ACC Middle East Conference 2018

In partnership with:

جمعية القلب السعودية
Saudi Heart Association

Non-STEMI Conservative Management vs Early Invasive Management

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Disclosures: None

ACS-NSTEMI : Risk Assessment

Focused history physical examination
12-Lead EKG
Troponins

I | A

Use risk scores to assess prognosis in patients with NSTE-ACS

1. Find Points for Each Predictive Factor:

Killip Class	Points	SBP, mm Hg	Points	Heart Rate, Beats/min	Points	Age, y	Points	Creatinine Level, mg/dL	Points
I	0	≤80	58	≤50	0	≤30	0	0-0.39	1
II	20	80-99	53	50-69	3	30-39	8	0.40-0.79	4
III	39	100-119	43	70-89	9	40-49	25	0.80-1.19	7
IV	59	120-139	34	90-109	15	50-59	41	1.20-1.59	10
		140-159	24	110-149	24	60-69	58	1.60-1.99	13
		160-199	10	150-199	38	70-79	75	2.00-3.99	21
		≥200	0	≥200	48	80-89	91	>4.0	28
						≥90	100		

Other Risk Factors	Points
Cardiac Arrest at Admission	39
ST-Segment Deviation	28
Elevated Cardiac Enzyme Levels	14

2. Sum Points for All Predictive Factors:

Killip Class + SBP + Heart Rate + Age + Creatinine Level + Cardiac Arrest at Admission + ST-Segment Deviation + Elevated Cardiac Enzyme Levels = Total Points

3. Look Up Risk Corresponding to Total Points:

Total Points	≤60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	≥250
Probability of In-Hospital Death, %	≤0.2	0.3	0.4	0.6	0.8	1.1	1.6	2.1	2.9	3.9	5.4	7.3	9.8	13	18	23	29	36	44	≥52

GRACE Score For Risk Of Death In Non-ST Elevation Acute Coronary Syndrome

Risk Factor	Finding	Points
Event Type	Non-ST Elevation ACS	---
Killip Class	III (pulmonary edema)	39
Systolic Blood Pressure	100-119	43
Heart Rate	70-89	9
Age	60-69	58
Creatinine Level (mg%)	0.80-1.19	7
Cardiac Arrest At Admission	Absent	0
ST-Segment Deviation	Present	39
Elevated Cardiac Enzyme Levels*	Present	14
	Point Total	209
	In-Hospital Mortality Risk Category	High

https://qxmd.com/calculate/calculator_262/grace

https://www.mdcalc.com/grace-acs-risk-mortality-calculator

Conservative Management

Aspirin

- Non–enteric-coated aspirin to *all* patients promptly after presentation
- Aspirin maintenance dose continued indefinitely

$P2Y_{12}$ inhibitors

- Clopidogrel loading dose followed by daily maintenance dose in patients unable to take aspirin
- $P2Y_{12}$ inhibitor, in addition to aspirin, for up to 12 mo for patients treated initially with either an early invasive or initial ischemia-guided strategy:
  - Clopidogrel
  - Ticagrelor*

Low-molecular weight or unfractionated heparin

- SC enoxaparin for duration of hospitalization or until PCI is performed
- IV UFH for 48 h or until PCI is performed

Anti-anginal therapy

Initiate oral beta blockers within the first 24 h in the absence of HF, low-output state, risk for cardiogenic shock, or other contraindications to beta blockade

Administer sublingual NTG every 5 min × 3 for continuing ischemic pain and then assess need for IV NTG

Administer IV NTG for persistent ischemia, HF, or hypertension

Cholesterol management

Initiate or continue high-intensity statin therapy in patients with no contraindications

ESC European Society of Cardiology
European Heart Journal (2018) **00**, 1–96
doi:10.1093/eurheartj/ehy394

ESC/EACTS GUIDELINES

2018 ESC/EACTS Guidelines on myocardial revascularization

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FOCUS ISSUE: CARDIAC INTERVENTION

