XI CURSO GIMUR

¿Política o fútbol en la tele? Una elección "dolorosa"

A propósito de un caso

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Grupo quirónsalud

RedFastER
FARMACIA ASISTENCIAL EN URGENCIAS

Francisco J., 61 años, consulta a Urgencias por **dolor torácico opresivo**, retroesternal, que se irradia a la mandíbula y el hombro izquierdo, con disnea asociada.

Empezó a notar unas molestias hace 45 minutos, mientras miraba el partido del Real Madrid; en el intento de relajarse, cambió de canal, pero se encontró con un debate de políticos sobre Catalunya… El dolor empeoró…

¿Quién es Francisco?

Diagnosticado de **hipertensión esencial** a los 45 años.
Hipercolesterolemia.

Tratamiento habitual:
Hidroclorotiazida 50 mg 1-0-0
Simvastatina 20 mg 0-0-1

Paciente ansioso, sudado, un episodio de vómito

Constantes vitales en Urgencias:
TA 160/110 mmHg
FC 83 lpm R
SatO2 97%
FR 22/min
TC 37,0º C

Exploración física:
Crepitantes finos en las bases pulmonares.
Resto sin hallazgos destacables.

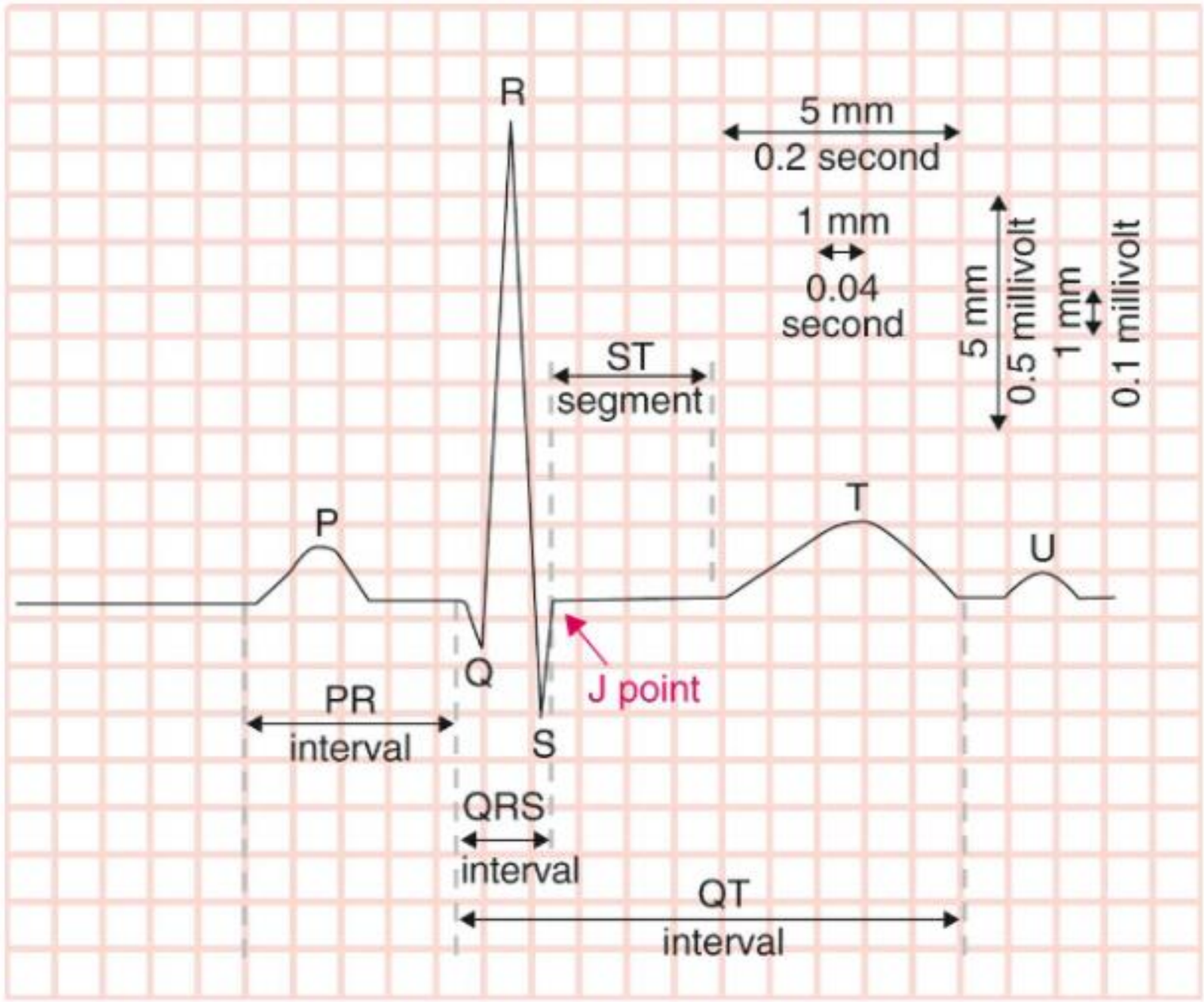
¿Cuál es el **diagnóstico** más probable?

Varón de 61 años con dolor torácico opresivo, diaforesis, disnea, vómito

Factores de riesgo cardiovascular:
Edad
Hipertensión arterial
Hipercolesterolemia

Anamnesis y exploración física compatibles con
Síndrome Coronario Agudo

¿Cuál es el **siguiente paso** para confirmar el diagnóstico?


