CONGRESSO NAZIONALE 2015

Italian Resuscitation Council

LE NUOVE LINEE GUIDA 2015 DELLA RIANIMAZIONE CARDIOPOLMONARE

Gestione del paziente con STEMI e senza STEMI

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European Heart Journal (2012) **33**, 2551–2567
doi:10.1093/eurheartj/ehs184

EXPERT CONSENSUS DOCUMENT

Third universal definition of myocardial infarction

Definition of myocardial infarction

Criteria for acute myocardial infarction

The term acute myocardial infarction (MI) should be used when there is evidence of myocardial necrosis in a clinical setting consistent with acute myocardial ischaemia. Under these conditions any one of the following criteria meets the diagnosis for MI:

- Detection of a rise and/or fall of cardiac biomarker values [preferably cardiac troponin (cTn)] with at least one value above the 99th percentile upper reference limit (URL) and with at least one of the following:
  - Symptoms of ischaemia.
  - New or presumed new significant ST-segment–T wave (ST–T) changes or new left bundle branch block (LBBB).
  - Development of pathological Q waves in the ECG.
  - Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality.
  - Identification of an intracoronary thrombus by angiography or autopsy.

Troponina: necessaria, ma non sufficiente!

CHEST PAIN

Emergency Department

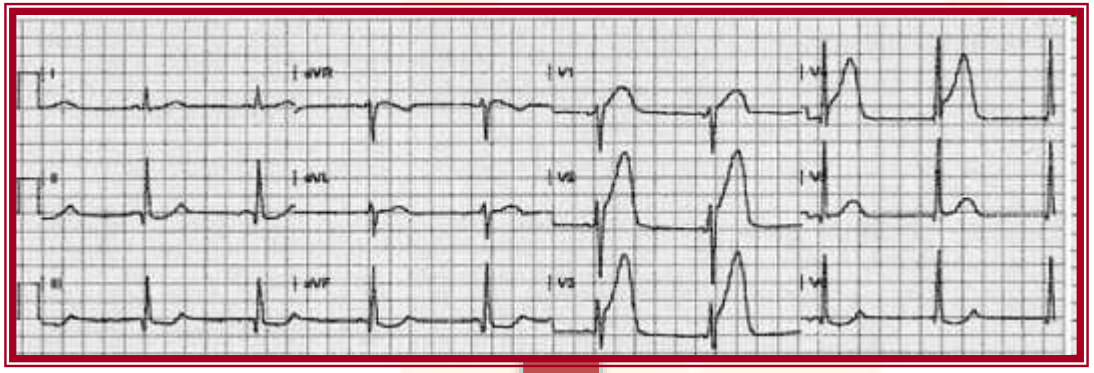
ECG bedside

STEMI

CHEST PAIN

Emergency Department

118 SOCCORSO SANITARIO



STEMI

STEMI

European Heart Journal (2012) 33, 2569–2619

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)

STEMI

Reperfusion therapy

Class [a]	Level [b]
I	A

Reperfusion therapy is indicated <u>in all patients</u> with symptoms of <12 h duration and persistent ST-segment elevation

<u>Primary PCI</u> is the <u>recommended</u> reperfusion therapy if performed by an experienced team within 120 min of FMC.