Intervention in Acute Coronary Syndromes

Benefit of Early Invasive Therapy in Acute Coronary Syndromes

A Meta-Analysis of Contemporary Randomized Clinical Trials

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Cleveland, Ohio; and Philadelphia, Pennsylvania

AHA/ACC Guideline

2014 AHA/ACC Guideline for the Management of Patients With Non–ST-Elevation Acute Coronary Syndromes

A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines

Developed in Collaboration With the Society for Cardiovascular Angiography and Interventions and Society of Thoracic Surgeons

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Benefit of Early Invasive Therapy in Acute Coronary Syndromes

A Meta-Analysis of Contemporary Randomized Clinical Trials

Characteristic	FRISC-II	TRUCS	TIMI-18	VINO	RITA-3	ISAR-COOL	ICTUS
Enrollment period	1996–1998	1997–1998	1997–1999	1998–2000	1997–2001	2000–2002	2001–2003
Invasive/conservative patients, n	1222/1234	76/72	1114/1106	64/67	895/915	203/207	604/596
Age, yrs (mean)	66*	62	62	66	62	70*	62*
Women, %	30	27	34	39	38	33	27
Diabetes, %	12	29	28	25	13	29	14
Prior myocardial infarction, %	22	27†	39	26	28	23	23
Current smokers, %	30	31	NA	NA	32	21	41
Statin at randomization, %	10	21	52‡	43‡	45	NA	27
Statin at follow-up, %	55	NA	NA	NA	80	85	92
Thienopyridine with PCI, %	100§	NA	NA	100§	96	100¶	100‖
Elevated troponin at randomization, %	55	NA	54	100	75	67	100
Hours to angiography, median**	96/408	48/120††	22/79	6.2/1,464	48/1,020	2.4/86	23/283‡‡
Glycoprotein IIb/IIIa inhibitor, type	NA	NA	Tirofiban	NA	NA	Tirofiban	Abciximab
Invasive undergoing PCI, %	10	95	94	0	25	100¶	93
Conservative undergoing PCI, %	NA	96	59	0	25	100¶	69
Conservative not undergoing PCI, %	NA	NA	99	0	0	100¶	0
Coronary stent use with PCI, %**	62/69	85/85	83/86	44/50	88/90	87/92	88/88
Overall PCI or CABG, %**	78/45	100/61	64/45	73/39	61/38	78/72	79/54
Relative difference in revascularization between treatment arms, %	73	64	42	87	61	8	46

7 Trials conducted between 1996-2003 BMS era. (n = 8375) JACC Vol. 48, No. 7, 2006 October 3, 2006:1319–25

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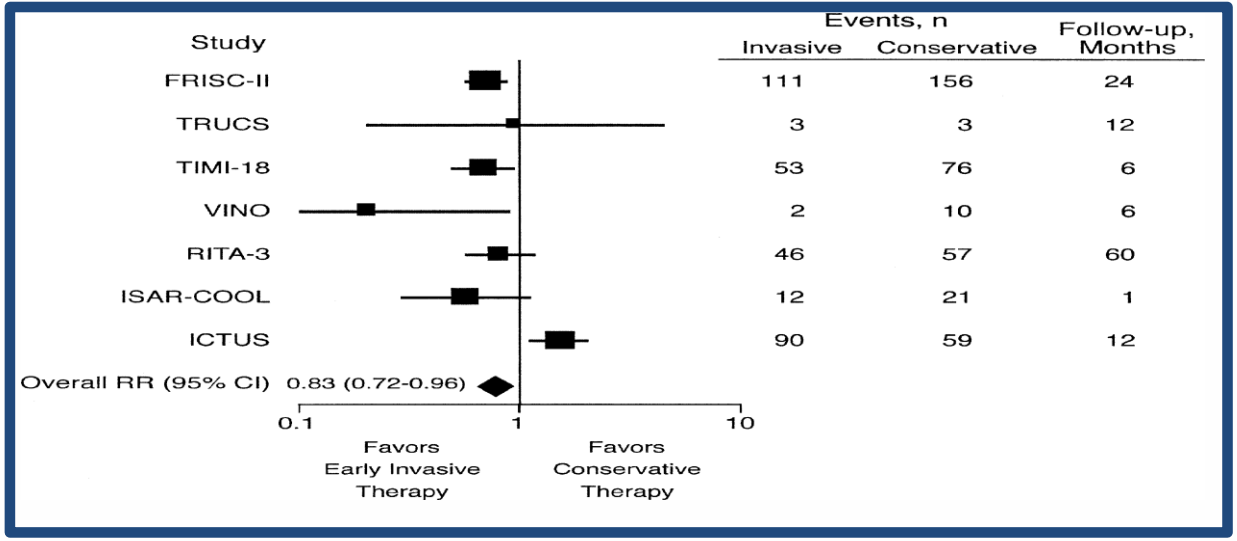