R
5 mm
0.2 second
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5 mm
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ST
segment
T
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QRS
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QT
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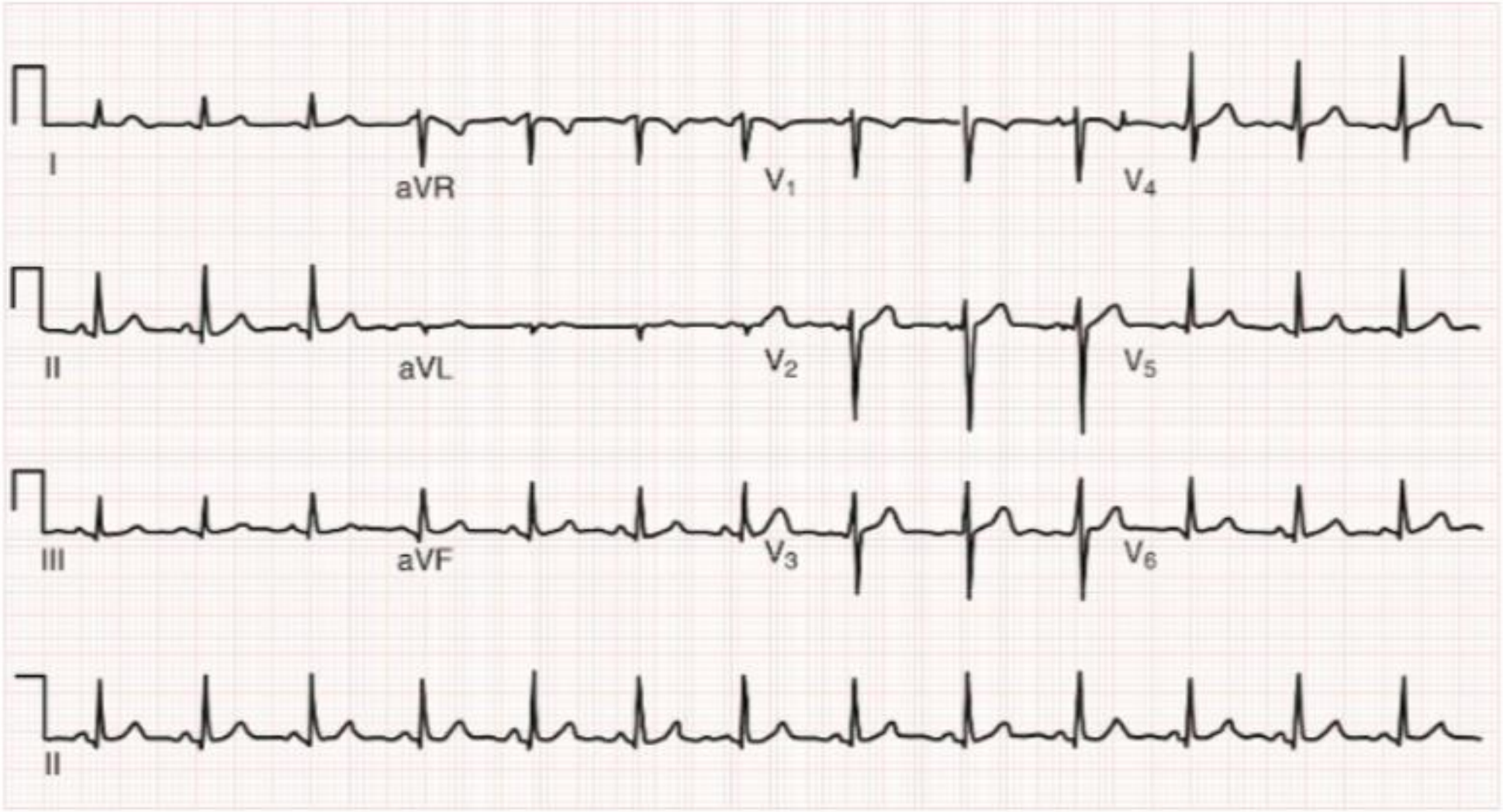
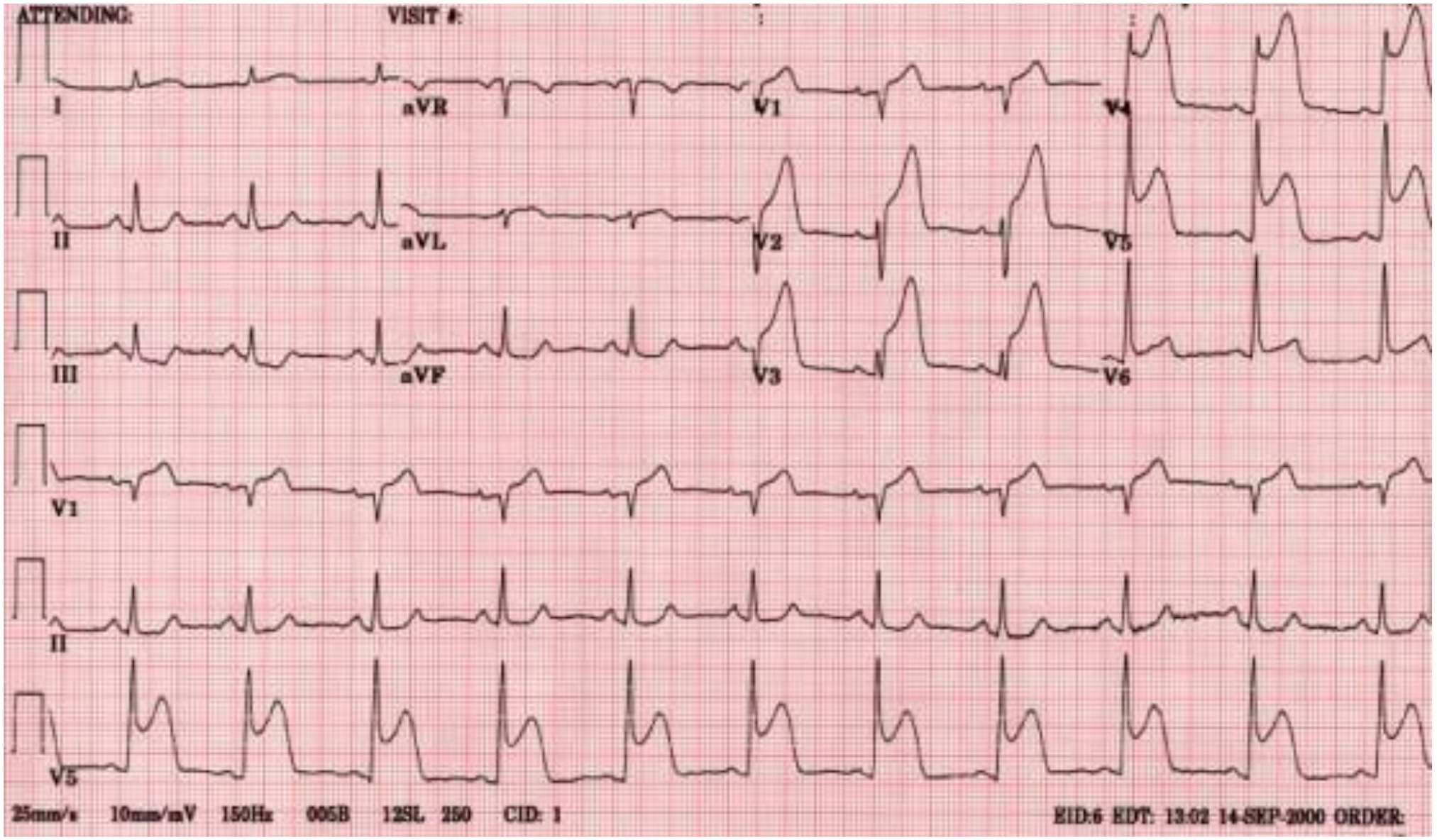

I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
II

Se realiza un **ECG** 12 derivaciones:



El diagnóstico en Urgencias es:

INFARTO AGUDO DEL MIOCARDIO CON ELEVACIÓN DEL ST

Pasos a seguir:

Monitorización constantes vitales y ECG
Acceso venoso
Radiografía de tórax
Analítica con **enzimas de necrosis miocárdica (TROPONINAS)**

¿Qué **tratamientos** inmediatos debemos instaurar?

