Coronary Artery Bypass Surgery (CABG); Trends in Application and Outcome. Results from the Acute Coronary Syndrome Israeli Survey (ACSIS) 2000–2010

Yaron Barac, Robert klempfner, Ilan Goldenberg, Dan Aravot

Disclosure

- None

Background

- Primary **angioplasty is the treatment of choice** in patients with acute myocardial infarction (MI). However, early **surgical revascularization** may be warranted in complex multi-vessel coronary disease.

- During the past decade, both percutaneous coronary interventions (PCI) and CABG have **significantly evolved**.

- Controversy exists regarding the risks and optimal **timing** of surgery after ACS.

Method

We evaluated trends in early coronary revascularization strategies and associated outcomes in ACS patients reported in 6 Acute Coronary Syndrome Israeli Surveys (ACSIS) conducted between 2000-2010

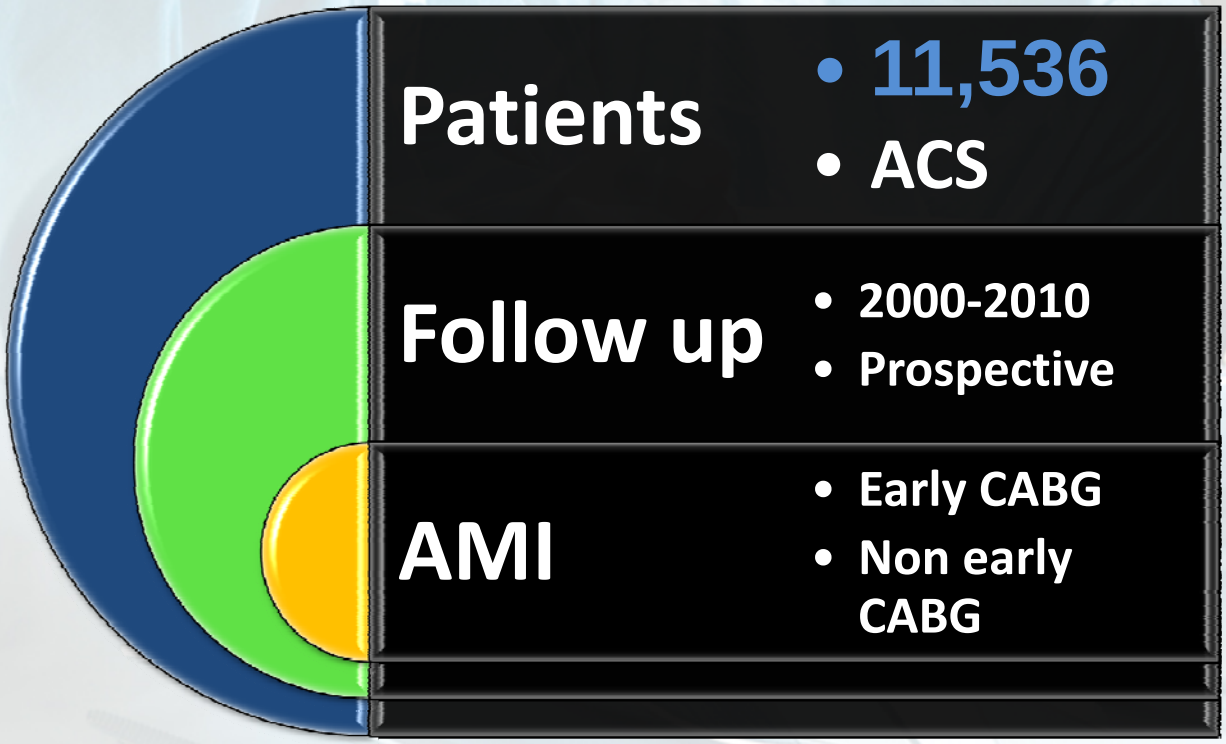
Study Aims

1)To examine the **referral trends** to and **predictors of early CABG referral**, after an ACS admission