European Heart Journal (2012) 33, 2569–2619

FIBRINOLYTIC THERAPY

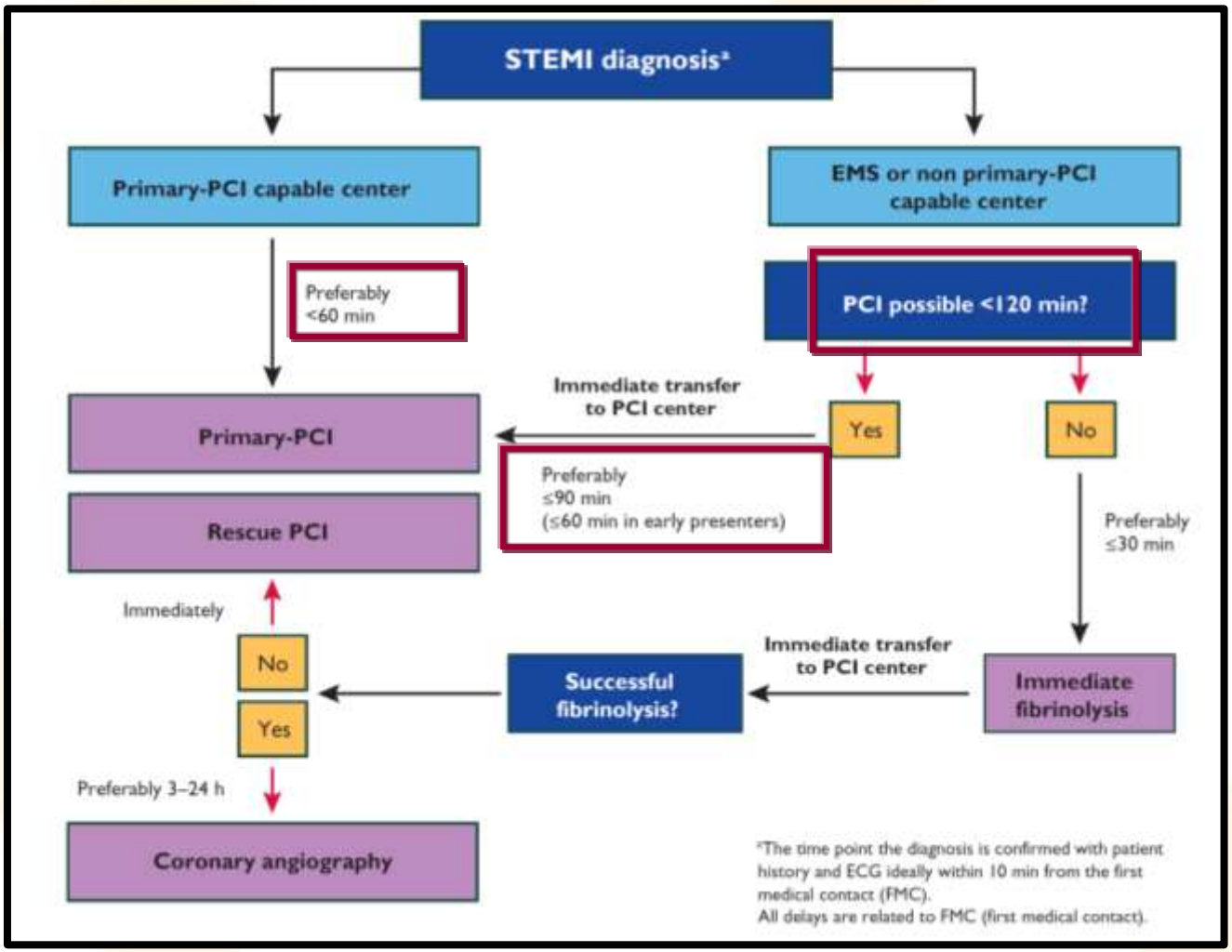
Class [a]	Level [b]
I	A

Recommendations	Class [a]	Level [b]
Fibrinolytic therapy is recommended within 12 h of symptom onset in patients without contraindications if primary PCI cannot be performed by an experienced team within 120 min of FMC.	I	A

Transfer to a PCI-capable centre following fibrinolysis		
Is indicated in all patients after fibrinolysis.	I	A
Interventions following fibrinolysis		
Rescue PCI is indicated immediately when fibrinolysis has failed (<50% ST-segment resolution at 60 min).	I	A

European Heart Journal (2012) 33, 2569–2619

STEMI



European Heart Journal (2012) 33, 2569–2619

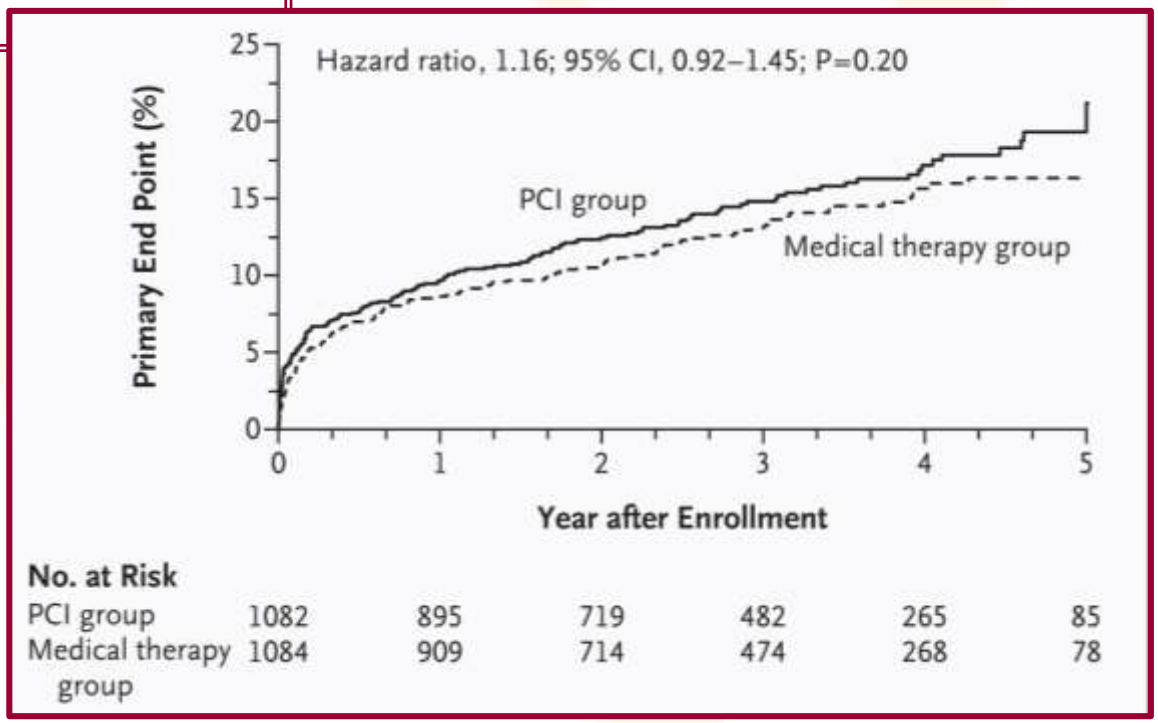
LATECOMERS

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 DECEMBER 7, 2006 VOL. 355 NO. 23