Relative risk of recurrent nonfatal myocardial infarction for early invasive therapy compared with conservative therapy at a mean follow-up of 2 years.

JACC Vol. 48, No. 7, 2006
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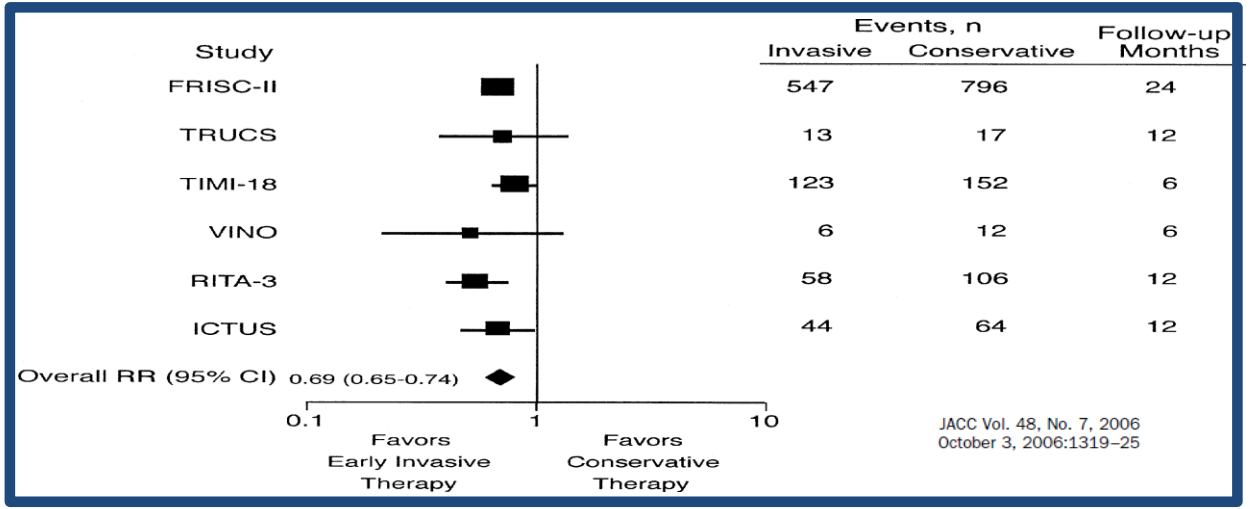

Relative risk of recurrent unstable angina resulting in rehospitalization for early invasive therapy compared with conservative therapy at a mean follow-up of 13 months