Aspirina

Morfina

Oxígeno

ACTP

Nitratos

Betabloqueantes

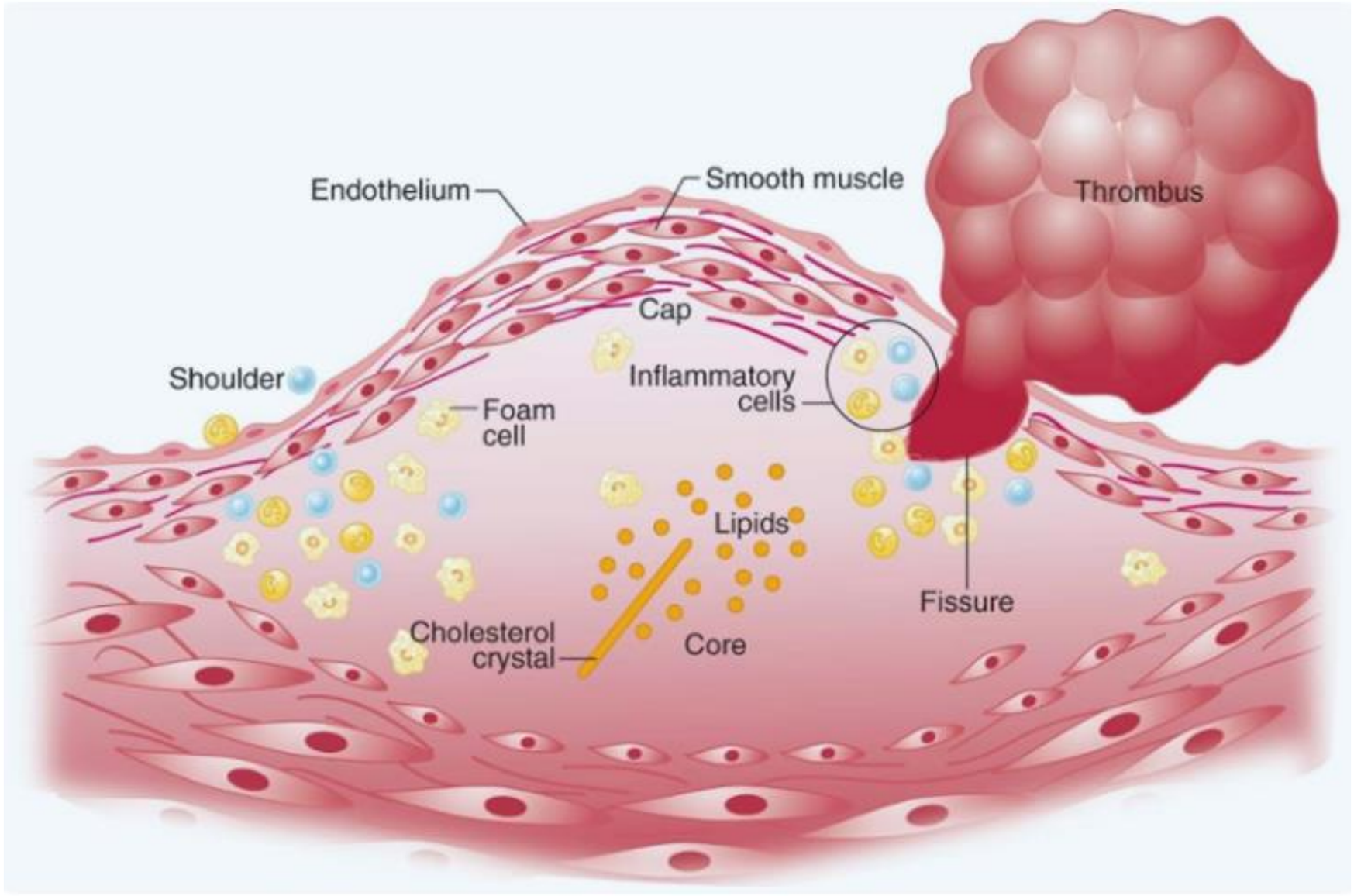
Antiagregantes

Heparina

SÍNDROME CORONARIO AGUDO

Proceso dinámico, inflamación y trombosis intravascular, empieza con rotura de la placa ateroesclerótica

Ubicación de la placa, extensión de la trombosis y consecuente daño miocárdico determinan la **presentación clínica**



CARDIOPATÍA ISQUÉMICA

Infarto agudo del miocardio o síndrome coronario agudo

- con elevación del ST (IAMEST, SCAEST)
- sin elevación del ST (IAMSEST, SCASEST)

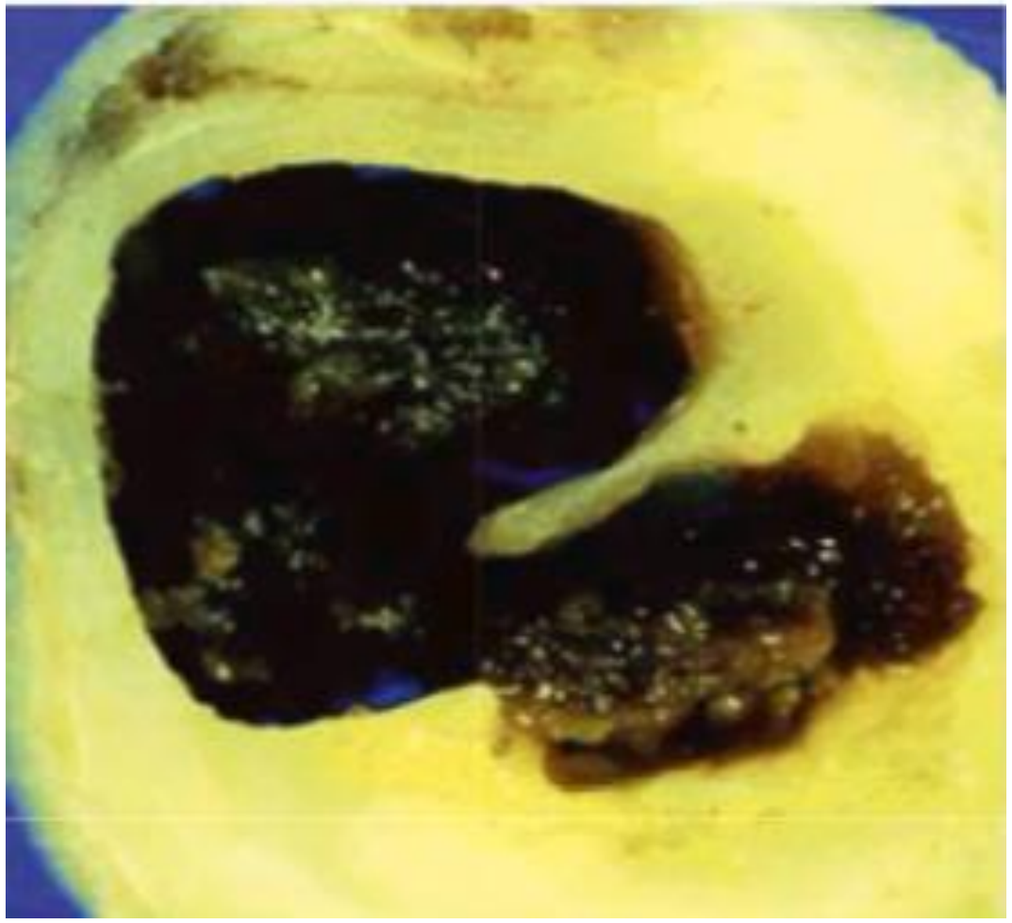
Angina inestable (AI)