Coronary Intervention for Persistent Occlusion after Myocardial Infarction

>72 ore dall'inizio dei sintomi



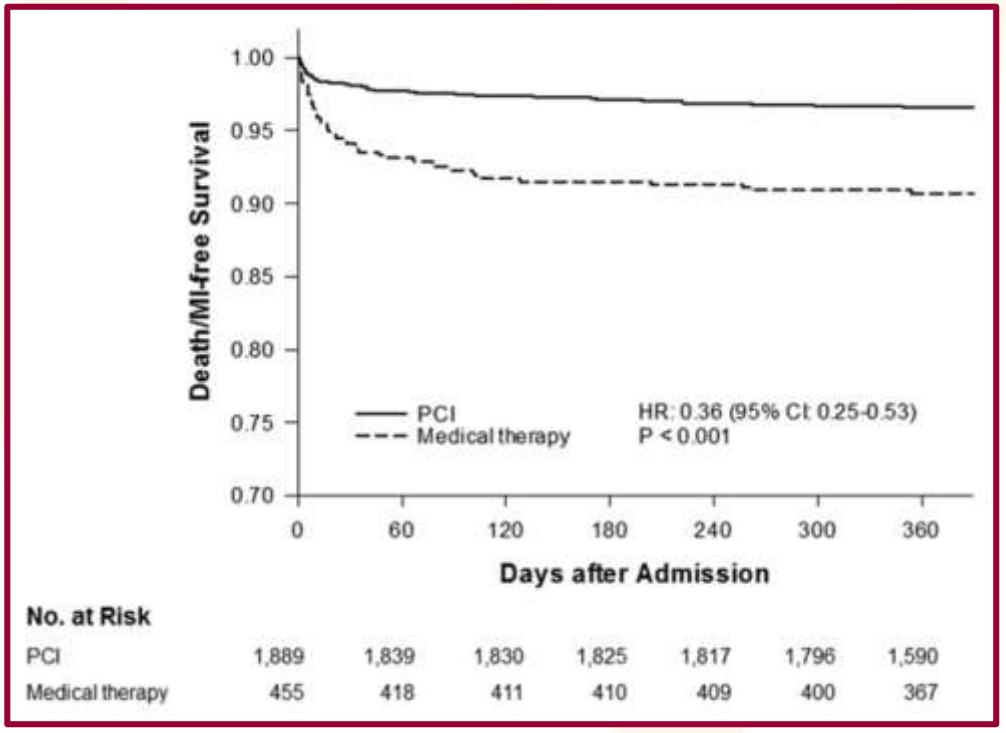
No. at Risk						
PCI group	1082	895	719	482	265	85
Medical therapy group	1084	909	714	474	268	78

EARLY LATECOMERS

Benefit of Percutaneous Coronary Intervention in Early Latecomers With Acute ST-Segment Elevation Myocardial Infarction

Am J Cardiol 2012; 110: 1275-1281

12-72 ore dall'inizio dei sintomi



PCI PRIMARIA

Class [a]	Level [b]
I	A

Recommendations	Class [a]	Level [b]
Indications for primary PCI		
Primary PCI is the recommended reperfusion therapy over fibrinolysis if performed by an experienced team within 120 min of FMC.	I	A
Primary PCI is indicated for patients with severe acute heart failure or cardiogenic shock, unless the expected PCI related delay is excessive and the patient presents early after symptom onset.	I	B
Procedural aspects of primary PCI		
Stenting is recommended (over balloon angioplasty alone) for primary PCI.	I	A
Primary PCI should be limited to the culprit vessel with the exception of cardiogenic shock and persistent ischaemia after PCI of the supposed culprit lesion.	IIa	B
If performed by an experienced radial operator, radial access should be preferred over femoral access.	IIa	B
If the patient has no contraindications to prolonged DAPT (indication for oral anticoagulation, or estimated high long-term bleeding risk) and is likely to be compliant, DES should be preferred over BMS.	IIa	A
Routine thrombus aspiration should be considered.	IIa	B
Routine use of distal protection devices is not recommended.	III	C
Routine use of IABP (in patients without shock) is not recommended.	III	A

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PCI PRIMARIA

CULPRIT ONLY?

- **There is no current evidence to support emergency intervention in non-infarct-related lesions.**

- **The only exceptions, when multivessel PCI during acute STEMI is justified, are:**
  - **patients with cardiogenic shock**
  - **if there is persistent ischaemia after PCI of the supposed culprit lesion.**

PCI PRIMARIA

CULPRIT ONLY?

ORIGINAL ARTICLE

Randomized Trial of Preventive Angioplasty in Myocardial Infarction

NEJM 2013; 369: 1115-1123

Culprit only
vs
Immediata MV PCI

JACC 2015; 65 (10): 963-972

Culprit only
vs
Immediata MV PCI o staged MV PCI

Randomized Trial of Complete Versus Lesion-Only Revascularization in Patients Undergoing Primary Percutaneous Coronary Intervention for STEMI and Multivessel Disease

The CvLPRIT Trial

PCI PRIMARIA

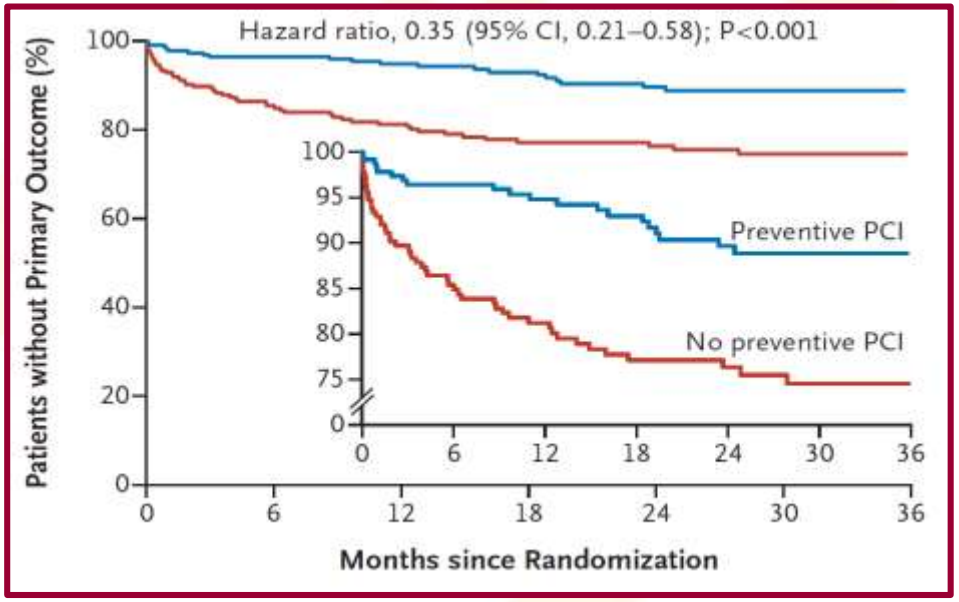
CULPRIT ONLY?