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Lancet 2017; 390: 737–46

TIMACS

RIDDLE-NSTEMI

LIPSIA-NSTEMI

ISAR-COOL

ELISA-3

ELISA

ABOARD

Schiabasi et al

8 Trials conducted between 2002 – 2016 DES Era (n = 5324) comparing an Early invasive versus a delayed invasive strategy

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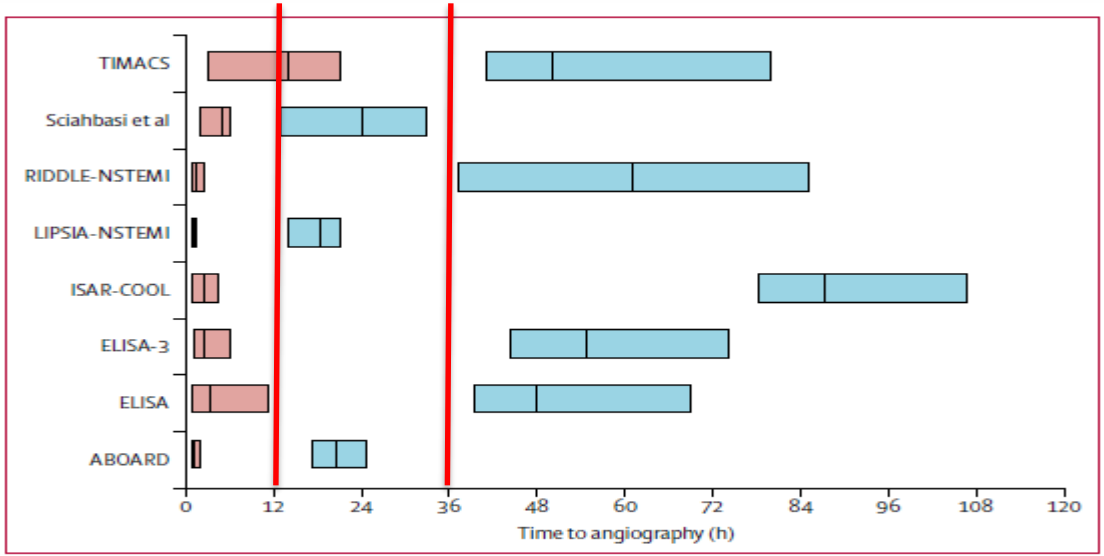

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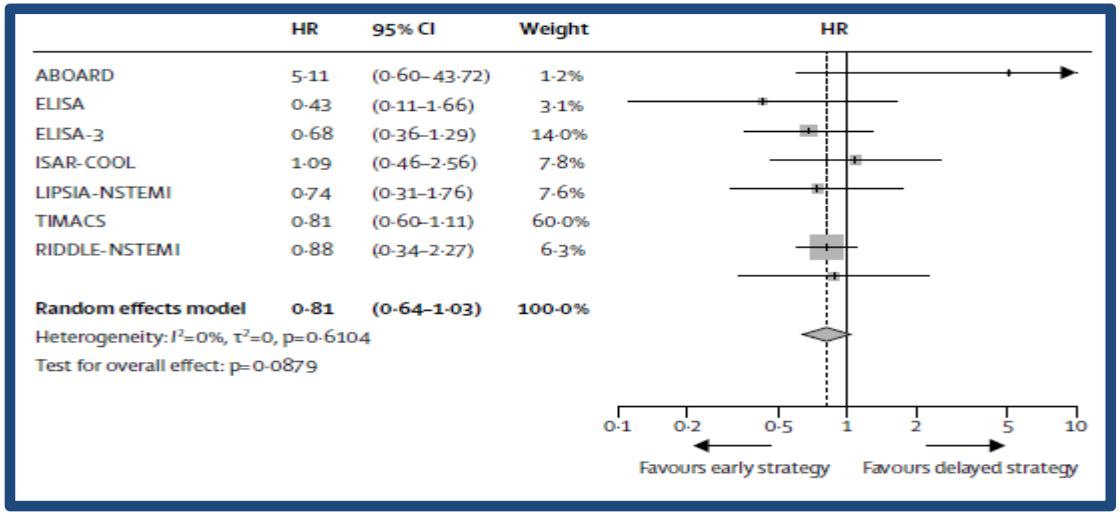
ALL-CAUSE MORTALITY



