

2018 ESC/EACTS Guidelines on myocardial revascularization

Lecture accélérée – Situations aiguës
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Selection of non-ST-elevation acute coronary syndrome treatment strategy and timing according to initial risk stratification

Invasive evaluation in non-ST-elevation acute coronary syndromes

Very High-Risk

- Haemodynamic instability or cardiogenic shock
- Recurrent/ongoing chest pain refractory to medical tx
- Life-threatening arrhythmias or cardiac arrest
- Mechanical complications of MI
- Acute heart failure
- Recurrent dynamic ST-segment or T-wave changes

Immediate invasive (<2 hours)
IC

High-Risk

- Established diagnosis of non-ST-elevation myocardial infarction based on cardiac troponins
- Dynamic ST-segment or T-wave changes (symptomatic or silent)
- GRACE score >140

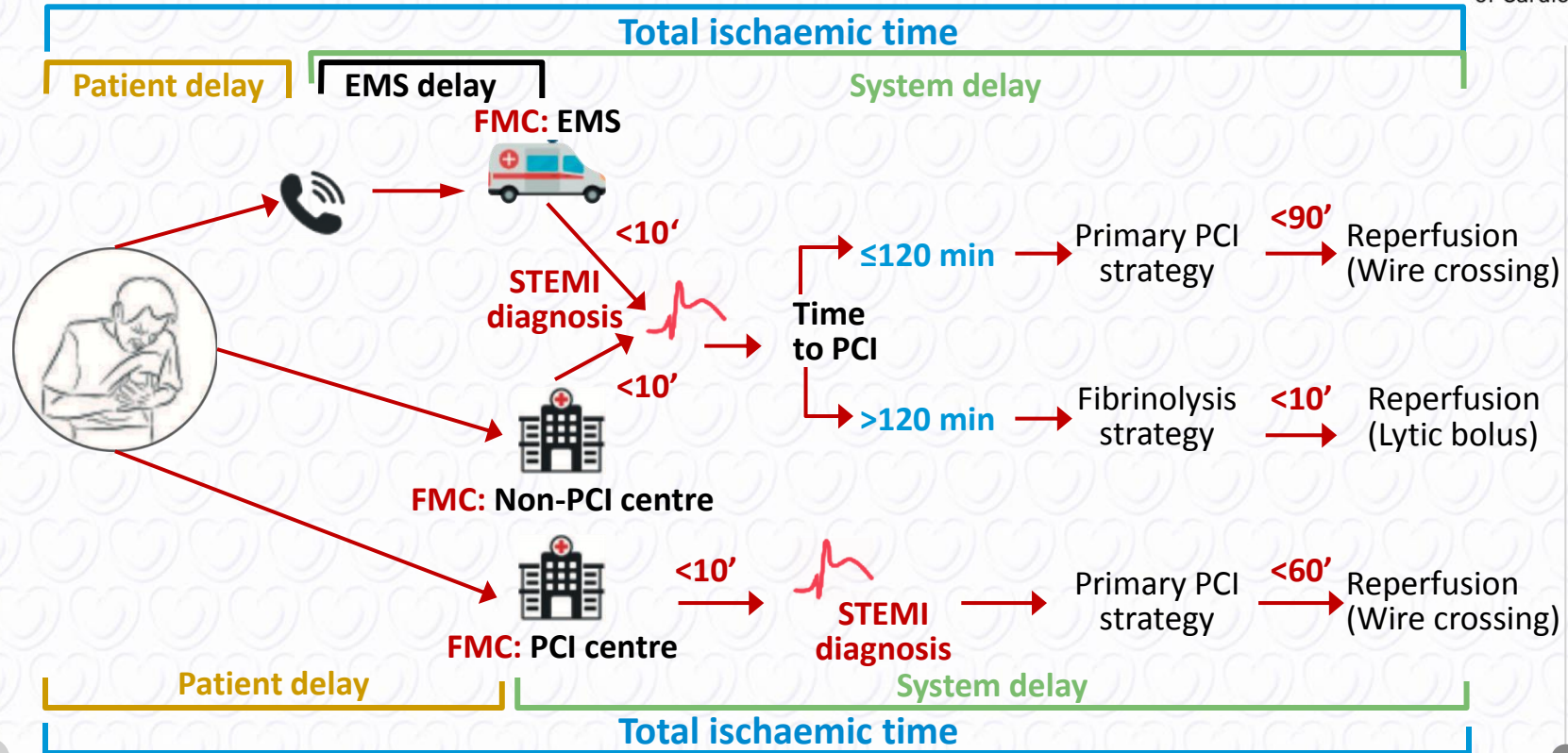
Early invasive (<24 hours)
IA

Intermediate Risk

- Diabetes mellitus or renal insufficiency
- LVEF <40% or congestive heart failure
- Early post-infarction angina or prior PCI/CABG
- GRACE risk score >109 and <140 or recurrent symptoms/ischaemia on non-invasive testing