Angina estable

Muerte súbita

IAMEST

Oclusión total de vaso epicárdico → infarto transmural



Dolor torácico persistente

Terapia de reperfusión inmediata: trombólisis, ACTP

IAMSEST

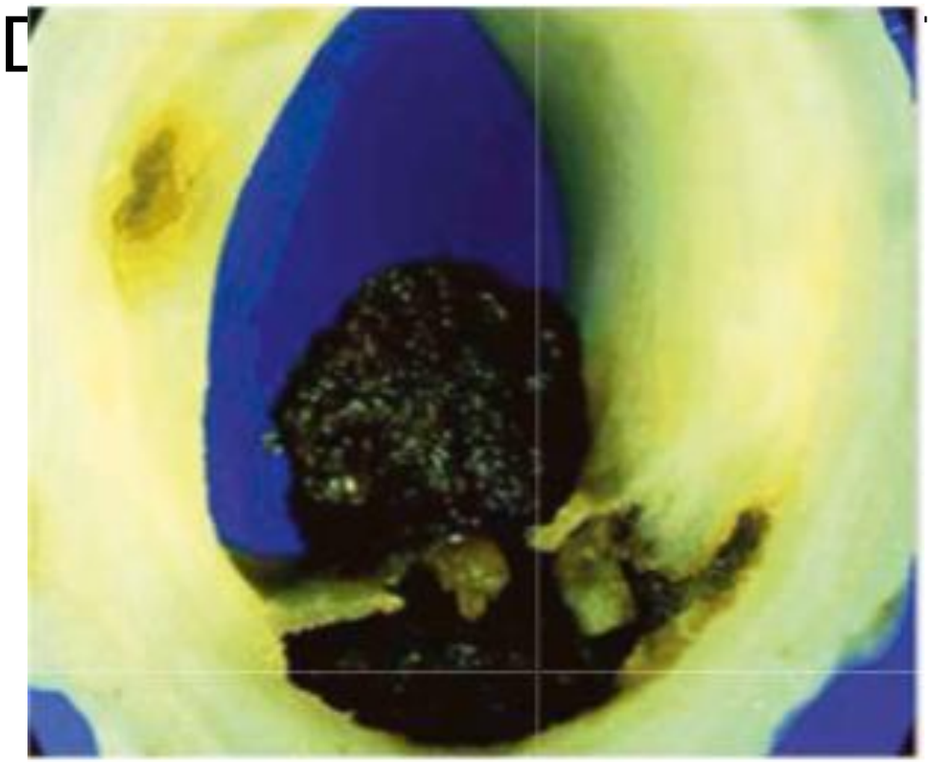
AI

Infarto subendocárdico

Isquemia subendocárdica

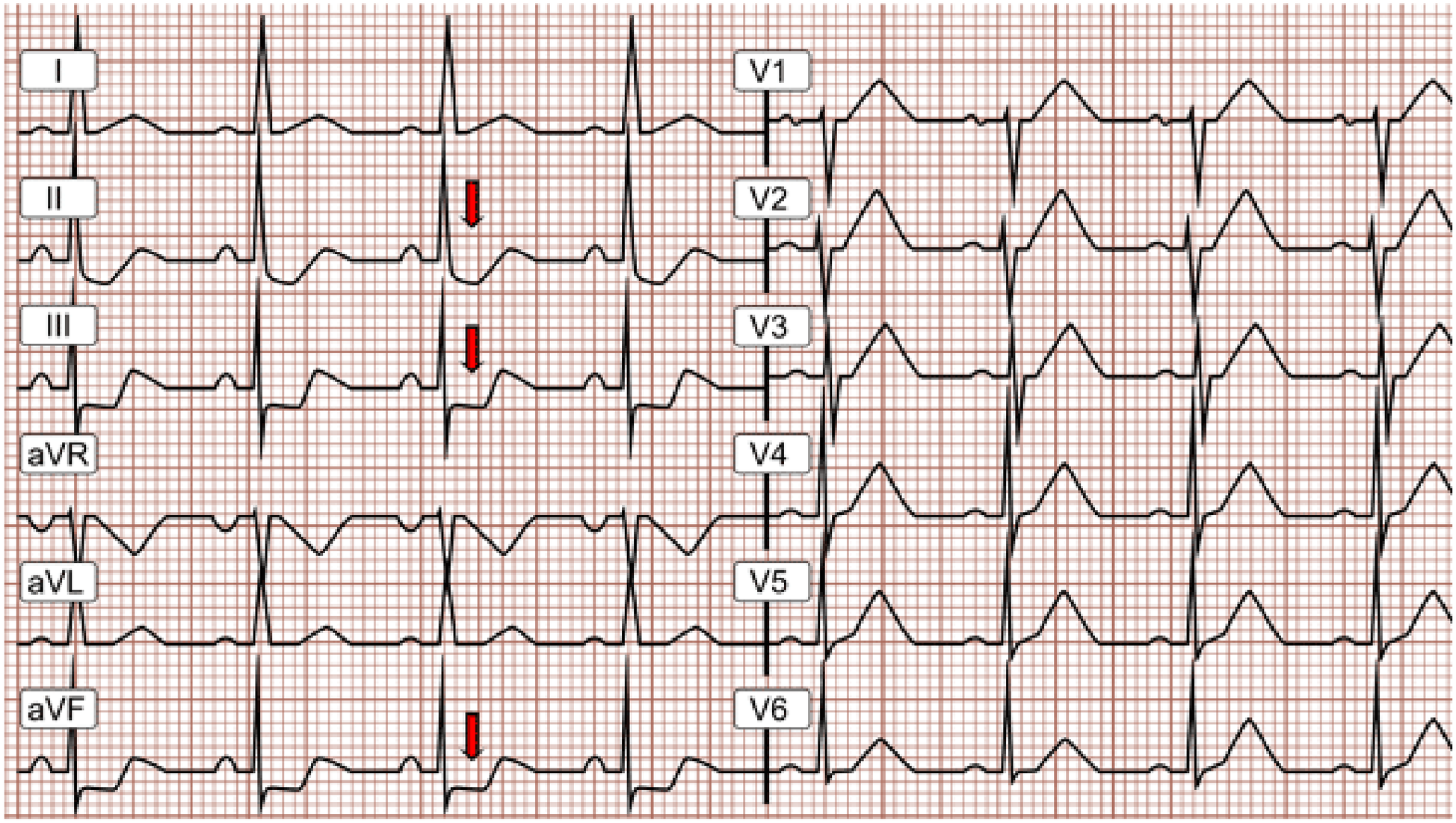
Troponinas +

Troponinas -



Dolor torácico a menudo intermitente

Terapia: antitrombótica, ↓ consumo O2, ACP


I
II
III
aVR
aVL
aVF
V1
V2
V3
V4
V5
V6

Estenosis coronaria fija

↑ demanda O2 → **Angina estable**

CLAVES “CLÍNICAS”

1) Dolor torácico en Urgencias → ECG en <10 minutos

2) Identificar IAMEST → reperfusión precoz (↓ mortalidad)

