

ALL ABOUT STEMI!

ST-Elevation Myocardial Infarction

ST elevation of >1mm in 2 continuous ECG leads

+

Transmural **myocardial cell death** due to prolonged **ischaemia**

SYMPTOMS

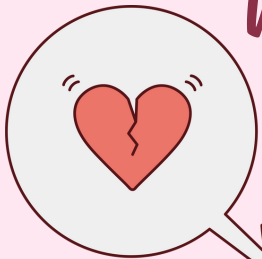
Central chest pain

- Pressure, squeezing or severe crushing pain
- Abrupt & lasts >30 mins
- Radiate to jaw or left arm

Associated with

- Sweating
- Nausea
- Vomiting
- SOB

With a sense of impending doom



Am I dying?

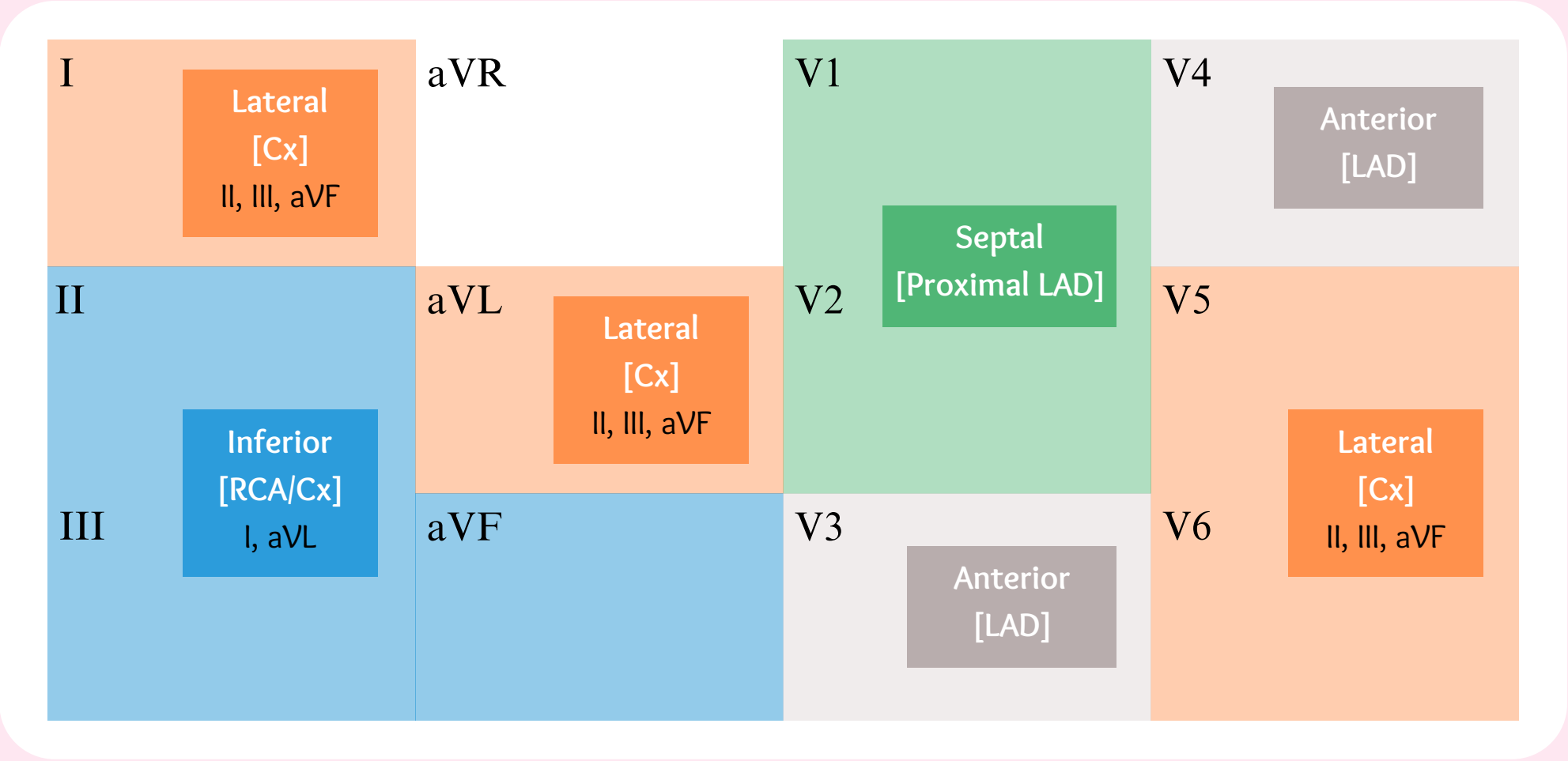
Atypical symptoms