2)To determine the **outcomes** of patients operated on soon after ACS

3)To establish whether outcomes of this population have **improved** over the past decade

Research synopsis



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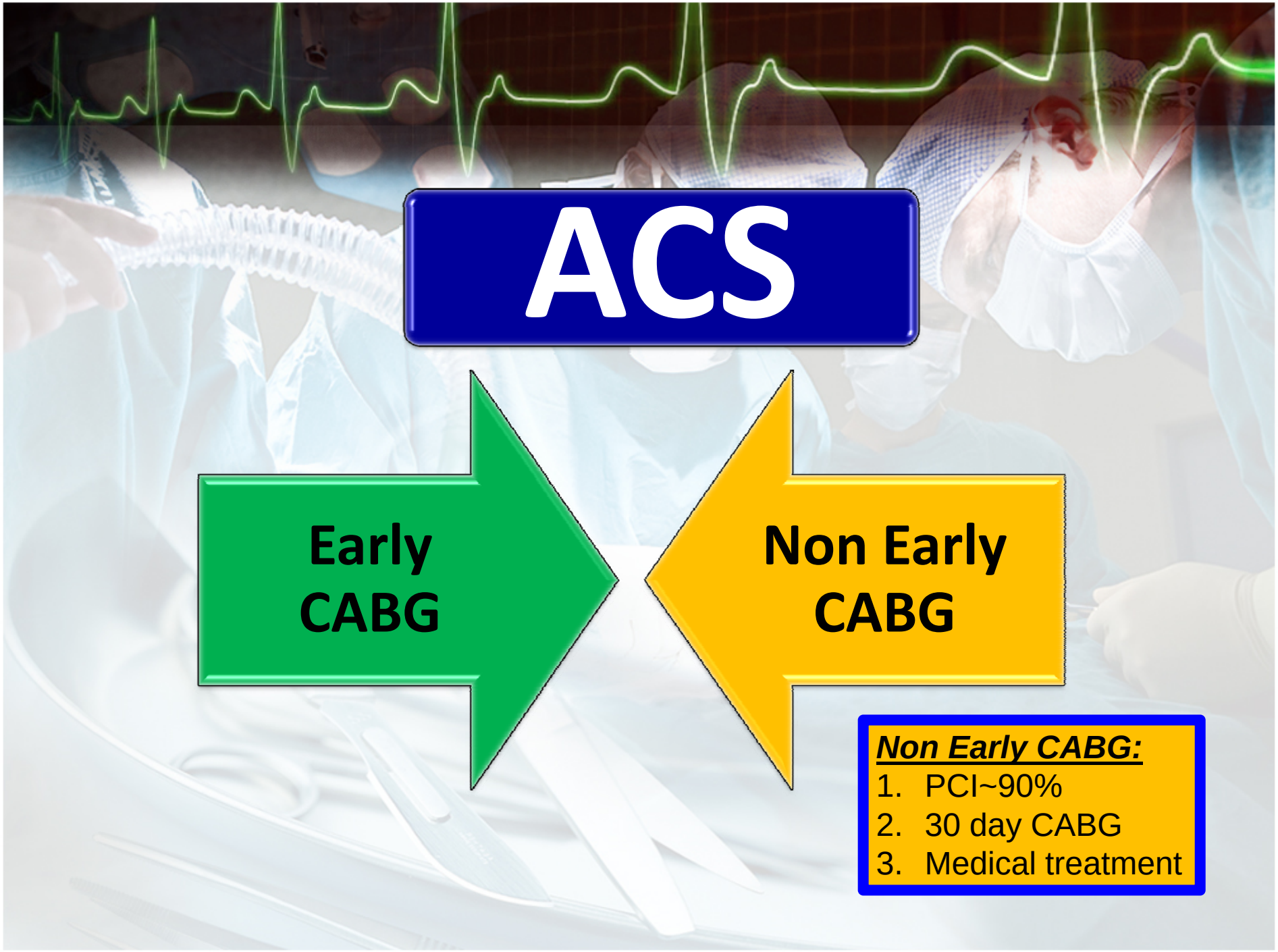

