ESC Guidelines: oral antiplatelet therapy before and in the cath lab (in ACS)

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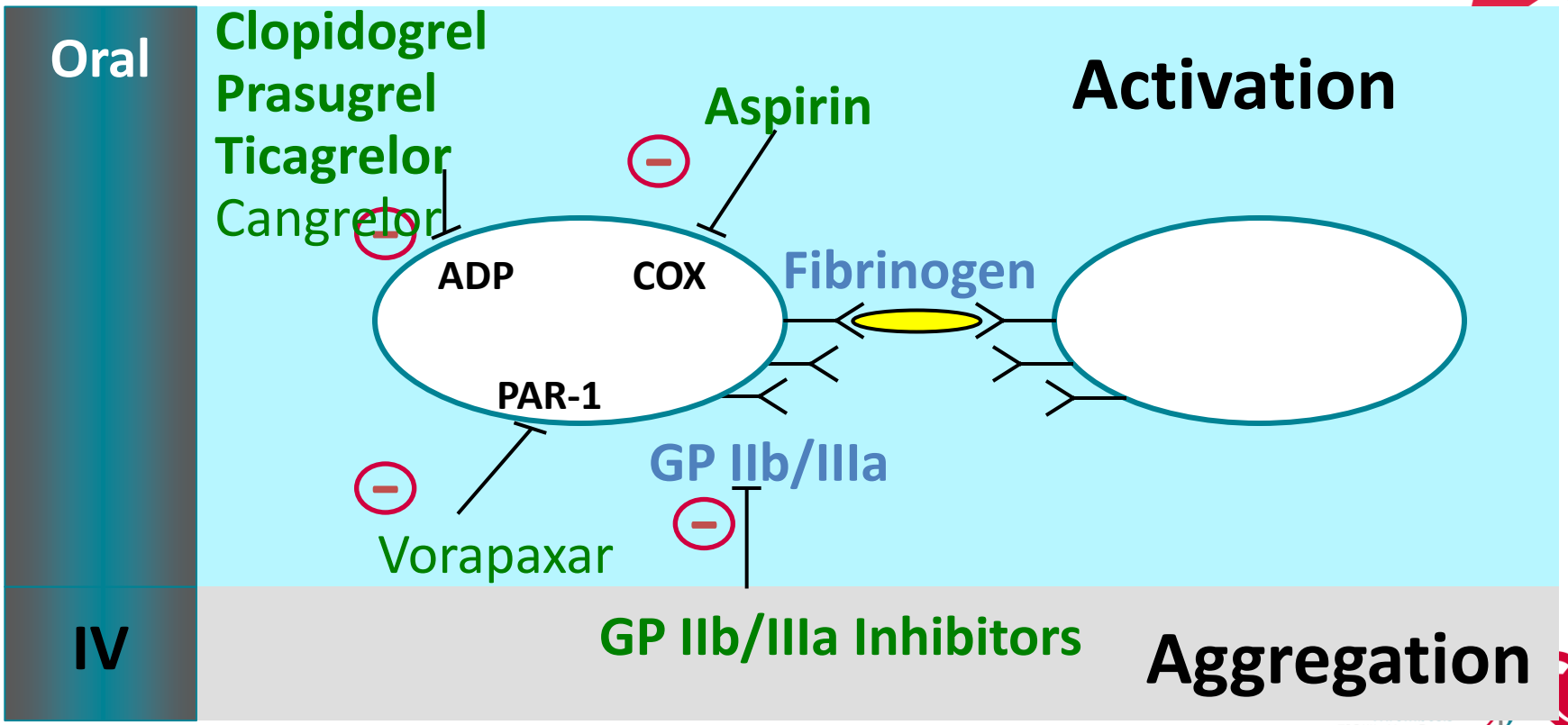
Conflicts of interest

- **AstraZeneca, Aspen and Bayer (Speakers fee).**

Antiplatelet therapy



COX = cyclooxygenase enzyme; GP = glycoprotein; IV = intravenous; PAR-1 = Protease-activated receptor.

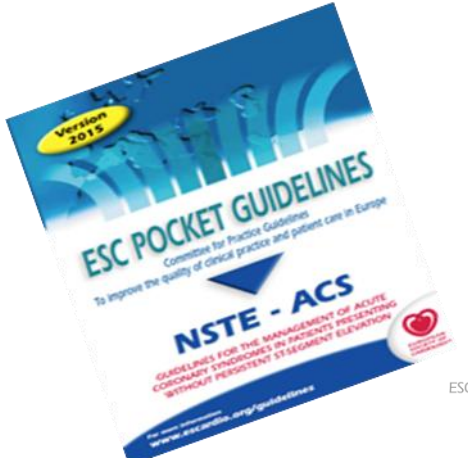
Hamm CW. Personal communication.