ORIGINAL ARTICLE

Randomized Trial of Preventive Angioplasty in Myocardial Infarction

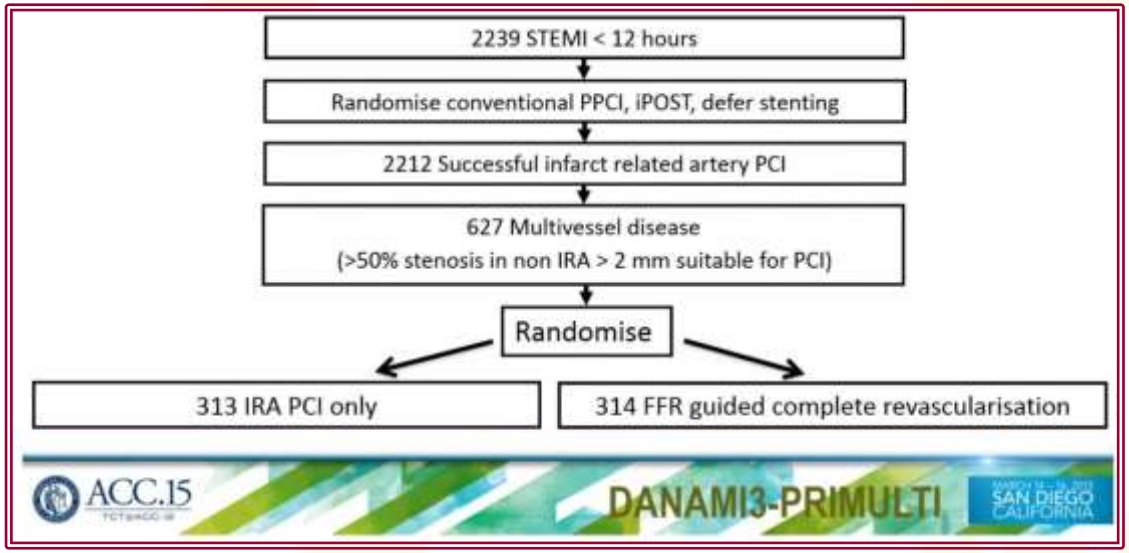
NEJM 2013; 369: 1115-1123

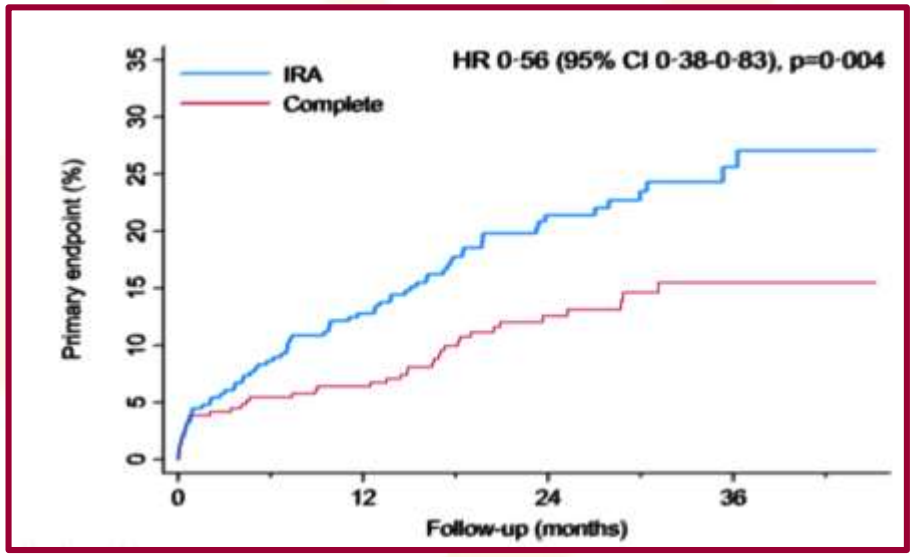
Culprit only
vs
Immediata MV PCI



PCI PRIMARIA

CULPRIT ONLY?