OUTCOMES AFTER AN EARLY INVASIVE V A DELAYED INVASIVE STRATEGY

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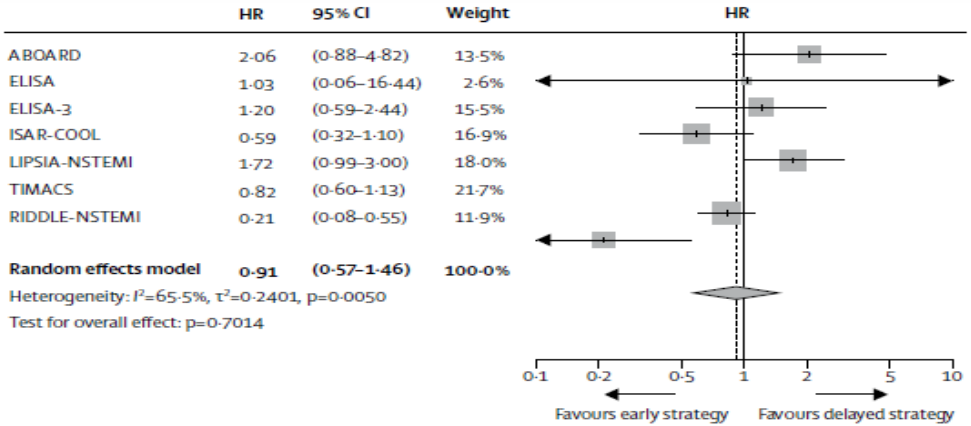

All-Cause Mortality

A GRACE Risk Model Nomogram

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2. Sum Points for All Predictive Factors:

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Total Points	≤60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	≥250
Probability of In-Hospital Death, %	≤0·2	0·3	0·4	0·6	0·8	1·1	1·6	2·1	2·9	3·9	5·4	7·3	9·8	13	18	23	29	36	44	≥52

Use risk scores to assess prognosis in patients with NSTE-ACS

I A

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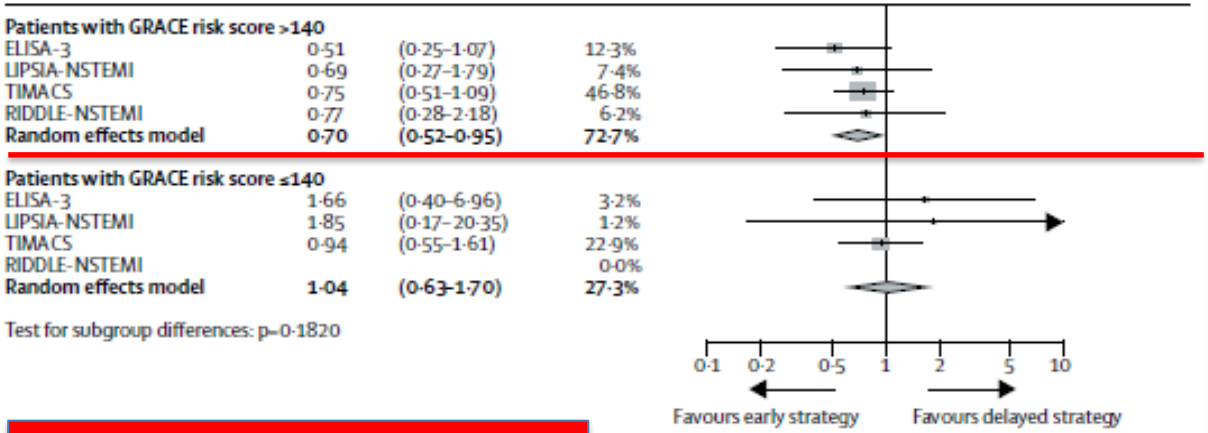

