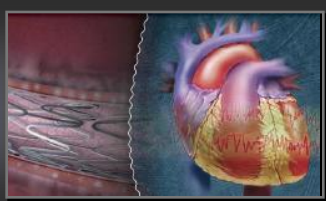
Boersma E and The Primary Coronary Angioplasty vs. Thrombolysis Group (2006): Does time matter? A pooled analysis of randomized clinical trials comparing primary percutaneous coronary intervention and in-hospital fibrinolysis in acute myocardial infarction patients. Eur Heart J 27:779-788.



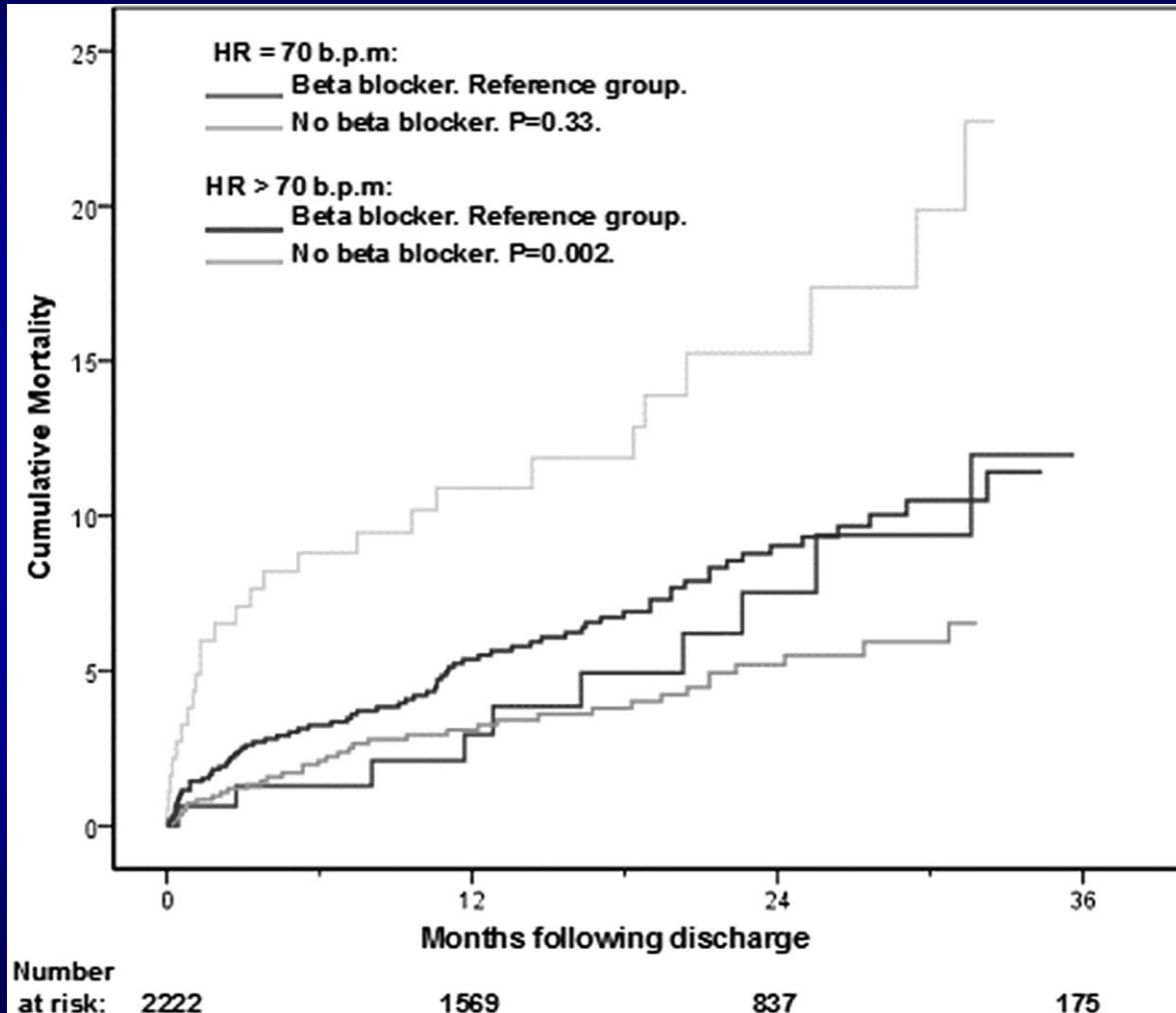
Сърдечна честота



Balasubramaniam K et al. Heart 2013;99:A24-A25

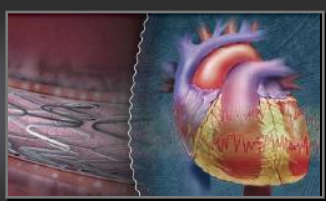


Сърдечна честота

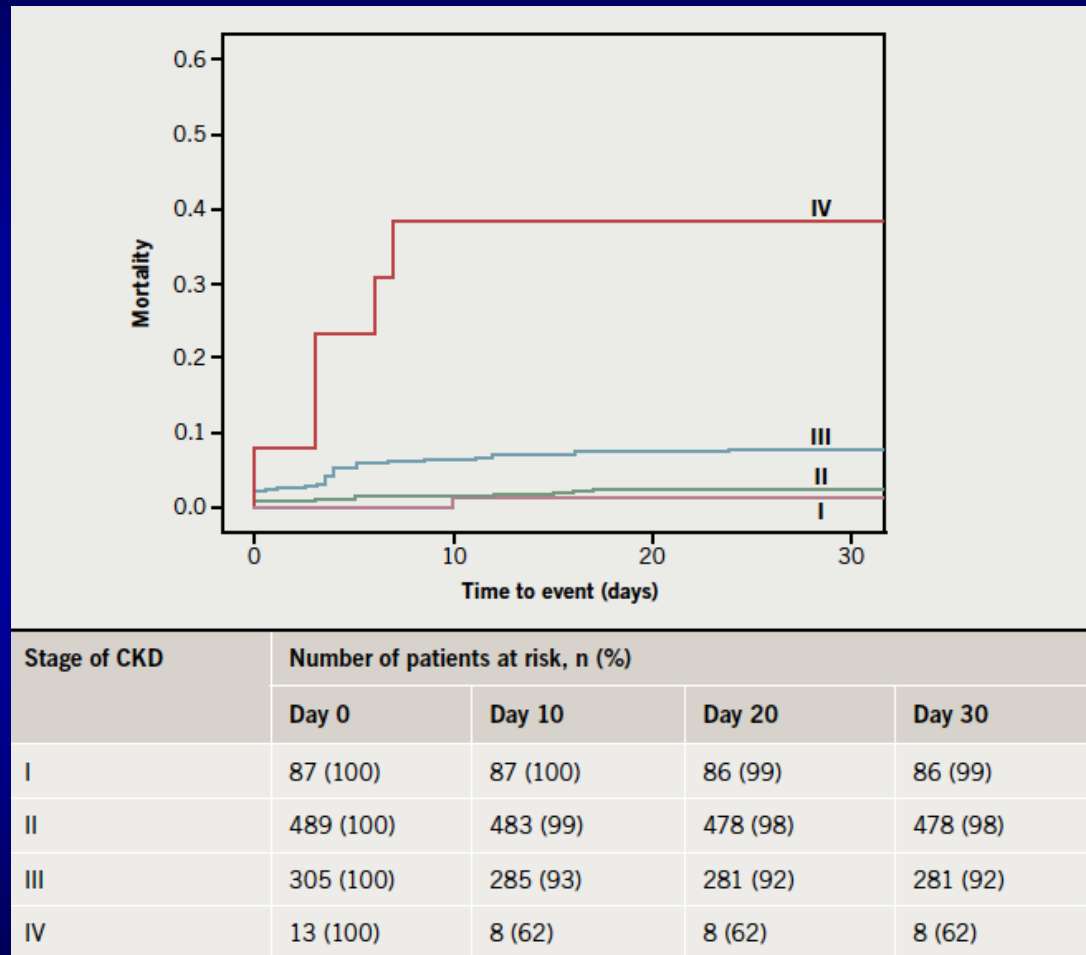


Balasubramaniam K et al. Heart 2013;99:A24-A25