ACS
Early CABG
Non Early CABG
Non Early CABG:
1. PCI~90%
2. 30 day CABG
3. Medical treatment

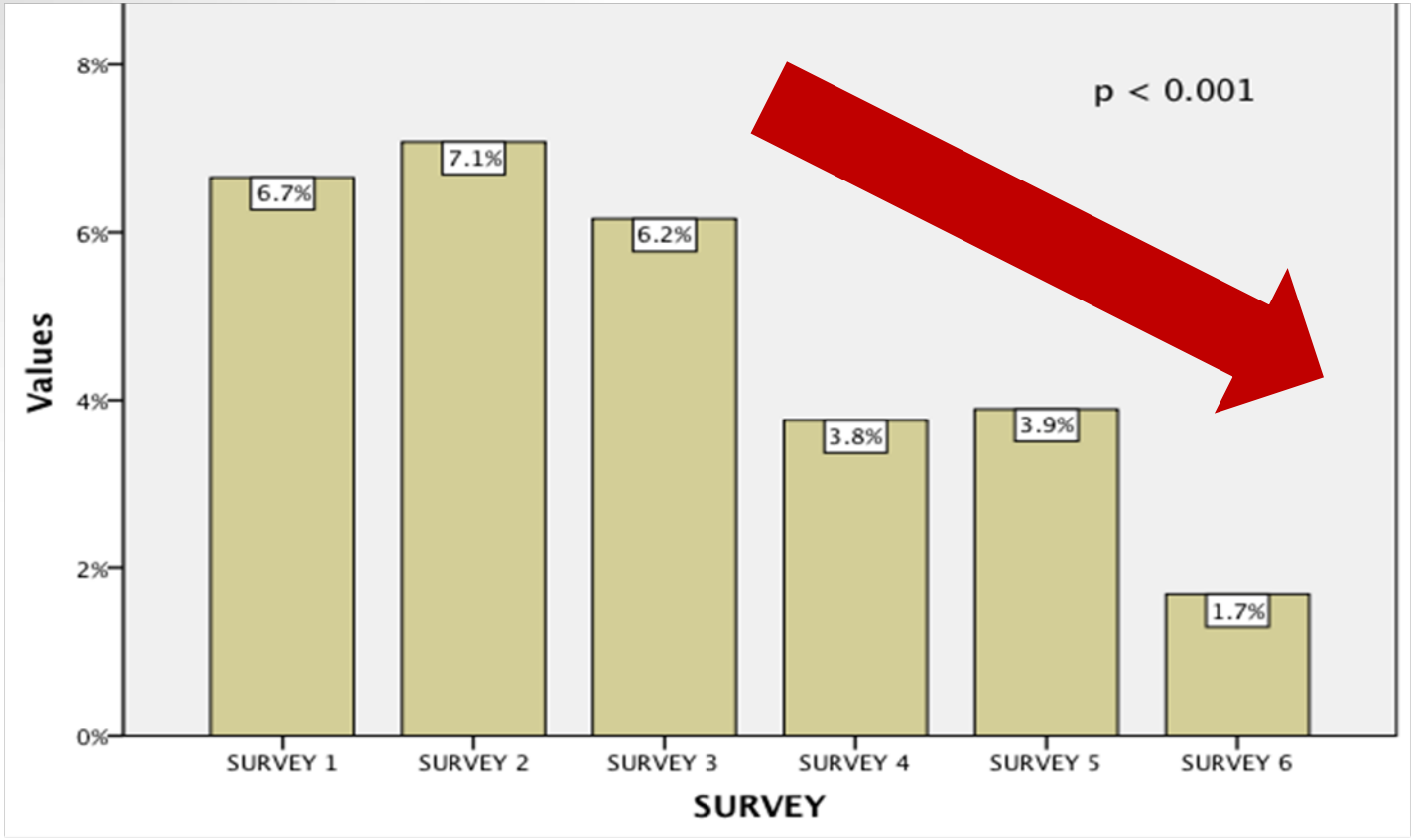
Baseline characteristics

	Early CABG	**Non early CABG**	p value
Demographics	n=566 (4.9%)	n=10919 (95.1%)	
Age	64.6±12	63.7±13	0.7
Female gender	22%	24%	0.40
Medical History			
PRIOR MI	29%	29%	0.80
PRIOR CABG	1%	11%	< 0.001
PAST PCI	20%	26%	< 0.001
PRIOR CHF	6%	8%	0.10
Three Vessel Disease	61%	29%	0.001
ST Elevation MI	39%	48%	0.001
Anterior wall MI	38%	33%	0.01
Killip class on admission			
I-II	80%	93%	0.02
III-IV	20%	7%	