antiplatelet therapy

	Clopidogrel	Prasugrel	Ticagrelor	Cangrelor
Chemical class	Thienopyridine	Thienopyridine	Cyclopentyl-triazolopyrimidine	Stabilized ATP analogue
Administration	Oral	Oral	Oral	Intravenous
Dose	300–600 mg orally then 75 mg a day	60 mg orally then 10 mg a day	180 mg orally then 90 mg twice a day	30 μg/kg bolus and 4 μg/kg/min infusion
Dosing in CKD				
• Stage 3 (eGFR 30–59 mL/min/1.73m^2)	No dose adjustment	No dose adjustment	No dose adjustment	No dose adjustment
• Stage 4 (eGFR 15–29 mL/min/1.73m^2)	No dose adjustment	No dose adjustment	No dose adjustment	No dose adjustment
• Stage 5 (eGFR <15 mL/min/1.73m^2)	Use only for selected indications (e.g. stent thrombosis prevention)	Not recommended	Not recommended	No dose adjustment
Binding reversibility	Irreversible	Irreversible	Reversible	Reversible
Activation	Prodrug, with variable liver metabolism	Prodrug, with predictable liver metabolism	Active drug, with additional active metabolite	Active drug
Onset of loading dose effect[a]	2–6 hours[b]	30 min[b]	30 min[b]	2 min
Duration of effect	3–10 days	7–10 days	3–5 days	1–2 hours
Withdrawal before surgery	5 days[c]	7 days[c]	5 days[c]	1 hour
Plasma half-life of active $P2Y_{12}$ inhibitor[d]	30–60 min	30–60 min[e]	6–12 hours	5–10 min
Inhibition of adenosine reuptake	No	No	Yes	Yes ('inactive' metabolite only)

ESC linee guida NSTEMI 2015

antiplatelet therapy

Recommendations	Class [a]	Level [b]
Antiplatelet therapy		
Aspirin oral or i.v. (if unable to swallow) is recommended	I	B
An ADP-receptor blocker is recommended in addition to aspirin. Options are:	I	A
• Prasugrel in clopidogrel-naive patients, if no history of prior stroke/TIA, age <75 years.	I	B
• Ticagrelor.	I	B
• Clopidogrel, preferably when prasugrel or ticagrelor are either not available or contraindicated.	I	C

Anticoagulant therapy

An injectable anticoagulant must be used in primary PCI.	I	C
Bivalirudin (with use of GP IIb/IIIa blocker restricted to bailout) is recommended over unfractionated heparin and a GP IIb/IIIa blocker.	I	B
Enoxaparin (with or without routine GP IIb/IIIa blocker) may be preferred over unfractionated heparin.	IIb	B
Unfractionated heparin with or without routine GP IIb/IIIa blocker must be used in patients not receiving bivalirudin or enoxaparin.	I	C
Fondaparinux is not recommended for primary PCI.	III	B
The use of fibrinolysis before planned primary PCI is not recommended.	III	A

STEMI

ASA : 150 mg i.v., followed by a maintenance dose of 100 mg/day

PRASUGREL: loading dose of 60 mg orally, followed by a maintenance dose of 10 mg/day

UNFRACTIONATED HEPARIN: 70–100U/kg i.v.bolus

CATH-LAB

Long-term therapy

Oral treatment with beta-blockers should be considered during hospital stay and continued thereafter in all STEMI patients without contraindications.	IIa	B
Oral treatment with beta-blockers is indicated in patients with heart failure or LV dysfunction.	I	A
It is recommended to initiate or continue high dose statins early after admission in all STEMI patients without contraindication or history of intolerance, regardless of initial cholesterol values.	I	A
ACE inhibitors are indicated starting within the first 24 h of STEMI in patients with evidence of heart failure, LV systolic dysfunction, diabetes or an anterior infarct.	I	A
An ARB, preferably valsartan, is an alternative to ACE inhibitors in patients with heart failure or LV systolic dysfunction, particularly those who are intolerant to ACE inhibitors.	I	B
ACE inhibitors should be considered in all patients in the absence of contraindications.	IIa	A

Logistical issue for hospital stay
Length of stay

Recommendations	Class [a]	Level [b]
All hospitals participating in the care of STEMI patients should have a coronary care unit equipped to provide all aspects of care for STEMI patients, including treatment of ischaemia, severe heart failure, arrhythmias and common comorbidities.	I	C
Length of stay in the coronary care unit		
Patients undergoing uncomplicated successful reperfusion therapy should be kept in the coronary care unit for a minimum of 24 h, after which they may be moved to a step-down monitored bed for another 24–48 h.	I	C
Transfer back to a referring non-PCI hospital		
Early transfer (same day) may be considered in selected, low-risk patients after successful primary PCI without observed arrhythmia.	IIb	C
Hospital discharge		
Early discharge (after approximately 72 h) is reasonable in selected low-risk patients, if early rehabilitation and adequate follow-up are arranged.	IIb	B