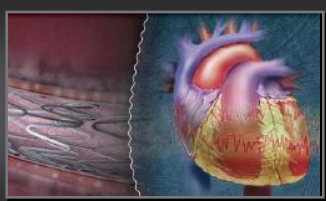




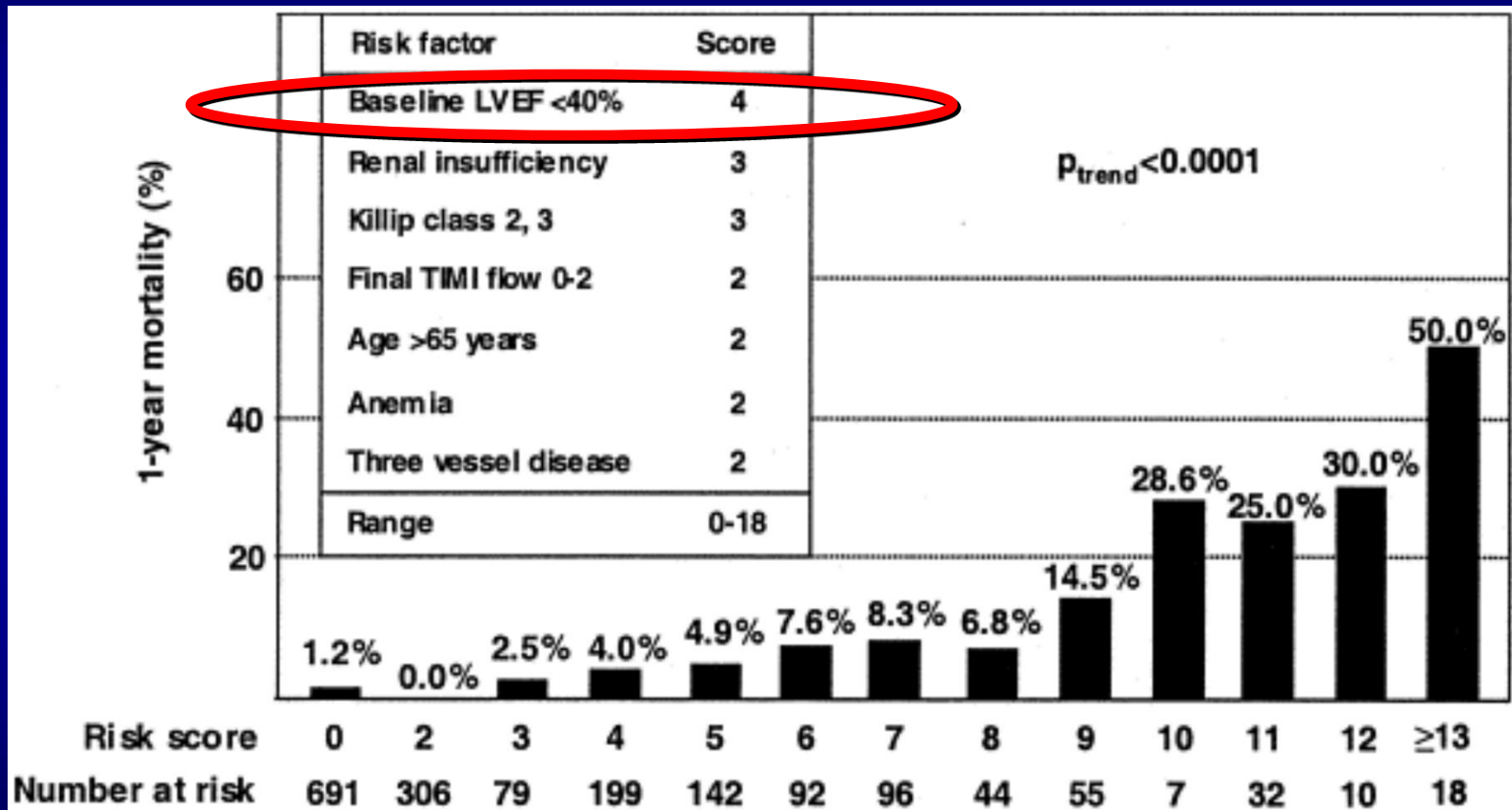
Бъбречна недостатъчност

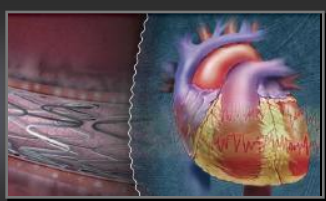


Polanska-Skrzypczyk, Magdalena, et al. "Prognostic value of renal function in STEMI patients treated with primary PCI: ANIN Registry." *Br J Cardiol* 20 (2013): 65.