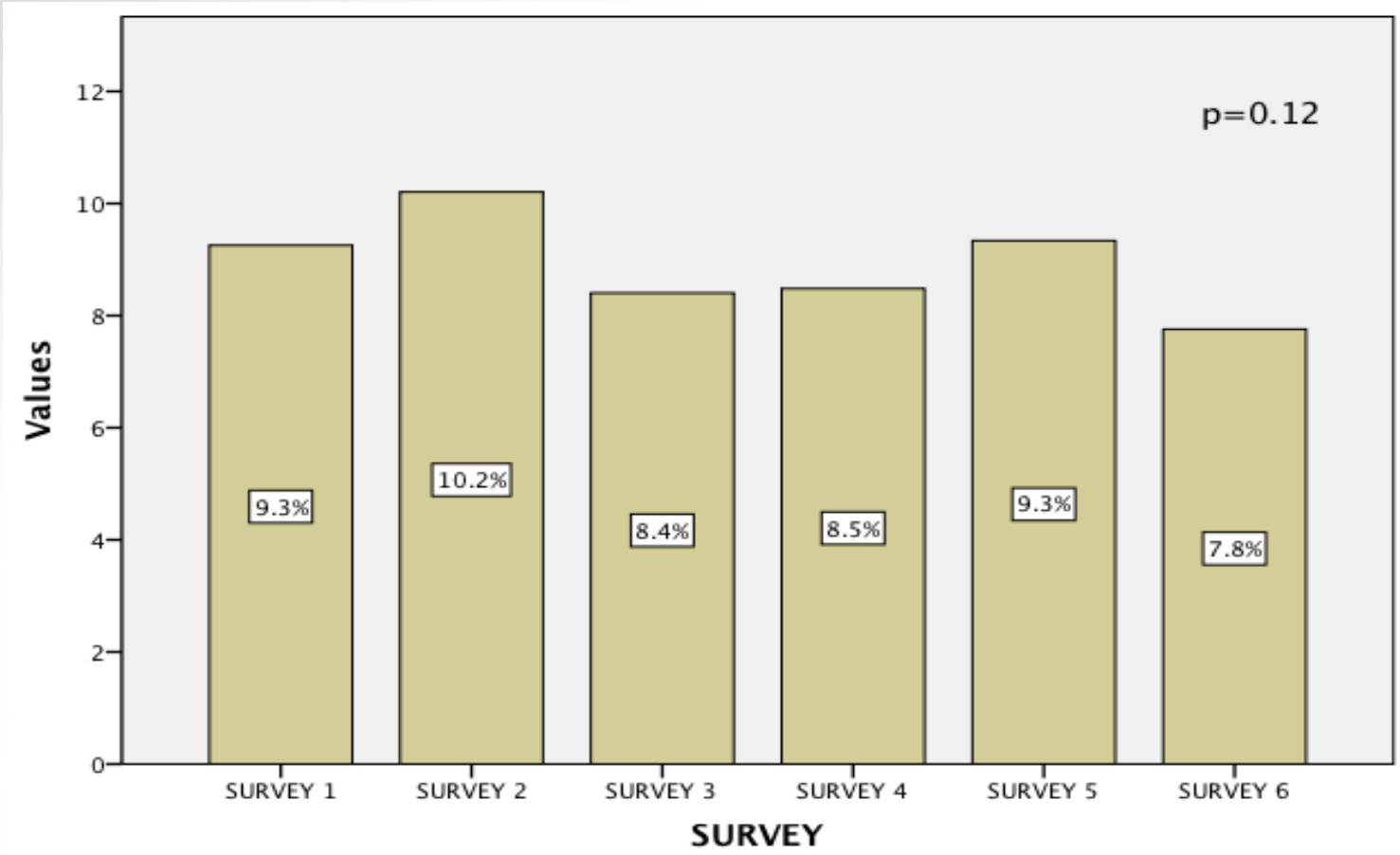
In-hospital management

	Early CABG	Non early CABG	p value
Primary reperfusion	16%	32%	< 0.001
Primary PCI	7%	21%	<0.001
Thrombolysis	9%	11%	0.001
Use of IV inotropes	7%	5%	0.06
Mechanical Ventilation	10%	6%	0.001
Use of IABP	15%	4%	< 0.001