3) SCASEST - AI: cambios ECG pueden ser sutiles/ausentes

CLAVES “CLÍNICAS”

4) 1º ECG no diagnóstico en 50% de los IAM, normal en 8%

5) ECG seriados (cada 15-30’), comparar ECG antiguos

6) Valorar a) riesgo CV; b) probabilidad de dolor cardíaco

FACTORES DE RIESGO PARA CARDIOPATÍA ISQUÉMICA

1. Diabetes mellitus
2. Hipercolesterolemia; colesterol HDL <40 mg/dl
3. Tabaquismo
4. Hipertensión
5. Edad: V >45aa, M >55aa o menopausia precoz
6. Antec. familiares I grado: IAM/muerte súbita <55aa (♂), <65aa (♀)
7. Drogas simpaticomiméticas: cocaína, anfetaminas
8. Enfermedades reumatológicas: AR, LES

Hollander JE, Diercks DB. Intervention strategies for acute coronary syndromes. In: Tintinalli JE, Kelen GD, Stapczynski JS, eds. Emergency Medicine. 6th ed. New York, NY: McGraw-Hill; 2004: 108-124

TIMI RISK SCORE

Edad >65aa
Estenosis coronaria conocida >50%
≥3 factores de riesgo CV
AAS en los 7 días previos
≥2 episodios de angina en las útimas 24 horas
Desviación ST (elevación trans. o depresión persist.)
Elevación enzimas cardíacos

1 punto por cada factor. Riesgo de muerte, IAM o revascularización a las 2 semanas según el score: 1: 5%, 2: 8%, 3: 13%, 4: 20%, 5: 26%, 6-7: 41%.

Antman EM, Cohen M, Bernink PJ, et al. The TIMI risk score in UA/NSTEMI. JAMA. 2000; 284(7): 835-842.

ENZIMAS DE NECROSIS MIOCÁRDICA

Troponina I, Troponina T, mioglobina, CK-MB

Niveles seriados: basal, 3-6 horas,…

Troponinas muy sensibles y específicas: si ↑ confirman IAM; si normales a las 8-12 lo descartan

Limitaciones:

- normales en AI
- latencia de 4-12 horas
- ↑ en ins, cardiaca, ins. renal, etc…

TRATAMIENTO INMEDIATO EN URGENCIAS

Si hay sospecha clínica de SCA:
MONA (Morfina, Oxígeno, Nitroglicerina, Aspirina)

Si el ECG demuestra IAMEST y dolor <12h:
Terapia de **reperfusión inmediata** con ACTP + stent o trombolisis

En la elección de la estrategia de reperfusión, tener en cuenta:

Tiempo total de isquemia (objetivo <120’)
Tiempo puerta-balón (objetivo <90’)
Tiempo puerta-aguja (objetivo 30’)

MENSAJE CLAVE: La ACTP es de elección cuando puede ser realizada rápidamente por un equipo experto de Hemodinámica

2017 ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation

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Classes of recommendations

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Classes of recommendations	Definition	Suggested wording to use
Class I	Evidence and/or general agreement that a given treatment or procedure is beneficial, useful, effective.	Is recommended/ is indicated.
Class II	Conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of the given treatment or procedure.	
Class IIa	*Weight of evidence/opinion is in favour of usefulness/efficacy.*	Should be considered.
Class IIb	*Usefulness/efficacy is less well established by evidence/opinion.*	May be considered.
Class III	Evidence or general agreement that the given treatment or procedure is not useful/effective, and in some cases may be harmful.	Is not recommended.

Level of evidence

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Level of evidence A	Data derived from multiple randomized clinical trials or meta-analyses.
Level of evidence B	Data derived from a single randomized clinical trial or large non-randomized studies.
Level of evidence C	Consensus of opinion of the experts and/or small studies, retrospective studies, registries.

Relief of hypoxaemia and symptoms

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Recommendations	Class	Level
Hypoxia		
Oxygen is indicated in patients with hypoxaemia (SaO2 <90% or PaO2 <60 mmHg).	I	C
Routine oxygen is not recommended in patients with SaO2 ≥90%.	III	B
Symptoms		
Titrated i.v. opioids should be considered to relieve pain.	IIa	C
A mild tranquillizer (usually a benzodiazepine) should be considered in very anxious patients.	IIa	C

Modes of patient presentation, components of ischaemic time and flowchart for reperfusion strategy selection

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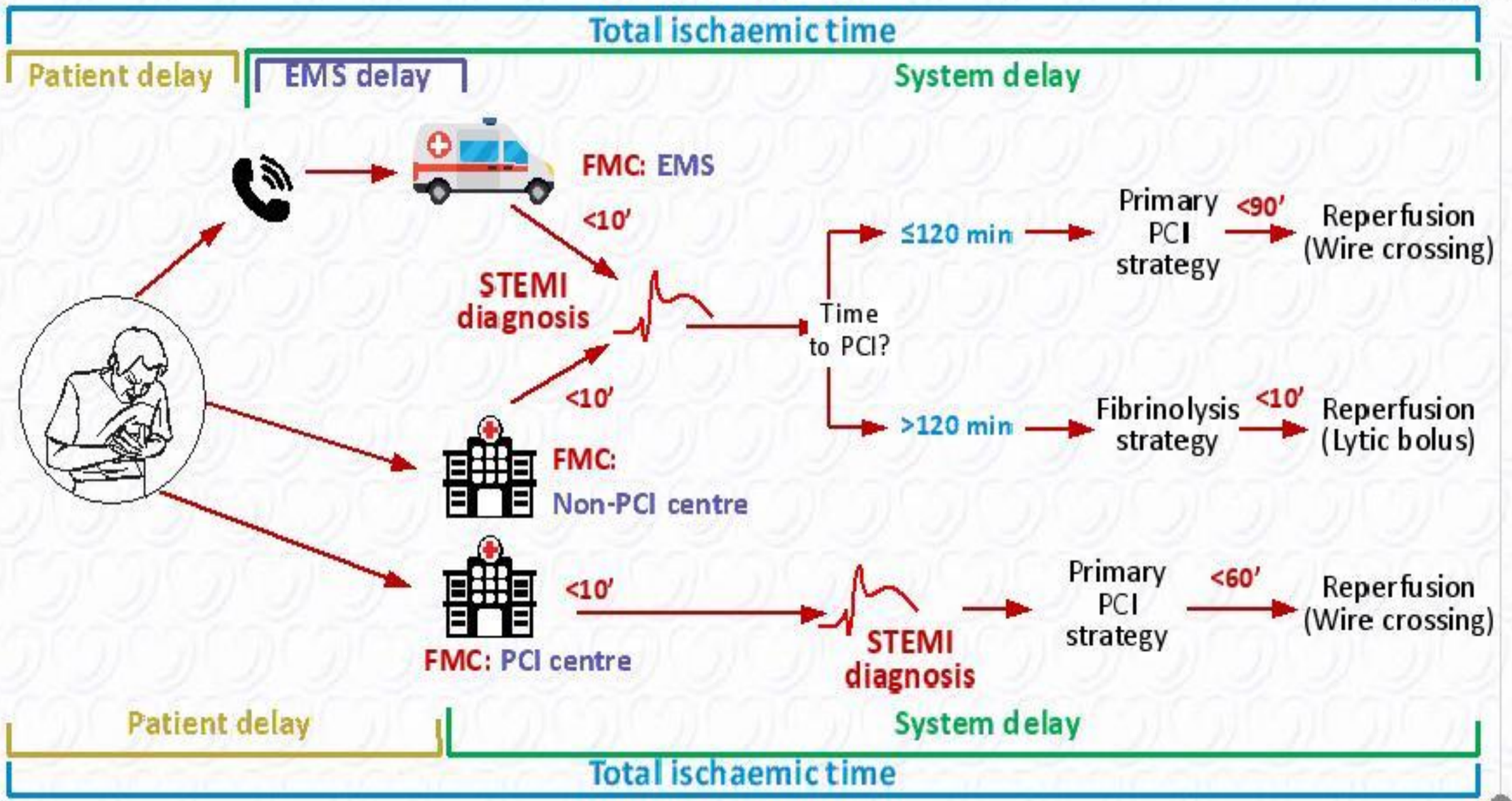