Invasive (<72 hours)
IA

Modes of patient's medical contact, components of ischaemia time, and flowchart for reperfusion strategy selection

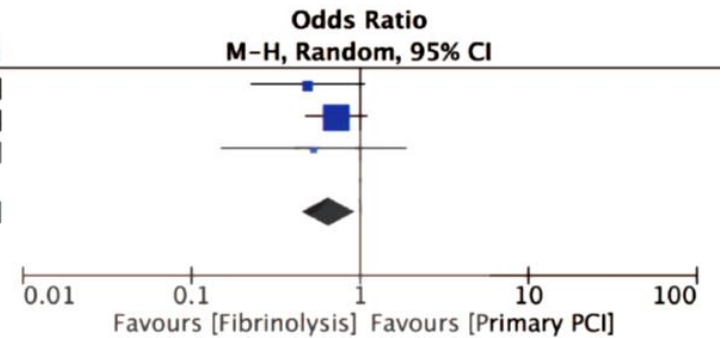


Fibrinolysis PREVENTS shock better than primary PCI!

Cardiogenic shock

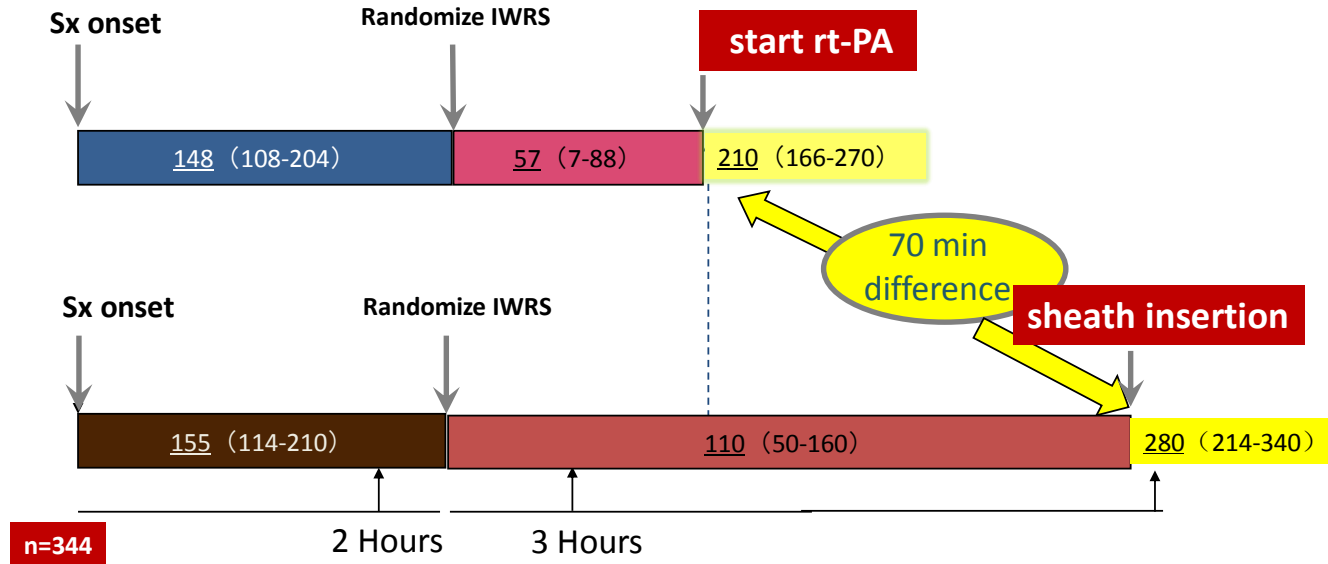
Study	Fibrinolysis prePCI		Primary PCI		Weight	Odds Ratio M-H, Random, 95% CI
	Events	Total	Events	Total		
CAPTIM	10	419	20	421	20.6%	0.49 [0.23, 1.06]
STREAM	41	939	56	944	71.7%	0.72 [0.48, 1.09]
WEST	4	104	7	100	7.7%	0.53 [0.15, 1.87]
Total (95% CI)		1462		1465	100.0%	0.65 [0.46, 0.93]