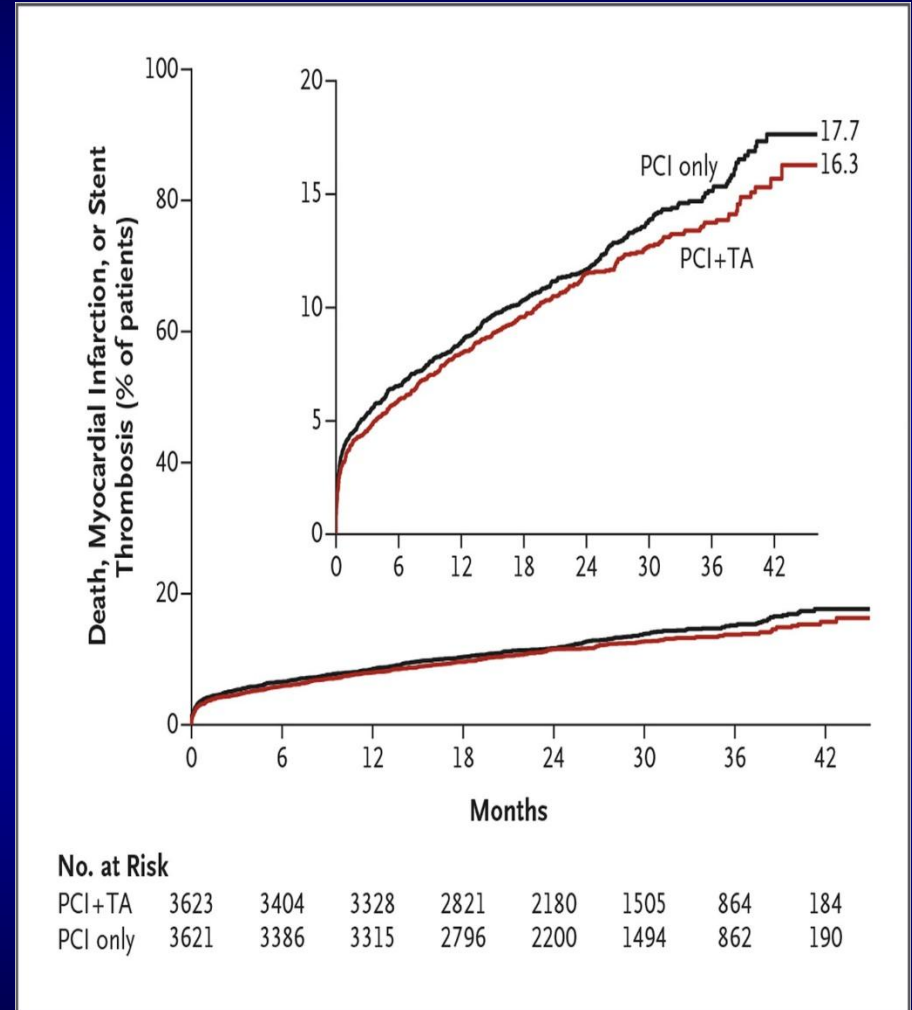
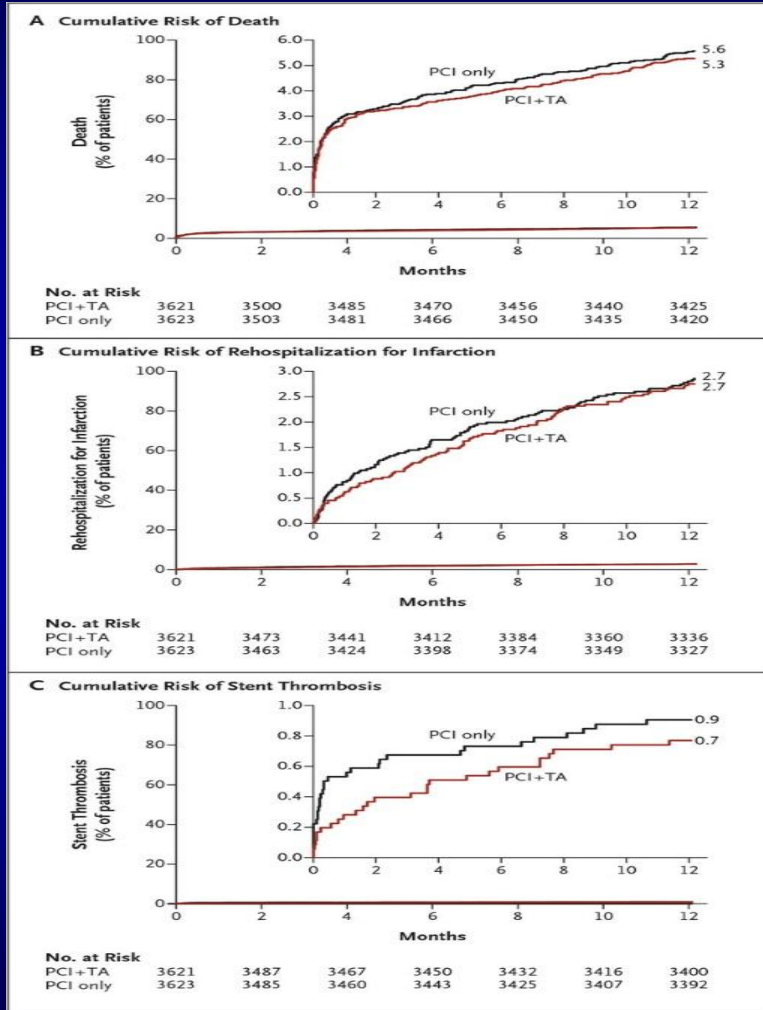