Reperfusion therapy

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Recommendations	Class	Level
Reperfusion therapy is indicated in all patients with symptoms of ischaemia of ≤12 hours duration and persistent ST-segment elevation.	I	A
A *primary PCI strategy* is recommended over fibrinolysis within indicated time frames.	I	A
If primary PCI cannot be performed timely after STEMI diagnosis, fibrinolytic therapy is recommended within 12 hours of symptom onset in patients without contra-indications.	I	A

Reperfusion therapy *(continued)*

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Recommendations	Class	Level
In the absence of ST-segment elevation, a *primary PCI strategy* is indicated in patients with suspected ongoing ischaemic symptoms suggestive of myocardial infarction and at least one of the following criteria present: – haemodynamic instability or cardiogenic shock, – recurrent or ongoing chest pain refractory to medical treatment, – life-threatening arrhythmias or cardiac arrest, – mechanical complications of myocardial infarction, – acute heart failure, – recurrent dynamic ST-segment or T-wave changes, particularly with intermittent ST-segment elevation.	I	C

Reperfusion therapy *(continued)*

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Recommendations	Class	Level
Early angiography (within 24 hours) is recommended if symptoms are completely relieved and ST-segment elevation completely normalized spontaneously or after nitroglycerin administration (provided there are no recurrence of symptoms or ST-segment elevation).	I	C
In patients with time from symptom onset >12 hours, a *primary PCI strategy* is indicated in the presence of ongoing symptoms 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 hours) after symptom onset.	IIa	B
In asymptomatic patients, routine PCI of an occluded IRA >48 hours after onset of STEMI is not indicated.	III	A

Periprocedural and postprocedural antithrombotic therapyc in patients undergoing primary percutaneous coronary intervention

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Recommendations	Class	Level
Antiplatelet therapy		
A potent $P2Y_{12}$ inhibitor (prasugrel or ticagrelor), or clopidogrel if these are not available or are contra-indicated, is recommended before (or at latest at the time of) PCI and maintained over 12 months unless there are contra-indications such as excessive risk of bleeding.	I	A
Aspirin (oral or i.v, if unable to swallow) is recommended as soon as possible for all patients without contra-indications.	I	B
GP IIb/IIIa inhibitors should be considered for bailout if there is evidence of no-reflow or a thrombotic complication.	IIa	C
Cangrelor may be considered in patients who have not received $P2Y_{12}$ receptor inhibitors.	IIb	A

Periprocedural and postprocedural antithrombotic therapy in patients undergoing primary percutaneous coronary intervention

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Recommendations	Class	Level
Anticoagulant therapy		
Anticoagulation is recommended for all patients in addition to antiplatelet therapy during primary PCI.	I	C
Routine use of UFH is recommended.	I	C
In patients with heparin-induced thrombocytopenia, bivalirudin is recommended as the anticoagulant agent during primary PCI.	I	C
Routine use of enoxaparin i.v. should be considered.	IIa	A
Routine use of bivalirudin should be considered.	IIa	A
Fondaparinux is not recommended for primary PCI.	III	B

Doses of antiplatelet and anticoagulant co-therapies in primary PCI

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Doses of antiplatelet and parenteral anticoagulant co-therapies in primary PCI	
Antiplatelet therapies	
Aspirin	Loading dose of 150-300 mg orally or of 75-250 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 of75 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/day is recommended. Prasugrel is contra-indicated in patients with previous stroke. In patients ≥75 years, prasugrel is generally not recommended, but a dose of 5 mg/day should be used if treatment is deemed necessary.

Doses of antiplatelet and anticoagulant co-therapies in primary PCI*(continued)*

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Doses of antiplatelet and parenteral anticoagulant co-therapies in primary PCI	
Antiplatelet therapies *(continued)*	
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 hours.
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 up to 18 hours.
Tirofiban	25 µg/kg over 3 min i.v., followed by a maintenance infusion of 0.15 µg/kg/min for up to 18 hours.

Doses of antiplatelet and anticoagulant co-therapies in primary PCI*(continued)*

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Doses of antiplatelet and parenteral anticoagulant co-therapies in primary PCI	
Parenteral anticoagulant therapies	
UFH	70-100 IU/kg i.v. bolus when no GP IIb/IIIa inhibitor is planned 50-70 IU/kg i.v. bolus with GP IIb/IIIa inhibitors.
Enoxaparin	0.5 mg/kg i.v. bolus.
Bivalirudin	0.75 mg/kg i.v. bolus followed by i.v. infusion of 1.75 mg/kg/hour for up to 4 hours after the procedure.

Doses of antiplatelet and anticoagulant co-therapies in not reperfused patients

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Doses of antiplatelet and parenteral anticoagulant therapies inpatients not receiving reperfusion therapy	
Antiplatelet therapies	
Aspirin	Loading dose of 150-300 mg orally followed by a maintenance dose of 75-100 mg/day.
Clopidogrel	Loading dose of 300 mg orally, followed by a maintenance dose of 75 mg/day orally.
Parenteral anticoagulant therapies	
UFH	Same dose as with fibrinolytic therapy.
Enoxaparin	Same dose as with fibrinolytic therapy.
Fondaparinux	Same dose as with fibrinolytic therapy.