Total events 55 83
Heterogeneity: $\text{Tau}^2 = 0.00$; $\text{Chi}^2 = 0.87$, $\text{df} = 2$ ($P = 0.65$); $I^2 = 0\%$
Test for overall effect: $Z = 2.39$ ($P = 0.02$)



How can fibrinolysis beat primary PCI?

- 1/ for every 10-min treatment delay 3.3 additional deaths per 100 PCI-treated patients occur! (Scholz KH, FITT-STEMI, EHJ 2018)
- 2/ Several trials have shown that urgent recanalization of the culprit vessel is the key to prevent shock after STEMI



Benefit of fibrinolysis increases:



- **In early presenters**, when myocardium to salvage is larger
- **With pre-hospital administration**, when time-to-treatment is shortened more
- **In young patients**, when safety is preserved
- **When global pharmacoinvasive** approach is applied
- **When secondary access to cath** is available

Primary percutaneous coronary intervention for myocardial reperfusion in ST-elevation myocardial infarction: indications and logistics

Recommendations	Class	Level
Indication		
A primary PCI strategy is recommended over fibrinolysis within the indicated time frames.	I	A
In patients with time from symptom onset >12 h, a primary PCI strategy is indicated in the presence of ongoing symptoms or signs suggestive of ischaemia, haemodynamic instability, or life-threatening arrhythmias.	I	C
A routine primary PCI strategy should be considered in patients presenting late (12-48 h) after symptom onset.	IIa	B



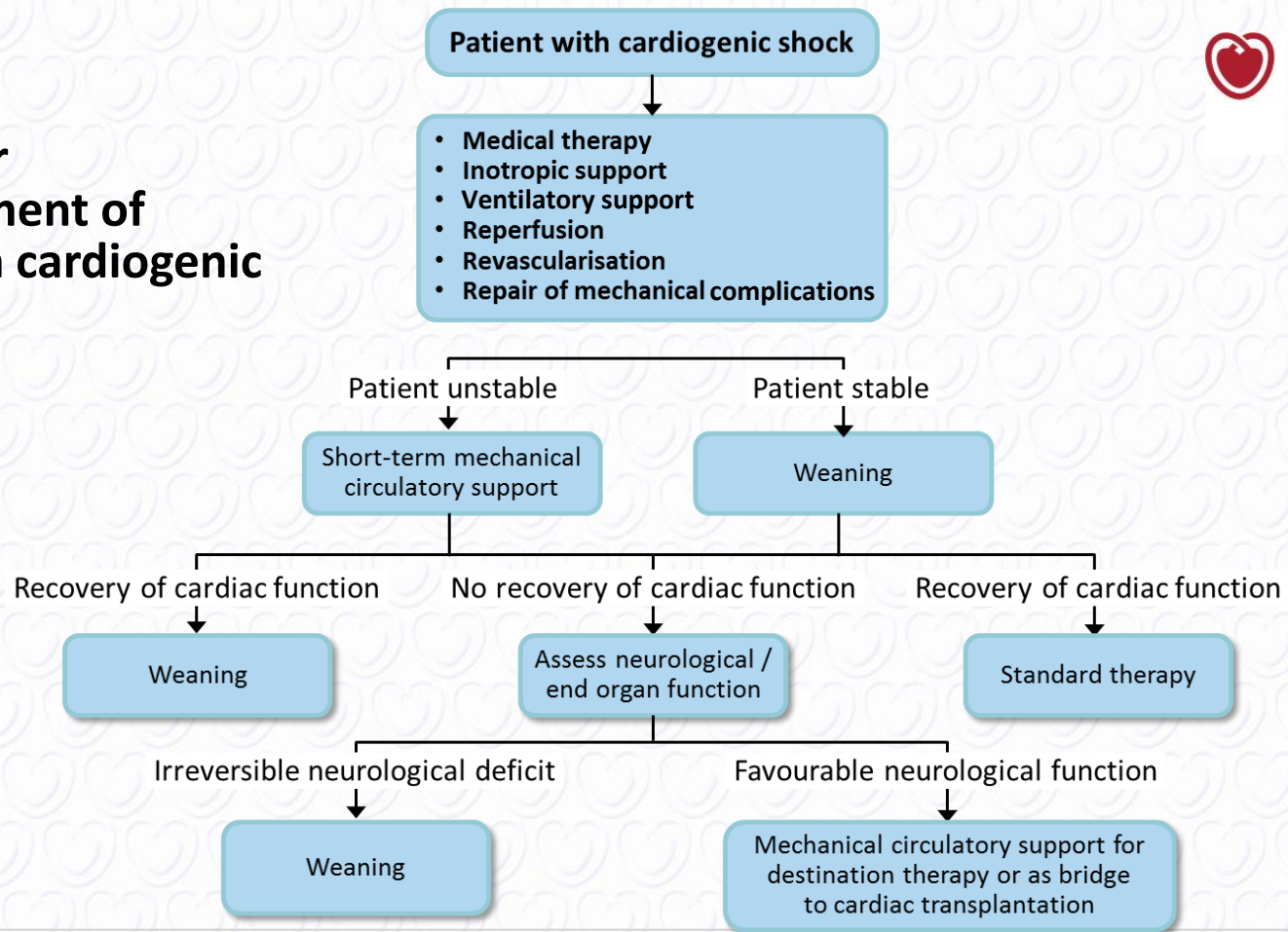
In asymptomatic patients, routine PCI of an occluded IRA >48 h after onset of STEMI is not indicated. ^{135,137}	III	A
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Primary percutaneous coronary intervention for myocardial reperfusion in ST-elevation myocardial infarction: procedural aspects (strategy and technique)