All-Cause Mortality

GRACE Risk Score > 140

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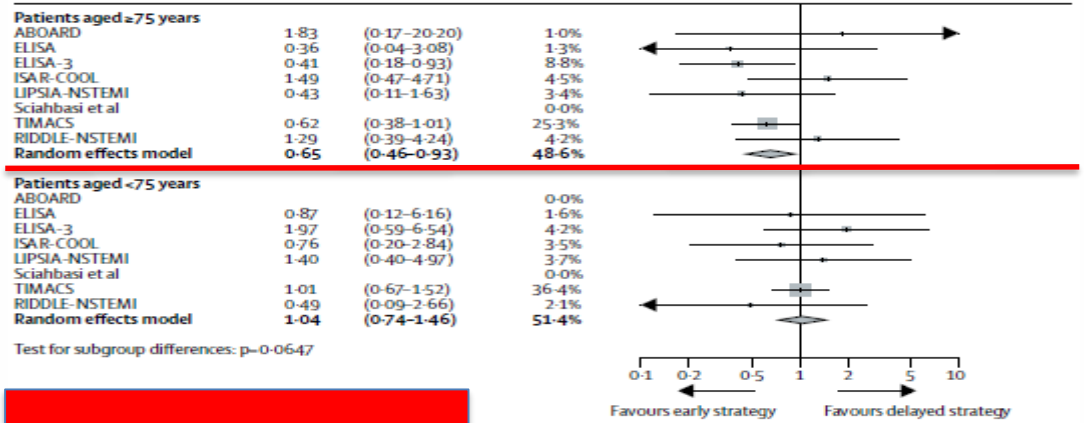

Age > 75

All-Cause Mortality

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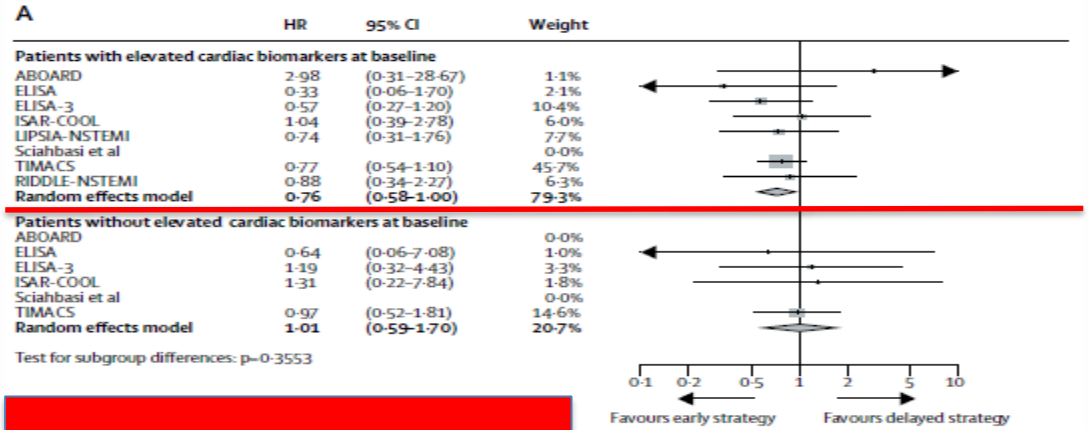


Elevated Cardiac Markers

All-Cause Mortality

AHA/ACC Guideline

2014 AHA/ACC Guideline for the Management of Patients With Non–ST-Elevation Acute Coronary Syndromes

A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines

Developed in Collaboration With the Society for Cardiovascular Angiography and Interventions and Society of Thoracic Surgeons

Table 8. Factors Associated With Appropriate Selection of Early Invasive Strategy or Ischemia-Guided Strategy in Patients With NSTE-ACS

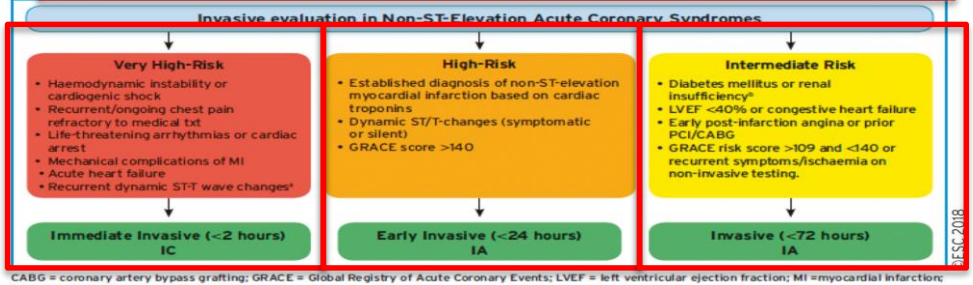
Immediate invasive (within 2 h)	Refractory angina Signs or symptoms of HF or new or worsening mitral regurgitation Hemodynamic instability Recurrent angina or ischemia at rest or with low-level activities despite intensive medical therapy Sustained VT or VF
Ischemia-guided strategy	Low-risk score (eg, TIMI [0 or 1], GRACE [<109]) Low-risk Tn-negative female patients Patient or clinician preference in the absence of high-risk features
Early invasive (within 24 h)	None of the above, but GRACE risk score >140 Temporal change in Tn (Section 3.4) New or presumably new ST depression
Delayed invasive (within 25–72 h)	None of the above but diabetes mellitus Renal insufficiency (GFR <60 mL/min/1.73 m^2) Reduced LV systolic function (EF <0.40) Early postinfarction angina PCI within 6 mo Prior CABG GRACE risk score 109–140; TIMI score ≥2