CHEST PAIN

Emergency Department

ECG bedside

CARDIAC TROPONIN

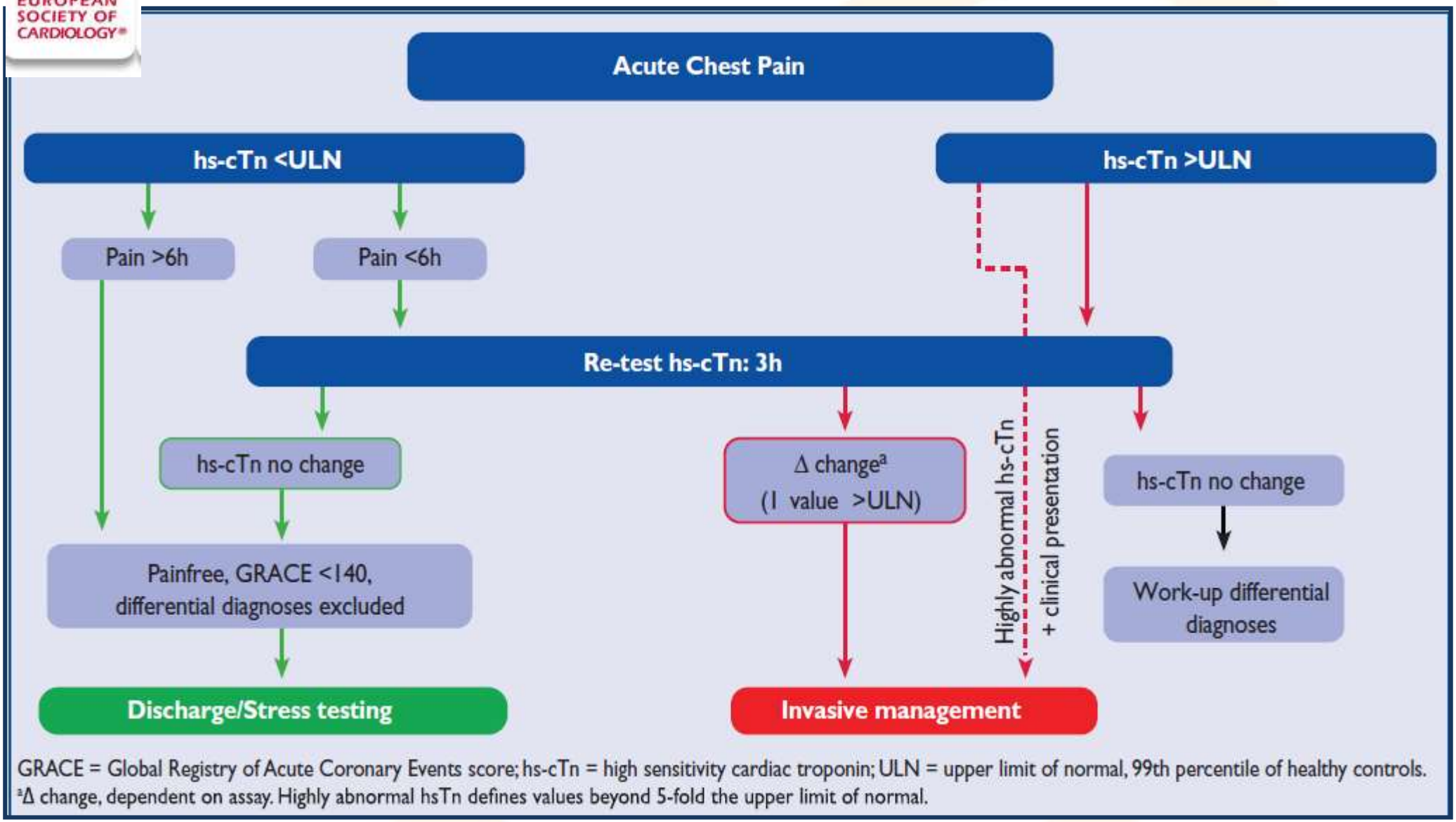
NSTEMI

NSTEMI

2015 ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation

Task Force for the Management of Acute Coronary Syndromes in Patients Presenting without Persistent ST-Segment Elevation of the European Society of Cardiology (ESC)