Oral antiplatelets before and in the cath lab

ESC STEMI GL 2012

ESC MYOCARDIAL REVASCULARIZATION GL 2014

ESC NSTEMI GL 2015



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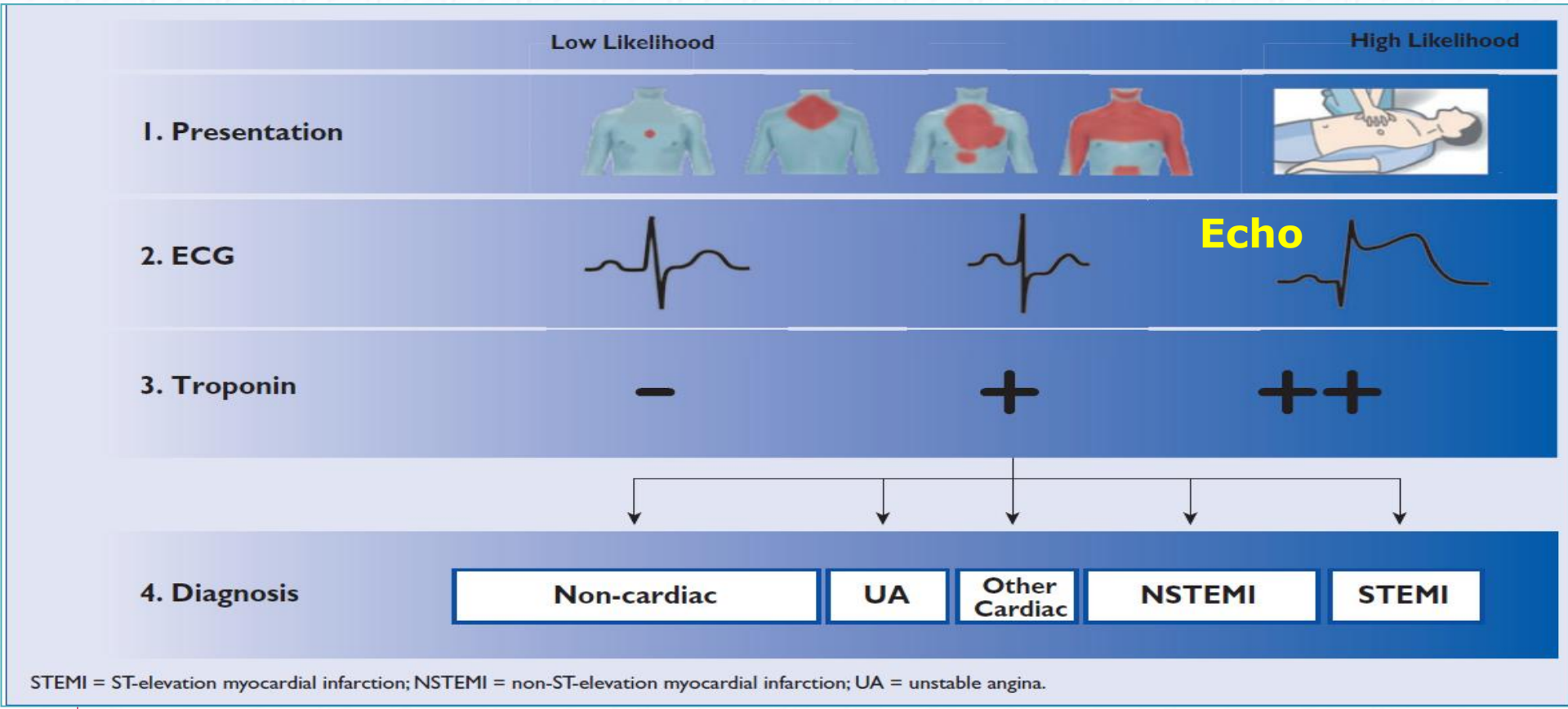
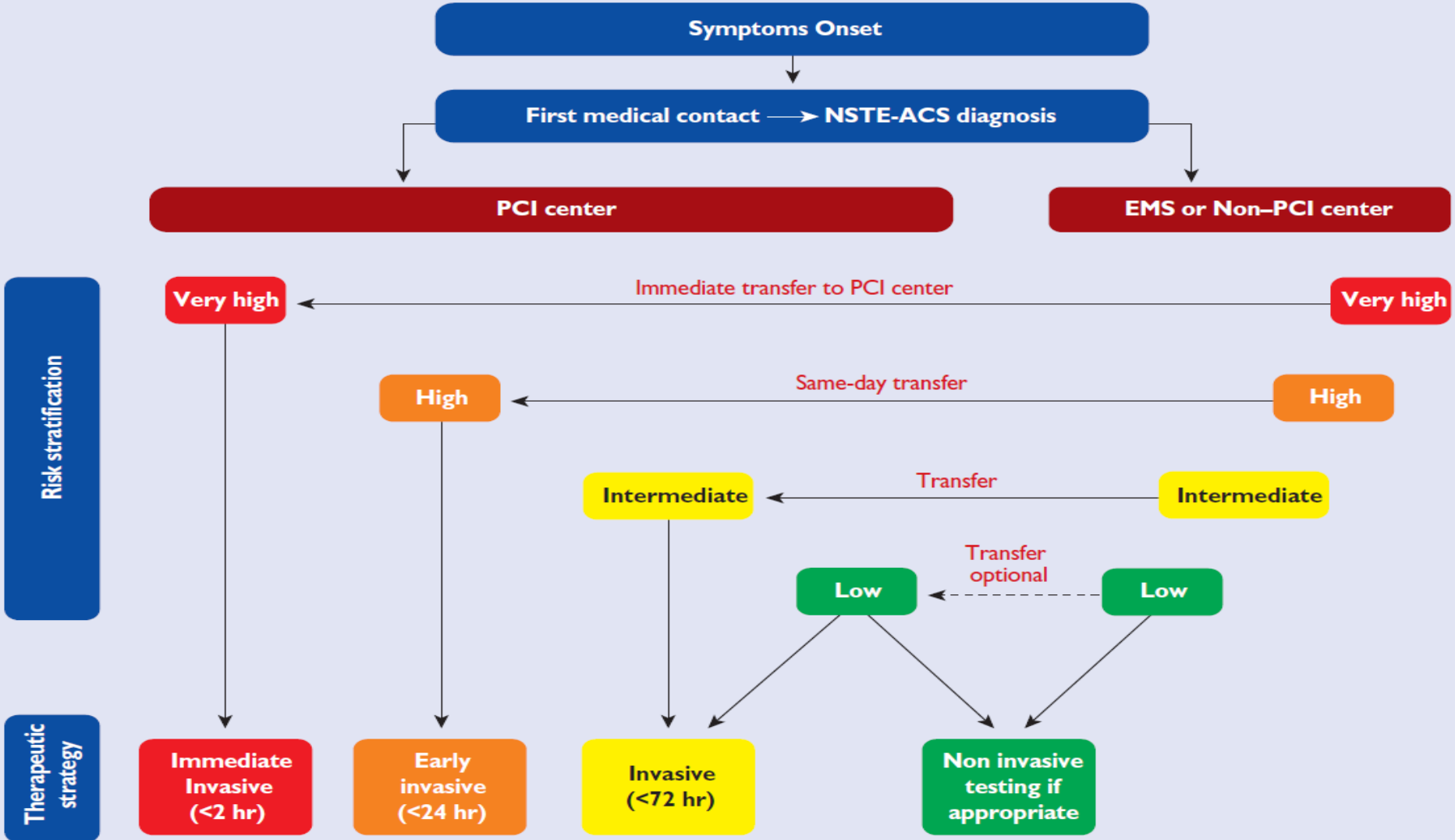
Initial assessment of patients with suspected acute coronary syndromes