CICU stay (days)	6±6	4.7±4	< 0.001
Hospital stay (days)	12.8±10	6.4±6	< 0.001
Left ventricular function			
Persevered or Normal	34%	41%	< 0.001
Mild Dysfunction	31%	30%	
Moderate Dysfunction	25%	20%	
Severe Dysfunction	11%	9%	

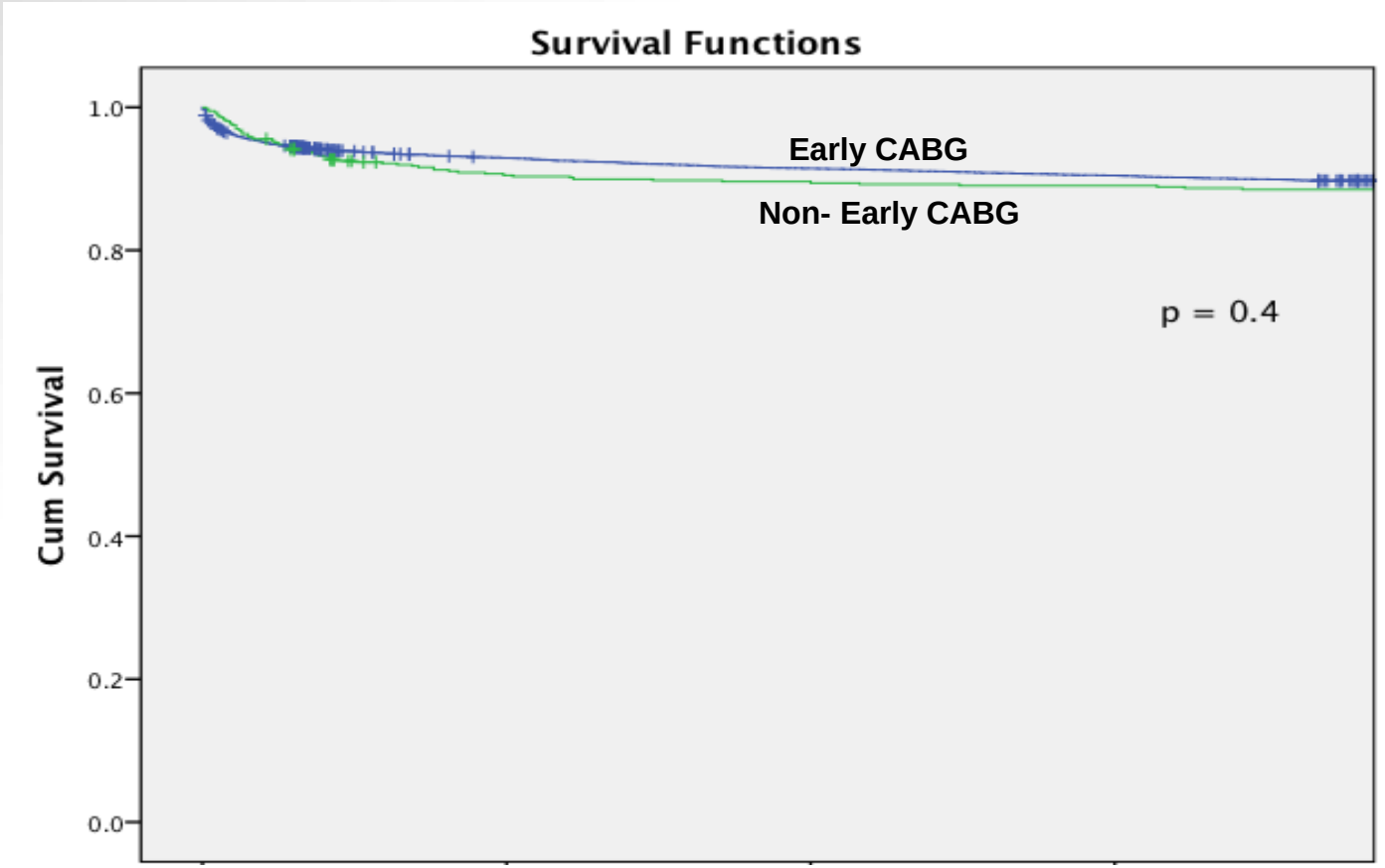
A decrease in early CABG referral trends