Hs-c Tn 0h/3h algorithm

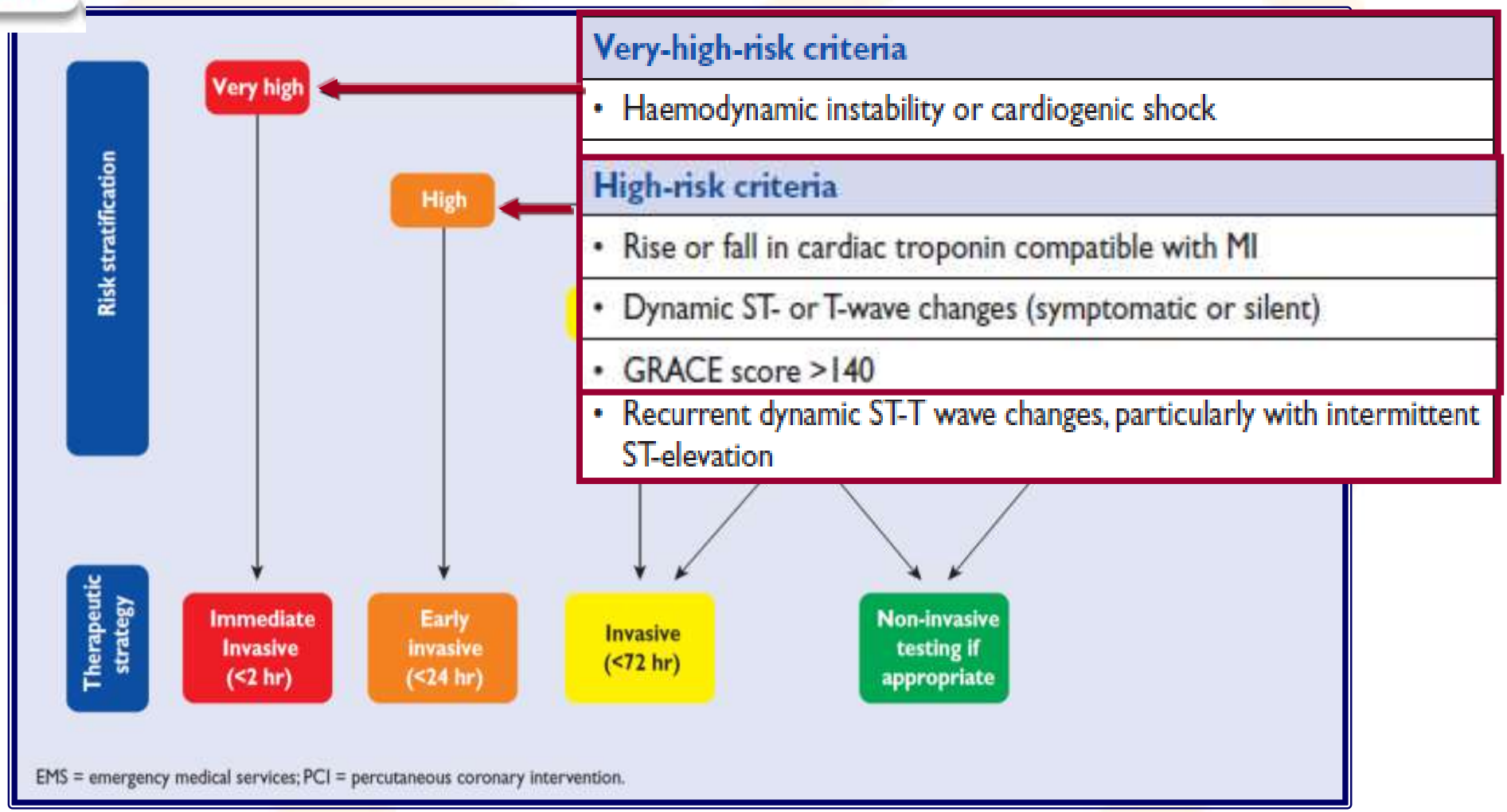


GRACE = Global Registry of Acute Coronary Events score; hs-cTn = high sensitivity cardiac troponin; ULN = upper limit of normal, 99th percentile of healthy controls.
[a]Δ change, dependent on assay. Highly abnormal hsTn defines values beyond 5-fold the upper limit of normal.