Recommendations	Class	Level
Strategy		
Routine revascularization of non-IRA lesions should be considered in patients with multivessel disease before hospital discharge.	IIa	A
CABG should be considered in patients with ongoing ischaemia and large areas of jeopardized myocardium if PCI of the IRA cannot be performed.	IIa	C



Algorithm for the management of patients with cardiogenic shock



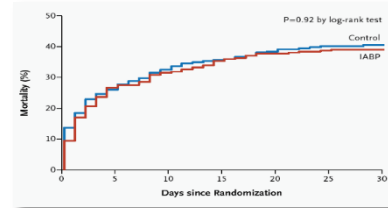
Recommendations	Class	Level
Emergency coronary angiography is indicated in patients with acute heart failure or cardiogenic shock complicating ACS.	I	B
Emergency PCI of the culprit lesion is indicated for patients with cardiogenic shock due to STEMI or NSTEMI-ACS, independent of time delay of symptom onset, if coronary anatomy is amenable to PCI.	I	B
Emergency CABG is recommended for patients with cardiogenic shock if the coronary anatomy is not amenable to PCI.	I	B
In cases of haemodynamic instability, emergency surgical or catheter-based repair of mechanical complications of ACS is indicated, as decided by the Heart Team.	I	C



The treatment of Shock

Treat complications

Mechanical complications
 Arrhythmias
 Hypovolemia
 Tamponade



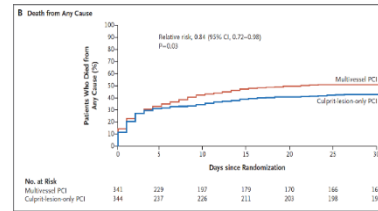
LVAD

~~**IABP**~~

Culprit vessel revasc

~~**Multivessel revasc**~~

RV infarction
 Large anterior MI
 Prior low EF (prior MI)
 Elderly/frailty



In selected patients with ACS and cardiogenic shock, short-term mechanical circulatory support may be considered, depending on patient age, comorbidities, neurological function, and the prospects for long-term survival and predicted quality of life.	IIb	C	?
Routine use of IABPs in patients with cardiogenic shock due to ACS is not recommended.	III	B	

Assessment of ECMO in acute myocardial infarction with Non-reversible Cardiogenic shock to Halt Organ failure and Reduce mortality



To determine if early VA-ECMO combined with IABP support and in conjunction with optimal medical treatment would improve 30-day outcome of patients with acute myocardial infarction complicated by cardiogenic shock as compared with optimal medical treatment alone

The ECMO device will be the CardioHelp (MAQUET, GETINGE, Orléans, France) using the veno-arterial setting and percutaneous femoro-femoral cannulation