Fibrinolytic therapy

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Recommendations	Class	Level
When fibrinolysis is the reperfusion strategy, it is recommended to initiate this treatment as soon as possible after STEMI diagnosis, preferably in the prehospital setting.	I	A
A fibrin-specific agent (i.e. tenecteplase, alteplase, reteplase) is recommended.	I	B
A half-dose of tenecteplase should be considered in patients ≥75 years of age.	IIa	B
Antiplatelet co-therapy with fibrinolysis		
Oral or i.v. aspirin is indicated.	I	B
Clopidogrel is indicated in addition to aspirin.	I	A
DAPT (in the form of aspirin plus a $P2Y_{12}$ inhibitor) is indicated for up to 1 year in patients undergoing fibrinolysis and subsequent PCI.	I	C

Fibrinolytic therapy *(continued)*

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Recommendations	Class	Level
Anticoagulation co-therapy with fibrinolysis		
Anticoagulation is recommended in patients treated with lytics until revascularization (if performed) or for the duration of hospital stay up to 8 days. The anticoagulant can be:	I	A
• Enoxaparin i.v. followed by s.c. (preferred over UFH).	I	A
• UFH given as a weight-adjusted i.v. bolus followed by infusion.	I	B
• In patients treated with streptokinase: fondaparinux i.v. bolus followed by an s.c. dose 24 hours later.	IIa	B
Transfer after fibrinolysis		
Transfer to a PCI-capable centre following fibrinolysis is indicated in all patients immediately after fibrinolysis.	I	A

Doses of fibrinolytic agents and antithrombotic co-therapies

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Drug	Initial treatment	Specific contra-indications
Doses of fibrinolytic therapy		
Streptokinase	1.5 million units over 30–60 min i.v.	Previous treatment with streptokinase or anistreplase
Alteplase (tPA)	15 mg i.v. bolus 0.75 mg/kg i.v. over 30 min (up to 50 mg) then 0.5 mg/kg i.v. over 60 min (up to 35 mg)	
Reteplase (rPA)	10 units + 10 units i.v. bolus given 30 min apart	
Tenecteplase (TNK-tPA)	Single i.v. bolus: 30 mg (6000 IU) if <60 kg 35 mg (7000 IU) if 60 to <70 kg 40 mg (8000 IU) if 70 to <80 kg 45 mg (9000 IU) if 80 to <90 kg 50 mg (10000 IU) if ≥90 kg It is recommended to reduce to half-dose in patients ≥75 years of age.	

Doses of fibrinolytic agents and antithrombotic co-therapies *(continued)*

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Drug	Initial treatment	Specific contra-indications
Doses of antiplatelet co-therapies		
Aspirin	Starting dose of 150–300 mg orally (or 75–250 mg intravenously if oral ingestion is not possible), followed by a maintenance dose of 75–100 mg/day	
Clopidogrel	Loading dose of 300 mg orally, followed by a maintenance dose of 75 mg/day. In patients ≥75 years of age: loading dose of 75 mg, followed by a maintenance dose of 75 mg/day.	

Doses of fibrinolytic agents and antithrombotic co-therapies *(continued)*

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Drug	Initial treatment	Specific contra-indications
Doses of anticoagulant co-therapies		
Enoxaparin	In patients <75 years of age: 30 mg i.v. bolus followed 15 min later by1 mg/kg s.c. every 12 hours until revascularization or hospital discharge for a maximum of 8 days. The first two s.c. doses should not exceed 100 mg per injection.	
	In patients ≥75 years of age: no i.v. bolus; start with first s.c. dose of 0.75 mg/kg with a maximum of 75 mg per injection for the first two s.c. doses. In patients with eGFR <30 mL/min/1.73 m², regardless of age, the s.c. doses are given once every 24 hours.	

Doses of fibrinolytic agents and antithrombotic co-therapies *(continued)*

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Drug	Initial treatment	Specific contra-indications
UFH	60 IU/kg i.v. bolus with a maximum of 4000 IU followed by an i.v. infusion of 12 IU/kg with a maximum of 1000 IU/ hour for 24-48 hours. Target aPTT: 50-70 s or 1.5 to 2.0 times that of control to be monitored at 3, 6, 12 and 24 hours.	
Fondaparinux (only with streptokinase)	2.5 mg i.v. bolus followed by a s.c. dose of 2.5 mg once daily up to 8 days or hospital discharge.	

Contra-indications to fibrinolytic therapy

Absolute
Previous intracranial haemorrhage or stroke of unknown origin at anytime.
Ischaemic stroke in the preceding 6 months.
Central nervous system damage or neoplasms or arteriovenous malformation.
Recent major trauma/surgery/head injury (within the preceding month).
Gastrointestinal bleeding within the past month.
Known bleeding disorder (excluding menses).
Aortic dissection.
Non-compressible punctures in the past 24 hours (e.g. liver biopsy, lumbar puncture).

Contra-indications to fibrinolytic therapy

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Relative
Transient ischaemic attack in the preceding 6 months.
Oral anticoagulant therapy.
Pregnancy or within 1 week postpartum.
Refractory hypertension (SBP >180 mmHg and/or DBP >110 mmHg).
Advanced liver disease.
Infective endocarditis.
Active peptic ulcer.
Prolonged or traumatic resuscitation.

Doses of antithrombotic agents in chronic kidney disease

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Agent	Normal renal function andstage1-3 CKD (eGFR ≥30 mL/min/1.73 m²)	Stage 4 CKD (eGFR 15 to <30mL/min/1.73 m²)	Stage 5 CKD(eGFR <15 mL/min/1.73m²)
Aspirin	Loading dose of 150-300 mg orally followed by a maintenance dose of 75-100 mg/day.	No dose adjustment	No dose adjustment
Clopidogrel	Loading dose of 300-600 mg orally followed by 75 mg/day.	No dose adjustment	No information available
Ticagrelor	Loading dose of 180 mg orally followed 90 mg twice a day.	No dose adjustment	Not recommended
Prasugrel	Loading dose of 60 mg orally followed by 10 mg/day.	No dose adjustment	Not recommended
Enoxaparin	1 mg/kg s.c. twice a day, 0.75 mg/kg s.c. twice daily in patients ≥75 years old.	1 mg/kg s.c. once a day	Not recommended

Doses of antithrombotic agents in chronic kidney disease *(continued)*

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Agent	Normal renal function andstage1-3 CKD (eGFR ≥30 mL/min/1.73 m^2)	Stage 4 CKD (eGFR 15 to <30mL/min/1.73 m^2)	Stage 5 CKD(eGFR <15 mL/min/1.73m^2)
UFH	*Before coronary angiography:* Bolus 60-70 IU/kg i.v. (maximum 5000 IU) and infusion(12-15 IU/kg/hour, maximum 1000 IU/hour), target aPTT 1.5-2.5 x control. *During PCI:* 70-100 IU/kg i.v. (50-70 IU/kg if concomitant with GP IIb/IIIa inhibitors).	No dose adjustment	No dose adjustment
Fondaparinux	2.5 mg s.c. once a day.	Not recommended if eGFR <20 mL/min/ 1.73 m^2 or dialysis.	Not recommended

Doses of antithrombotic agents in chronic kidney disease *(continued)*

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Agent	Normal renal function and stage1-3 CKD (eGFR ≥30 mL/min/1.73 m²)	Stage 4 CKD (eGFR 15 to <30mL/min/1.73 m²)	Stage 5 CKD (eGFR <15 mL/min/1.73m²)
Bivalirudin	Bolus 0.75 mg/kg i.v., infusion 1.75 mg/kg/hour. *If eGFR ≥30 and ≤60mL/min/1.73m² reduce infusion dose to 1.4 mg/kg/hour.*	Not recommended	Not recommended
Abciximab	Bolus of 0.25 mg/kg i.v. followed by 0.125 µg/kg/min infusion (maximum 10 µg/min).	Careful consideration of bleeding risk.	Careful consideration of bleeding risk.