ESC European Society of Cardiology
European Heart Journal (2018) 00, 1–96
doi:10.1093/eurheartj/ehy394

2018 ESC/EACTS Guidelines on myocardial revascularization

Recommendations for invasive evaluation and revascularization in non-ST-elevation acute coronary syndrome

Recommendations	Class[a]	Level[b]
Urgent coronary angiography (<2 h) is recommended in patients at very high ischaemic risk (*Figure 4*).[197]	I	C
An early invasive strategy (<24 h) is recommended in patients with at least one high-risk criterion (*Figure 4*).[164,174,176]	I	A
An invasive strategy (<72 h after first presentation) is indicated in patients with at least one intermediate-risk criterion (*Figure 4*) or recurrent symptoms.[170,171]	I	A



CABG = coronary artery bypass grafting; GRACE = Global Registry of Acute Coronary Events; LVEF = left ventricular ejection fraction; MI =myocardial infarction; PCI = percutaneous coronary intervention.
[a]Particularly intermittent ST-elevation; [b]Estimated glomerular filtration rate <60mL/min/1.73m²
According to ESC NSTE-ACS 2015 Guidelines

THANK YOU

Benefit of Early Invasive Therapy in Acute Coronary Syndromes

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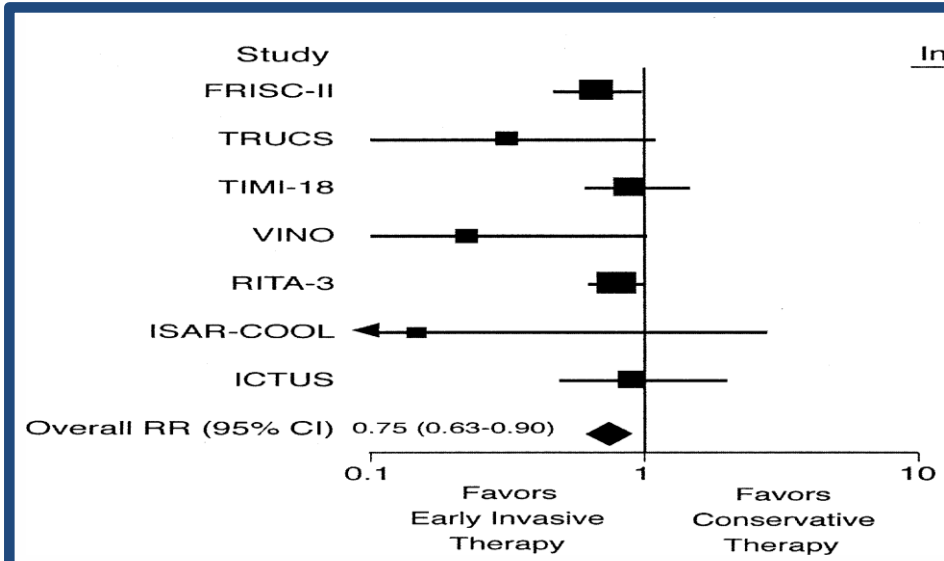

Study	Deaths, n: Invasive	Deaths, n: Conservative	Follow-up, Months
FRISC-II	45	67	24
TRUCS	3	9	12
TIMI-18	37	39	6
VINO	2	9	6
RITA-3	102	132	60
ISAR-COOL	0	3	1
ICTUS	15	15	12

JACC Vol. 48, No. 7, 2006
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N = 8,375

Relative risk of all-cause mortality for early invasive therapy compared with conservative therapy at a mean follow-up of 2 years.