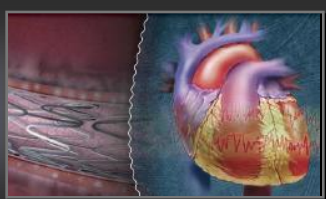
ЛКФИ



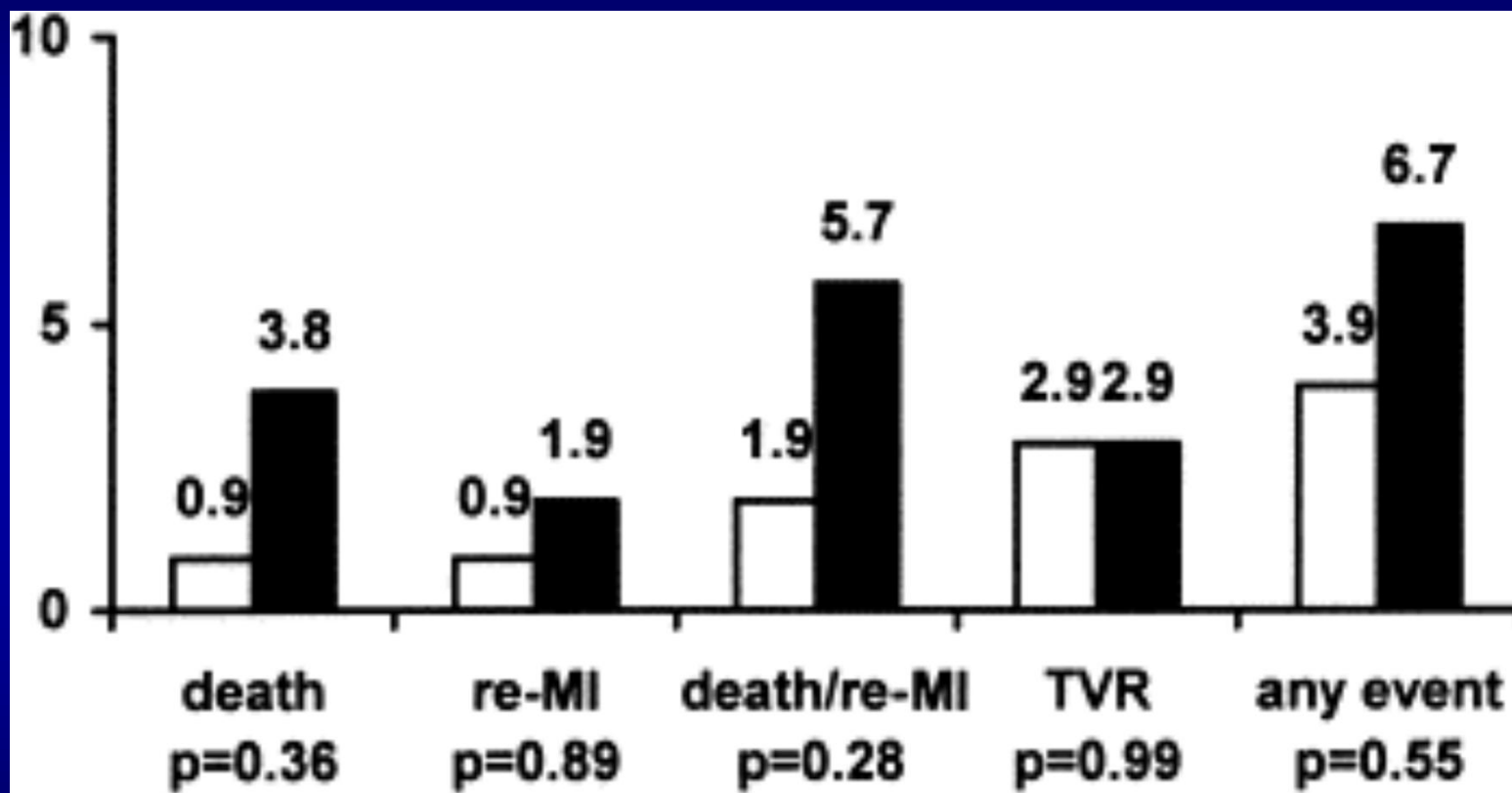


Тромбаспирация

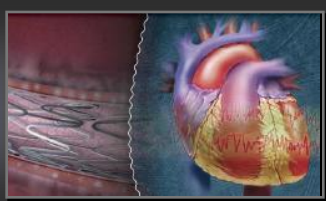




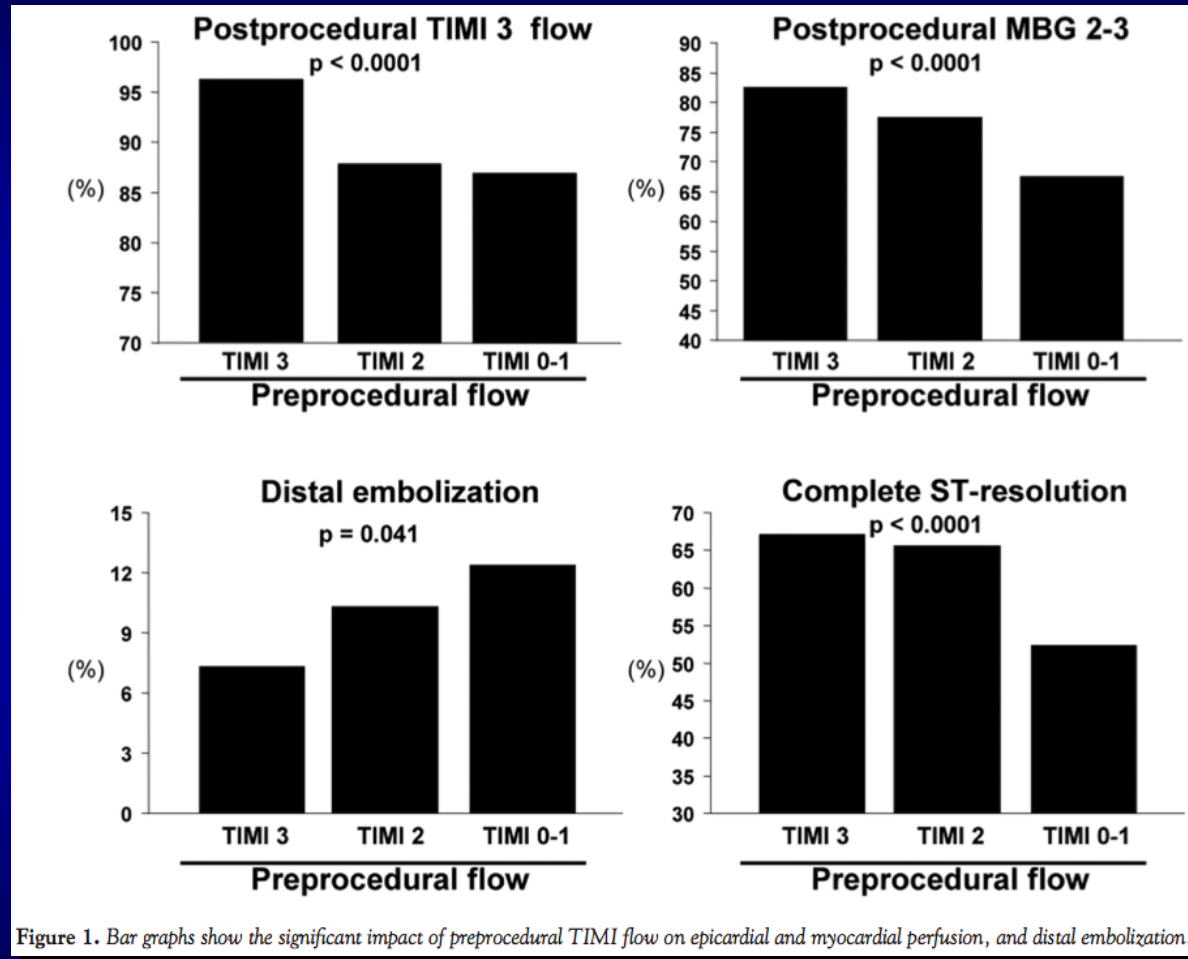
Директно стентирание



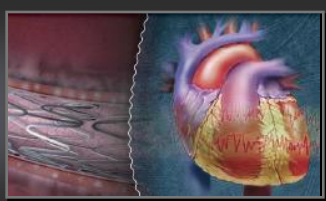
A randomized comparison of direct stenting with conventional stent implantation in selected patients with acute myocardial infarction
J Am Coll Cardiol. 2002;39(1):15-21. doi:10.1016/S0735-1097(01)01701-6