No change in 30 day CABG Referral trend

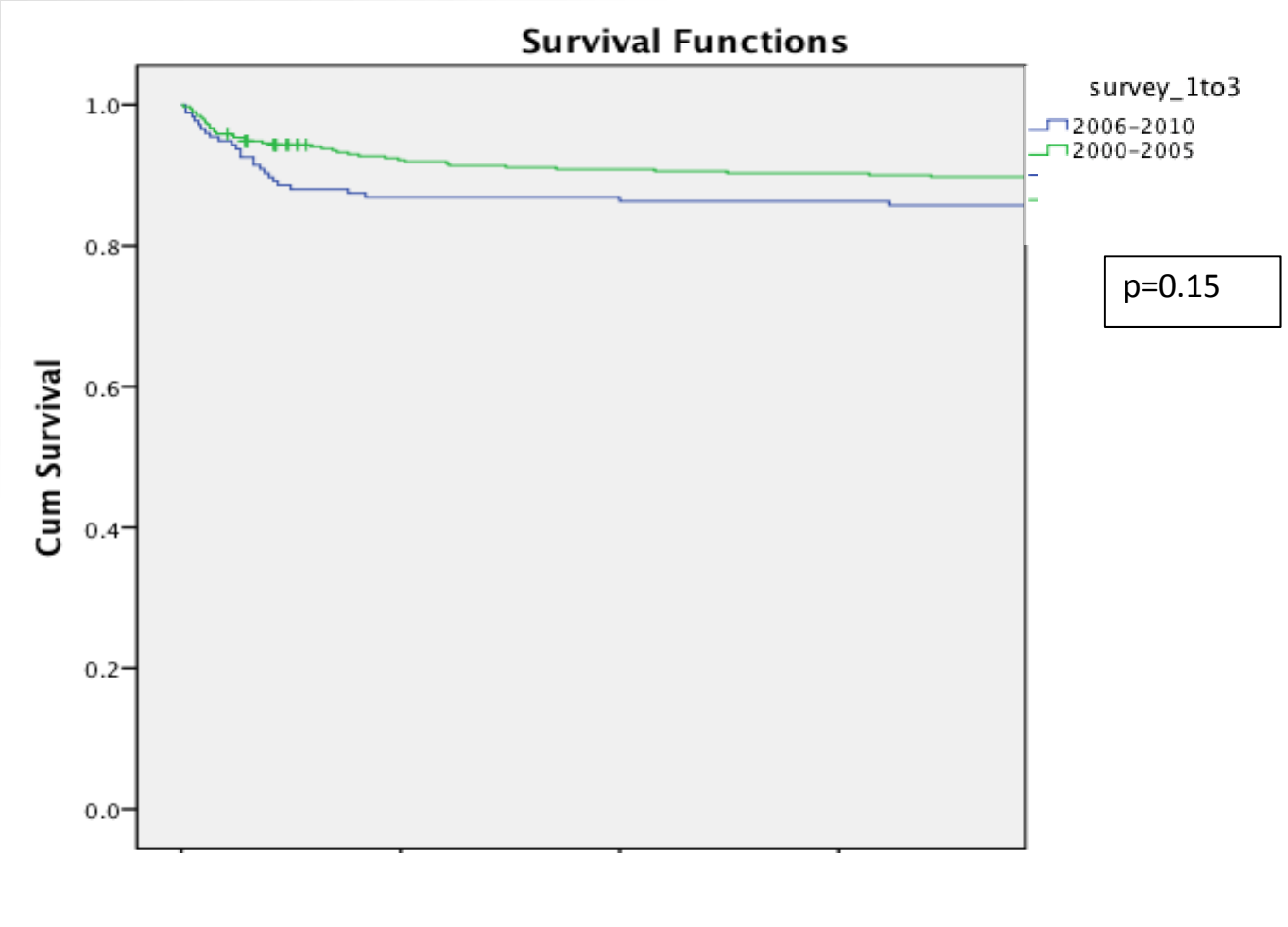


Cumulative probability of one-year mortality of the early CABG group vs. non-early CABG patients