STEMI = ST-elevation myocardial infarction; NSTEMI = non-ST-elevation myocardial infarction; UA = unstable angina.

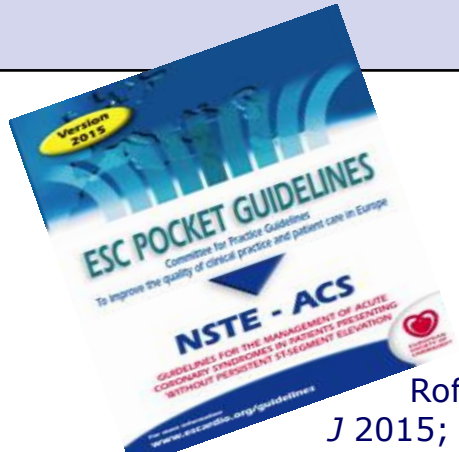

Symptoms Onset
First medical contact → NSTE-ACS diagnosis
PCI center
EMS or Non–PCI center
Risk stratification
Very high
Immediate transfer to PCI center
Very high
High
Same-day transfer
High
Intermediate
Transfer
Intermediate
Transfer optional
Low
Low
Therapeutic strategy
Immediate Invasive (<2 hr)
Early invasive (<24 hr)
Invasive (<72 hr)
Non invasive testing if appropriate