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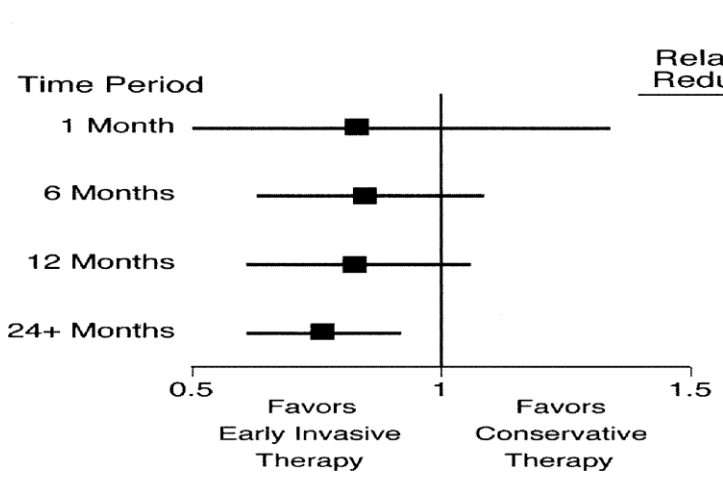

Time Period	Relative Risk Reduction, %	Cumulative Mortality Incidence, %	
		Invasive	Conservative
1 Month	19	2.1	2.3
6 Months	17	2.7	3.2
12 Months	20	3.1	3.8
24+ Months	25	6.9	9.3

N = 8,375

Relative risk of all-cause mortality for early invasive therapy compared with conservative therapy as a function of time

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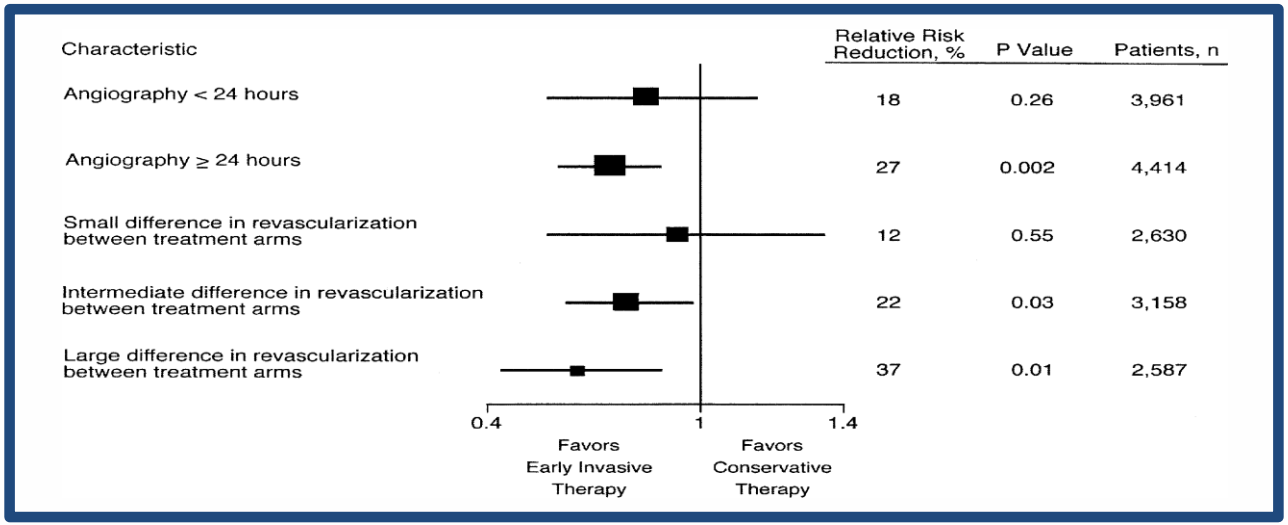

Relative risk of all-cause mortality based on time of angiography and the extent of revascularisation

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