Survival probability of patient referred to early CABG: 1ST half of the decade vs. the 2nd half

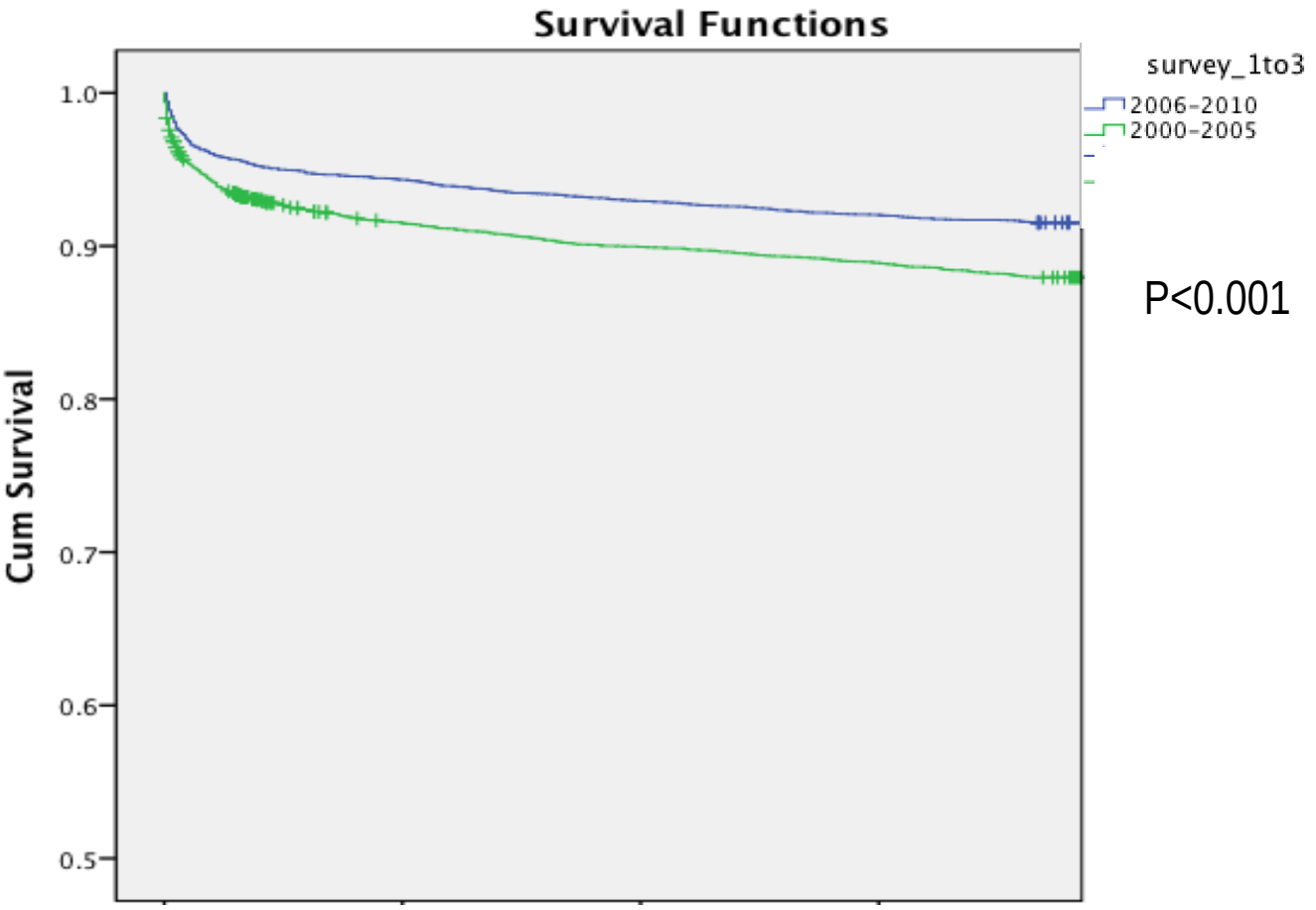
(years 2000-2005 VS. 2006-2010)