Recommendations for platelet inhibition in NSTE-ACS		
Recommendations	**Class[a]**	**Level[b]**
Oral antiplatelet therapy		
Aspirin is recommended for all patients without contra-indications at an initial oral loading dose[c] of 150–300 mg (in aspirin-naïve 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 contraindications such as excessive risk of bleeds.	I	A
• Ticagrelor (180 mg loading dose, 90 mg twice daily) is recommended, in the absence of contraindications[d], for all patients at moderate- to high-risk of ischaemic events (e.g. elevated cardiac 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 contraindication.[d]	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
Intravenous antiplatelet therapy		
GPIIb/IIIa inhibitors during PCI should be considered for bailout situations or thrombotic complications.	IIa	C
Cangrelor may be considered in $P2Y_{12}$ inhibitor-naïve patients undergoing PCI.	IIb	A

Recommendations for platelet inhibition in NSTE-ACS		
Recommendations	**Class[a]**	**Level[b]**
Oral antiplatelet therapy		
Aspirin is recommended for all patients without contra-indications at an initial oral loading dose[c] of 150–300 mg (in aspirin-naïve patients) and a maintenance dose of 75–100 mg daily long-term regardless of treatment strategy.	**I**	**A**

Recommendations for platelet inhibition in NSTE-ACS 2015

Recommendations	Class	Level
Oral antiplatelet therapy		
A $P2Y_{12}$ inhibitor is recommended, in addition to aspirin, for 12 months unless there are contraindications such as excessive risk of bleeds.	I	A
• **Ticagrelor** (180 mg loading dose, 90 mg twice daily) is recommended, in the absence of contraindications[d], for all patients at moderate- to high-risk of ischaemic events (e.g. elevated cardiac 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 contraindication.	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