Предпроцедурен TIMI flow



Impact of Preprocedural TIMI Flow on Myocardial Perfusion, Distal Embolization and Mortality in Patients with ST-Segment Elevation Myocardial Infarction Treated by Primary Angioplasty and Glycoprotein IIb/IIIa Inhibitors, JIC, [Volume 24 - Issue 7 - July 2012](#), Mauro Maioli et al



Предпроцедурен TIMI flow

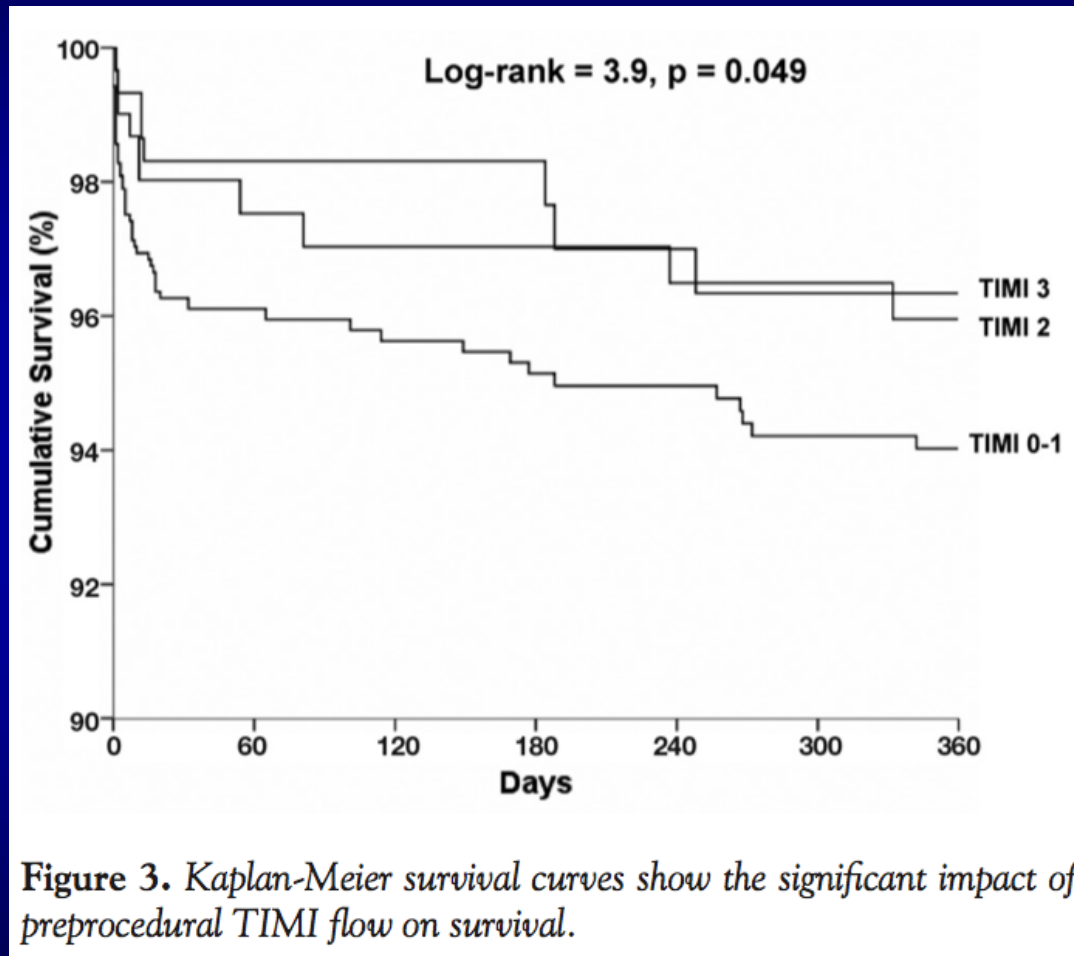
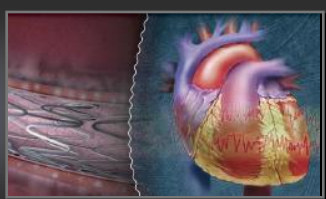
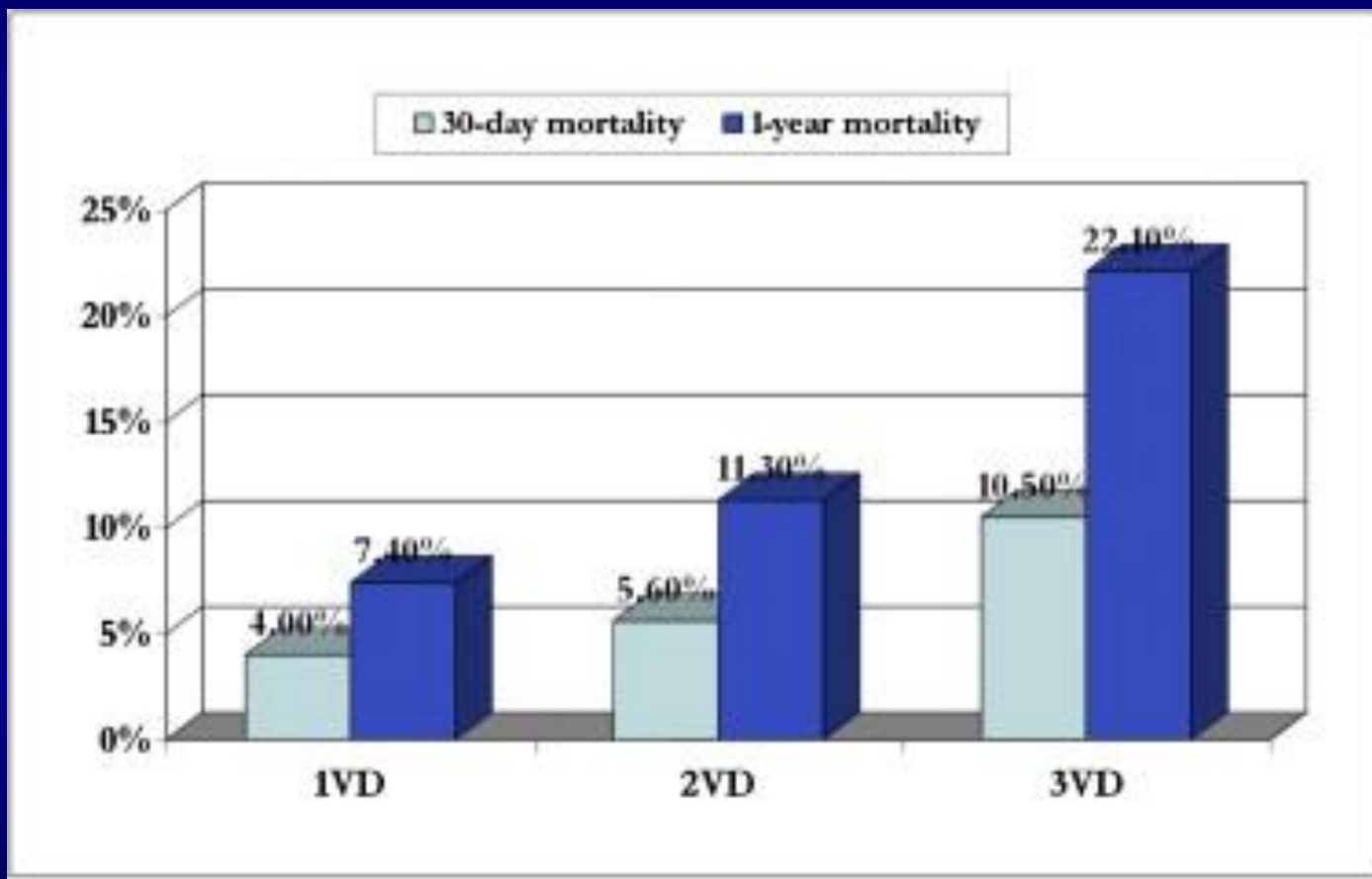


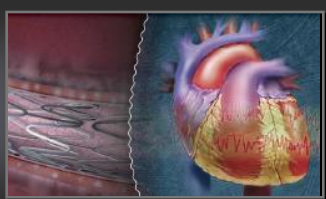
Figure 3. *Kaplan-Meier survival curves show the significant impact of preprocedural TIMI flow on survival.*

Impact of Preprocedural TIMI Flow on Myocardial Perfusion, Distal Embolization and Mortality in Patients with ST-Segment Elevation Myocardial Infarction Treated by Primary Angioplasty and Glycoprotein IIb/IIIa Inhibitors, *JIC*, [Volume 24 - Issue 7 - July 2012](#), Mauro Maioli et al



Едно спрямо многоклоново засягане





Заклучение

- ▶ Независимо от непрекъснатия технологичен напредък смъртността от STEMI остава висока.
- ▶ Познаването на факторите определящи неблагоприятна прогноза идентифицира STEMI пациентите с нисък, умерен и висок риск.
- ▶ Индивидуализирания подход към всеки пациент е предпоставка за максимално добри резултати.

Keep Calm

Capture Solution XE sprosoft.co

The Doctor
or
Is In



Beware