p=0.15

Survival of patients in the non-early CABG group during the 1ST half of the decade vs. the 2nd half

(years 2000-2005 VS. 2006-2010)



P<0.001

Predictors for referral to early CABG

entire patient population – logistic regression analysis

	OR	95% CI		p value
		Lower	Upper	
Prior diagnosis				
MI	1.0	0.8	1.2	0.77
HF	0.6	0.4	0.9	0.01
Killip 2 Vs Killip 1	1.3	0.9	1.7	0.11
Killip 3 Vs Killip 1	1.7	1.2	2.4	0.001
Killip 4 Vs Killip 1	1.6	0.9	2.9	0.10
Moderate LV dysfunction*	1.5	1.1	1.90	0.003

Model was further adjusted for the number of diseased vessels

Predictors for 1 year mortality

entire patient population - Multivariate regression analysis

	OR	95% CI		P value
		Lower	Upper	
Early CABG	1.2	0.9	1.6	.2
Past MI	1.4	1.2	1.6	<0.001
Diabetes	1.6	1.4	1.8	<0.001
Age	1.1	1.1	1.1	<0.001
Q wave MI	1.5	1.3	1.7	<0.001
Killip class >1	4.2	3.7	4.9	<0.001
Primary PCI	0.8	0.7	0.9	0.005

Model was further adjusted for admission ECG, prior diagnosis of heart failure, gender and reperfusion therapy

Study Limitations

- Non-randomized survey data
- Specific indications for CABG not prospectively collected
- No data regarding long-term outcomes (>12 months)

Conclusions

- **566** (4.9%) of the 11,536 presented patients were referred to CABG during their stay in the ICU.
- Over the past decade, **the use of PCI has significantly increased**, while an **opposite** trend was observed for early **CABG** procedures.
- **Patients who underwent early CABG displayed higher risk factors** compared with patients who were referred for PCI, including a **higher admission Killip class, anterior location of MI, moderate or severe left ventricular dysfunction, and use of mechanical ventilation** ($p<0.05$ for all).

Conclusions

- Patients who underwent **PCI during between 2006-2010** had **an improved survival** compared to previous years (8.5% vs. 11.9%; $p<0.001$)
- **Mortality** of patients undergoing **early CABG did not significantly change** between the two periods (14.3% vs. 10.1%; $p=0.15$).
- Over the past decade, there has been a decline in referral to early CABG in ACS, which did not correlate with a significant improvement in survival rates, **possibly due to the high risk-clinical characteristics of ACS patients who are currently referred to early CABG.**


THANK YOU