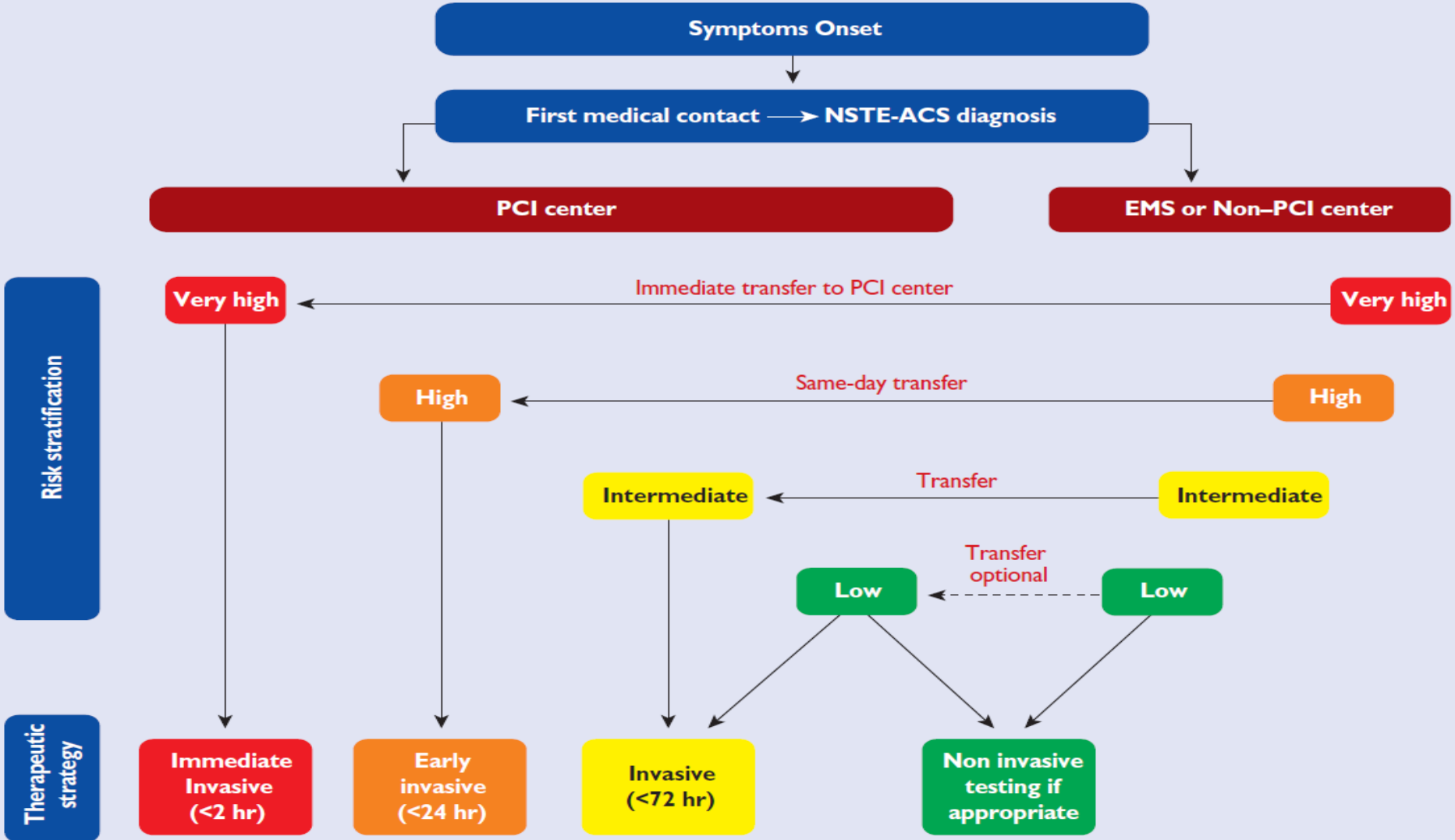


Roffi M, *et al. Eur Heart J* 2015; Epub ahead of print.

Recommendations for platelet inhibition in NSTE-ACS		
Recommendations	**Class[a]**	**Level[b]**
Oral antiplatelet therapy		
It is not recommended to administer prasugrel in patients in whom coronary anatomy is not known.	**III**	**B**
Intravenous antiplatelet therapy		
GPIIb/IIIa inhibitors during PCI should be considered for bailout situations or thrombotic complications.	**IIa**	**C**
Cangrelor may be considered in $P2Y_{12}$ inhibitor-naïve patients undergoing PCI.	**IIb**	**A**

Timing of $P2Y_{12}$ Inhibitor Initiation

- As the optimal timing of ticagrelor or clopidogrel administration in NSTE-ACS patients scheduled for an invasive strategy has not been adequately investigated, no recommendation for or against pretreatment with these agents can be formulated. Based on the ACCOAST results, pretreatment with prasugrel is not recommended.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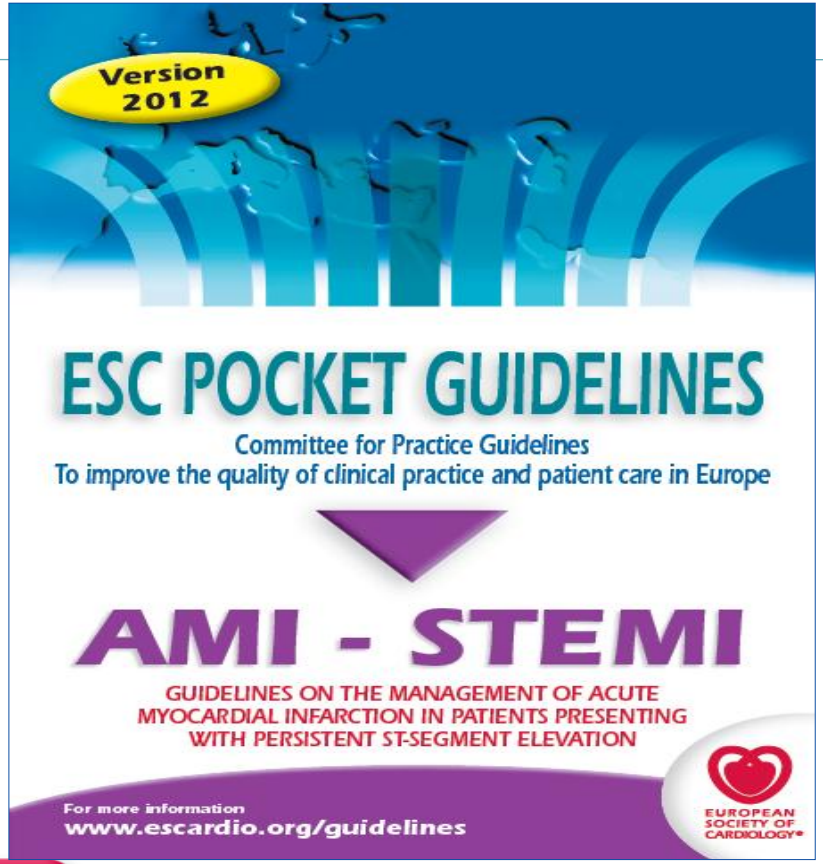
NSTEMI - pretreatment