NSTEMI

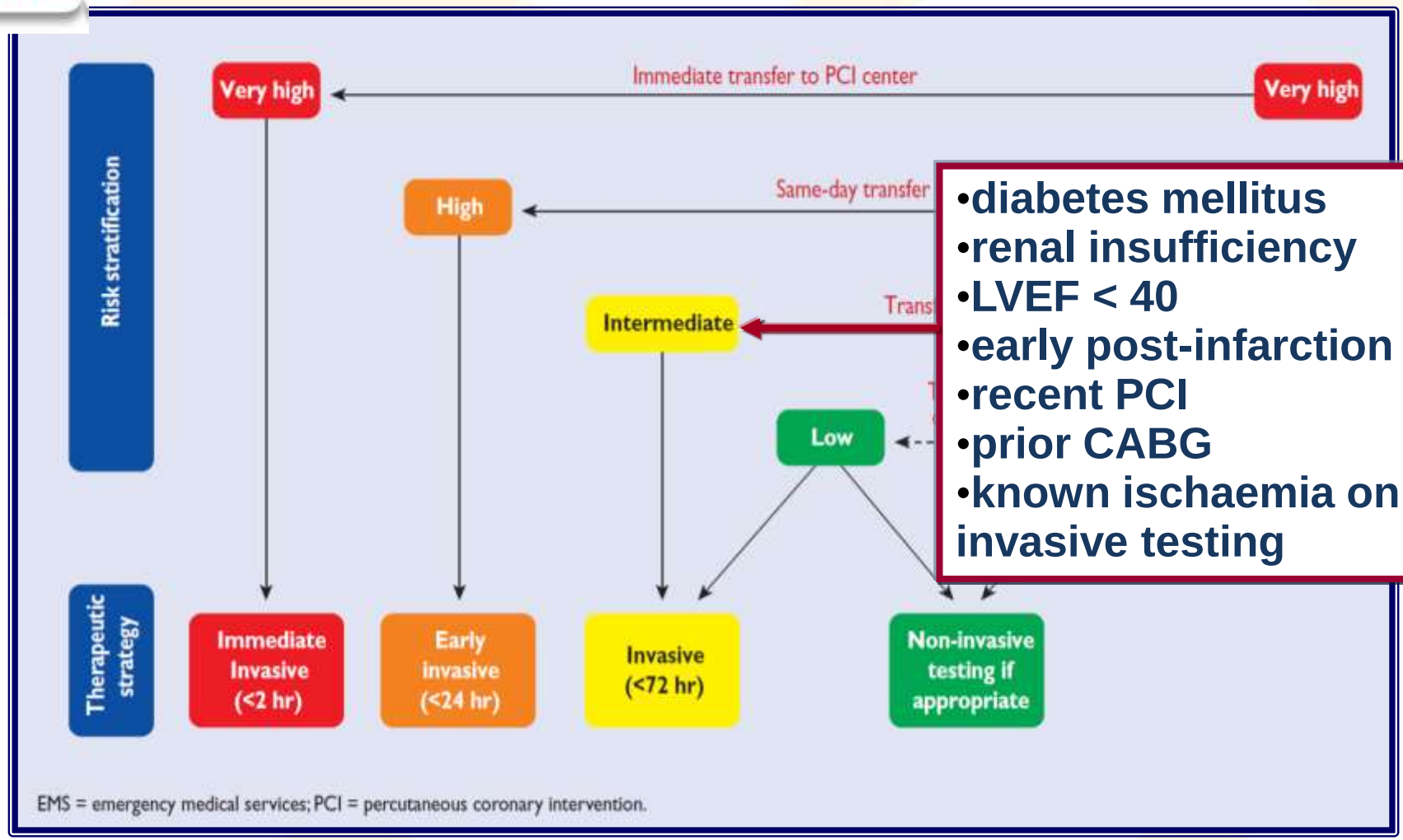
RISK STARTIFICATION

I A



NSTEMI

RISK STARTIFICATION

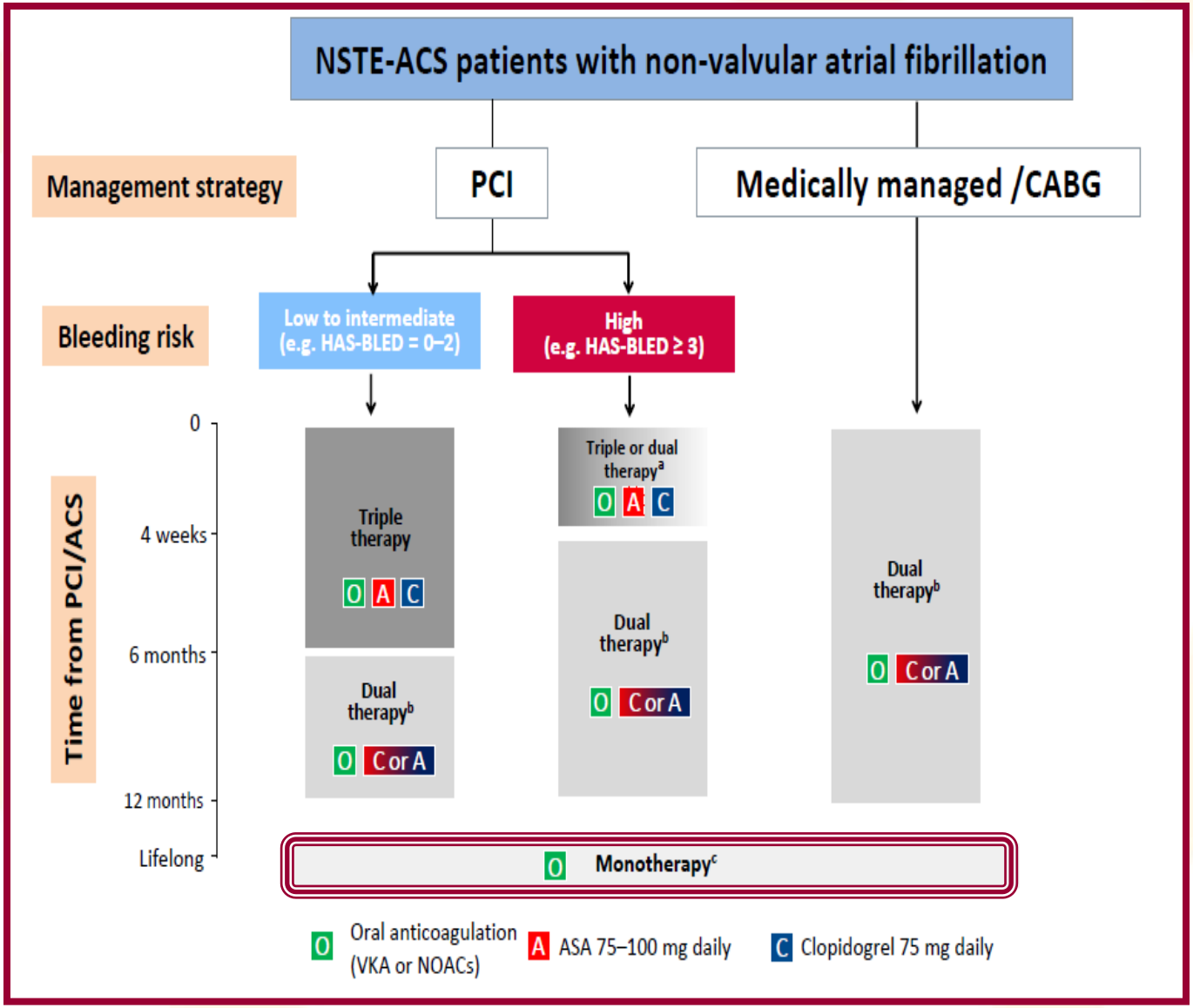


- diabetes mellitus
- renal insufficiency
- LVEF < 40
- early post-infarction angina
- recent PCI
- prior CABG
- known ischaemia on non-invasive testing

antiplatelet therapy

Recommendations Antiplatelet therapy	Class[a]	Level[b]
Oral Antiplatelet Therapy		
Aspirin is recommended for all patients without contra-indications at an initial oral loading dose of 150–300 mg (in aspirin naive patients) and a maintenance dose of 75–100 mg daily long-term regardless of treatment strategy.	I	A
A $P2Y_{12}$ inhibitor is recommended, in addition to aspirin, for 12 months unless there are contra-indications such as excessive risk of bleeds..	I	A
– Ticagrelor (180 mg loading dose, 90 mg twice daily) is recommended, in the absence of contra-indicationsd, for all patients at moderate-to-high-risk of ischaemic events (e.g. elevated troponins), regardless of initial treatment strategy and including those pretreated with clopidogrel (which should be discontinued when ticagrelor is started).	I	B
– Prasugrel (60 mg loading dose, 10 mg daily dose) is recommended in patients who are proceeding to PCI if no contra-indication.	I	B
– Clopidogrel (300–600 mg loading dose, 75 mg daily dose) is recommended for patients who cannot receive ticagrelor or prasugrel or who require oral anticoagulation	I	B
$P2Y_{12}$ inhibitor administration for a shorter duration of 3–6 months after DES implantation may be considered in patients deemed at high bleeding risk.	IIb	A
It is not recommended to administer prasugrel in patients in whom coronary anatomy is not known.	III	B

Antiplatelet and oral anticoagulation



6-7 NOVEMBRE 2015 **PARMA**

CONGRESSO NAZIONALE 2015

LE NUOVE LINEE GUIDA 2015 DELLA RIANIMAZIONE CARDIOPOLMONARE

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