Doses of antithrombotic agents in chronic kidney disease *(continued)*

ESC European Society of Cardiology

Agent	Normal renal function andstage1-3 CKD (eGFR ≥30 mL/min/1.73 m^2)	Stage 4 CKD (eGFR 15 to <30mL/min/1.73 m^2)	Stage 5 CKD(eGFR <15 mL/min/1.73m^2)
Eptifibatide	Bolus of 180 µg/kg i.v. followed by an infusion of 2.0 µg/kg/min for up to 18 hours. If eGFR <50 mL/min/1.73 m^2 reduce infusion dose to 1.0 µg/kg/min	Not recommended	Not recommended
Tirofiban	Bolus 25 µg/kg i.v. followed by 0.15 µg/ kg/min.	Reduce infusion rate to 50%.	Not recommended

Maintenance antithrombotic strategy after ST-elevation myocardial infarction

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Recommendations	Class	Level
Antiplatelet therapy with low-dose aspirin (75–100 mg) is indicated.	I	A
DAPT in the form of aspirin plus ticagrelor or prasugrel (or clopidogrel if ticagrelor or prasugrel is not available or is contra-indicated) is recommended for 12 months after PCI unless there are contra-indications such as excessive risk of bleeding.	I	A
A PPI in combination with DAPT is recommended in patients at high risk of gastrointestinal bleeding.	I	B
In patients with an indication for oral anticoagulation, oral anti-coagulants are indicated in addition to antiplatelet therapy.	I	C

Maintenance antithrombotic strategy after ST-elevation myocardial infarction *(continued)*

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Recommendations	Class	Level
In patients who are at high risk of severe bleeding complications, discontinuation of $P2Y_{12}$ inhibitor therapy after 6 months should be considered.	IIa	B
In STEMI patients with stent implantation and an indication for oral anticoagulation, triple therapy should be considered for 1–6 months (according to a balance between the estimated risk of recurrent coronary events and bleeding).	IIa	C
DAPT for 12 months in patients who did not undergo PCI should be considered unless there are contra-indications such as excessive risk of bleeding.	IIa	C
In patients with LV thrombus, anticoagulation should be administered for up to 6 months guided by repeated imaging.	IIa	C

Maintenance antithrombotic strategy after ST-elevation myocardial infarction *(continued)*

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Recommendations	Class	Level
In high ischaemic risk patients who have tolerated DAPT without a bleeding complication, treatment with DAPT in the form of ticagrelor 60 mg twice a day on top of aspirin for longer than 12 months may be considered for up to 3 years.	IIb	B
In low bleeding risk patients who receive aspirin and clopidogrel, low-dose rivaroxaban (2.5 mg twice daily) may be considered.	IIb	B
The use of ticagrelor or prasugrel is not recommended as part of triple antithrombotic therapy with aspirin and oral anticoagulation.	III	C

¿Cómo calcular el **RIESGO HEMORRÁGICO**?

Muy utilizado el **CRUSADE SCORE**

Hematocrito bajo, insuficiencia renal, taquicardia, sexo femenino, insuficiencia cardiaca al ingreso, enfermedad vascular conocida previa, presión arterial en los extremos aumentan el riesgo de sangrado mayor

Routine therapies in the acute, subacute and long-term phases

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Recommendations	Class	Level
Beta-blockers		
Oral treatment with beta-blockers is indicated in patients with heart failure or LVEF ≤40% unless contra-indicated.	I	A
Intravenous beta-blockers should be considered at the time of presentation in patients undergoing primary PCI without contra-indications, with no signs of acute heart failure, and with an SBP >120 mmHg.	IIa	A
Routine oral treatment with beta-blockers should be considered during hospital stay and continued thereafter in all patients without Contra-indications.	IIa	B
Intravenous beta-blockers must be avoided in patients with hypotension, acute heart failure or AV block or severe bradycardia.	III	B

Routine therapies in the acute, subacute and long-term phases *(continued)*

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Recommendations	Class	Level
Lipid lowering therapies		
It is recommended to start high-intensity statin therapy as early as possible, unless contra-indicated, and maintain it long term.	I	A
An LDL-C goal of < 1.8 mmol/L (70 mg/dL) or a reduction of at least 50% if the baseline LDL-C is between 1.8 and 3.5 mmol/L (70 and 135 mg/dL) is recommended.	I	B
It is recommended to obtain a lipid profile in all STEMI patients as soon as possible after presentation.	I	C
In patients with LDL-C ≥1.8 mmol/L (≥70 mg/dL) despite a maximally tolerated statin dose who remain at high risk, further therapy to reduce LDL-C should be considered.	IIa	A

Routine therapies in the acute, subacute and long-term phases *(continued)*

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Recommendations	Class	Level
ACE inhibitors/ARBs		
ACE inhibitors are recommended, starting within the first 24 hours 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 of ACE inhibitors.	I	B
ACE inhibitors should be considered in all patients in the absence of contra-indications.	IIa	A
MRAs		
MRAs are recommended in patients with an LVEF ≤40% and heart failure or diabetes, who are already receiving an ACE inhibitor and a beta-blocker, provided there is no renal failure or hyperkalaemia.	I	B

Un varón de 65 años consulta a Urgencias por dolor precordial opresivo y diaforesis de 45 minutos de evolución. ¿Cuál es la actuación más importante en este momento?

A. Nitroglicerina sublingual
B. Oxígeno
C. Electrodos del desfibrilador
D. Aspirina
E. Morfina

Un varón de 54 años consulta a Urgencias de un pequeño hospital en la montaña por náusea y dolor epigástrico de una hora de evolución. El ECG muestra un IAMCEST. El Servicio de Hemodinámica más cercano está a 2h30m en ambulancia. ¿Qué hacemos?

A. Repetimos ECG para confirmar el diagnóstico
B. Trasladamos al paciente para ACP emergente
C. Realizamos trombólisis y luego trasladamos al paciente para ACP
D. Administramos aspirina, empezamos heparina y realizamos una prueba de estrés

Referencias esenciales

Ibañez B, James S, Agewall S, et al. 2017 ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation: The Task Force for the management of acute myocardial infarction in patients presenting with ST-segment elevation of the European Society of Cardiology (ESC). *European Heart Journal*, ehx393, https://doi.org/10.1093/eurheartj/ehx393

Amsterdam EA, Wenger NK, Brindis RG,et al. 2014 AHA/ACC guideline for the management of patients with non-ST-elevation acute coronary syndromes: executive summary. *Circulation*. 2014; 130: 2354-2394.

O'Gara PT, Kushner FG, Ascheim DD, et al. 2013 ACCF/AHA guideline for the management of ST-elevation myocardial infarction: executive summary. *Circulation*. 2013; 127: 529-555.

Panju AA, Hemmelgarn BR. Is this patient having a myocardial infarction? *JAMA*. 1998; 280: 1256-1263.

Reeder et al. Initial evaluation and management of suspected acute coronary síndrome (myocardial infarction, unstable angina) in the emergency department. Avalaible at: www.uptodate.com.

¡Muchas gracias!

"No hay medicina que cure lo que cura la felicidad"
(Gabriel García Márquez)