- **Patient**
- **Time to catheterization**
- **Setting – organization – invasive strategy**

STEMI Guidelines



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Recommendation for initial diagnosis

Recommendations	Class[a]	Level[b]
A 12-lead ECG must be obtained as soon as possible at the point of FMC, with a target delay of ≤10 min.	I	B
ECG monitoring must be initiated as soon as possible in all patients with suspected STEMI.	I	B
Blood sampling for serum markers is recommended routinely in the acute phase but one should not wait for the results before initiating reperfusion treatment.	I	C
The use of additional posterior chest wall leads (V_7–V_9 ≥0.05 mV) in patients with high suspicion of infero-basal myocardial infarction (circumflex occlusion) should be considered.	IIa	C
Echocardiography may assist in making the diagnosis in uncertain cases but should not delay transfer for angiography.	IIb	C

ECG = electrocardiogram; FMC = first medical contact; STEMI = ST-segment elevation myocardial infarction.

Primary PCI

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

Logistics of pre-hospital care

Recommendations	Class[a]	Level[b]
Ambulance teams must be trained and equipped to identify STEMI (with use of ECG recorders and telemetry as necessary) and administer initial therapy, including thrombolysis where applicable.	I	B
The prehospital management of STEMI patients must be based on regional networks designed to deliver reperfusion therapy expeditiously and effectively, with efforts made to make primary PCI available to as many patients as possible.	I	B
Primary PCI-capable centres must deliver a 24/7 service and be able to start primary PCI as soon as possible but always within 60 min from the initial call.	I	B

ECG = electrocardiogram; EMS = emergency medical system; PCI = percutaneous coronary intervention; STEMI = ST-segment elevation myocardial infarction.

Periprocedural anti thrombotic medication in primary PCI

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

ADP = adenosine diphosphate;

When should we start treatment with P2Y12 inhibitors?

- ASAP in all with suspected STEMI?
- Only in patients with 'definite' STEMI?
- After angiography when we go ahead with PCI?

Doses of anti-platelet co-therapies

Doses of antiplatelet co-therapies	
With primary PCI	
Aspirin	Loading dose of 150–300 mg orally or of 80–150 mg i.v. if oral ingestion is not possible, followed by a maintenance dose of 75–100 mg/day.
Clopidogrel	Loading dose of 600 mg orally, followed by a maintenance dose of 75 mg/day.
Prasugrel	Loading dose of 60 mg orally, followed by a maintenance dose of 10 mg/day. In patients with body weight <60 kg, a maintenance dose of 5 mg is recommended. In patients >75 years, prasugrel is generally not recommended, but a dose of 5 mg should be used if treatment is deemed necessary.
Ticagrelor	Loading dose of 180 mg orally, followed by a maintenance dose of 90 mg b.i.d.
Abciximab	Bolus of 0.25 mg/kg i.v. and 0.125 μg/kg/min infusion (maximum 10 μg/min) for 12 h.
Eptifibatide	Double bolus of 180 μg/kg i.v. (given at a 10-min interval) followed by an infusion of 2.0 μg/kg/min for 18 h.
Tirofiban	25 μg/kg over 3 min i.v., followed by a maintenance infusion of 0.15 μg/kg/min for 18 h.
With fibrinolytic therapy	
Aspirin	Starting dose 150–500 mg orally or i.v. dose of 250 mg if oral ingestion is not possible.
Clopidogrel	Loading dose of 300 mg orally if aged ≤75 years, followed by a maintenance dose of 75 mg/day.
Without reperfusion therapy	
Aspirin	Starting dose 150–500 mg orally.
Clopidogrel	75 mg/day orally.

European Heart Journal 2012 - doi:10.1093/eurheartj/ehs215

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ESC STEMI GL 2012

ESC MYOCARDIAL REVASCULARIZATION GL 2014

ESC NSTEMI GL 2015

ESC DAPT CONSENSUS DOCUMENT 2017

ESC STEMI GL 2017

ESC MYOCARDIAL REVASCULARIZATION GL 2018