In the elderly, females, diabetics!

- Fatigue
- Dizziness
- Syncope

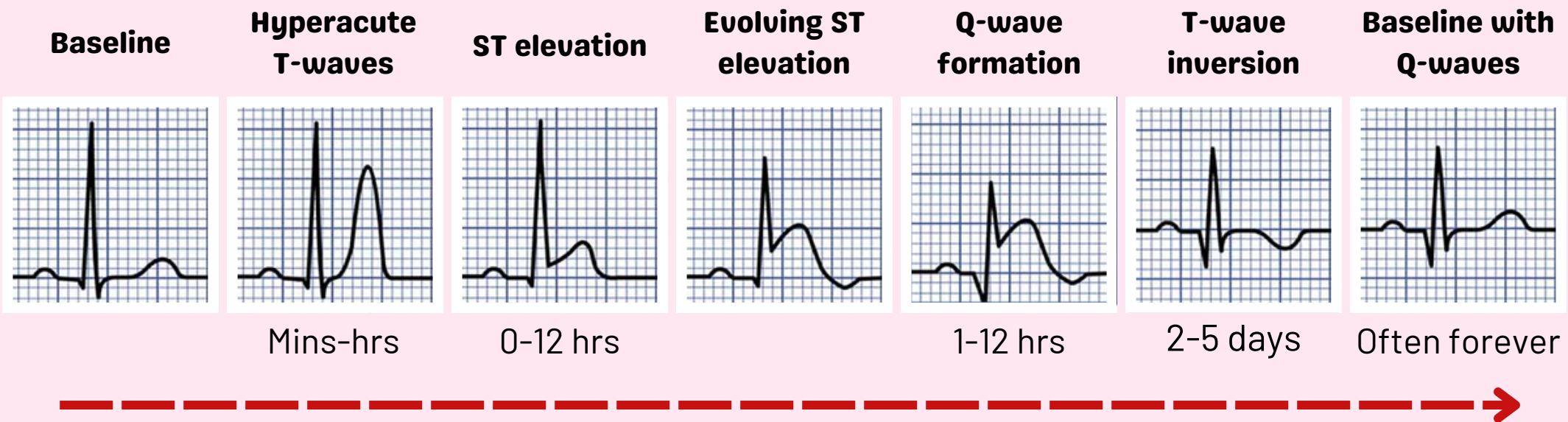
*They may
not have
chest pain!*

ECG & LOCATION OF ISCHAEMIA



affected area, [occluded artery], reciprocal ST depression

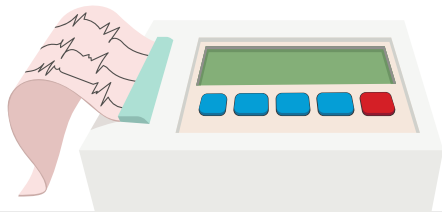
EVOLUTION OF STEMI



DIAGNOSTIC CRITERIA

$$= 1 + 2 + 3$$

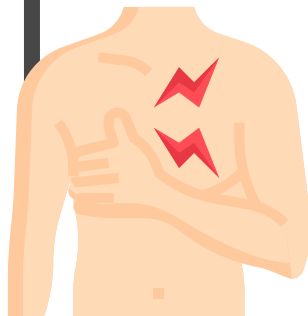
1 ECG



ST elevation of > 1 mm in
2 contiguous leads, or

A new onset LBBB in the resting ECG

2 Clinical Presentation



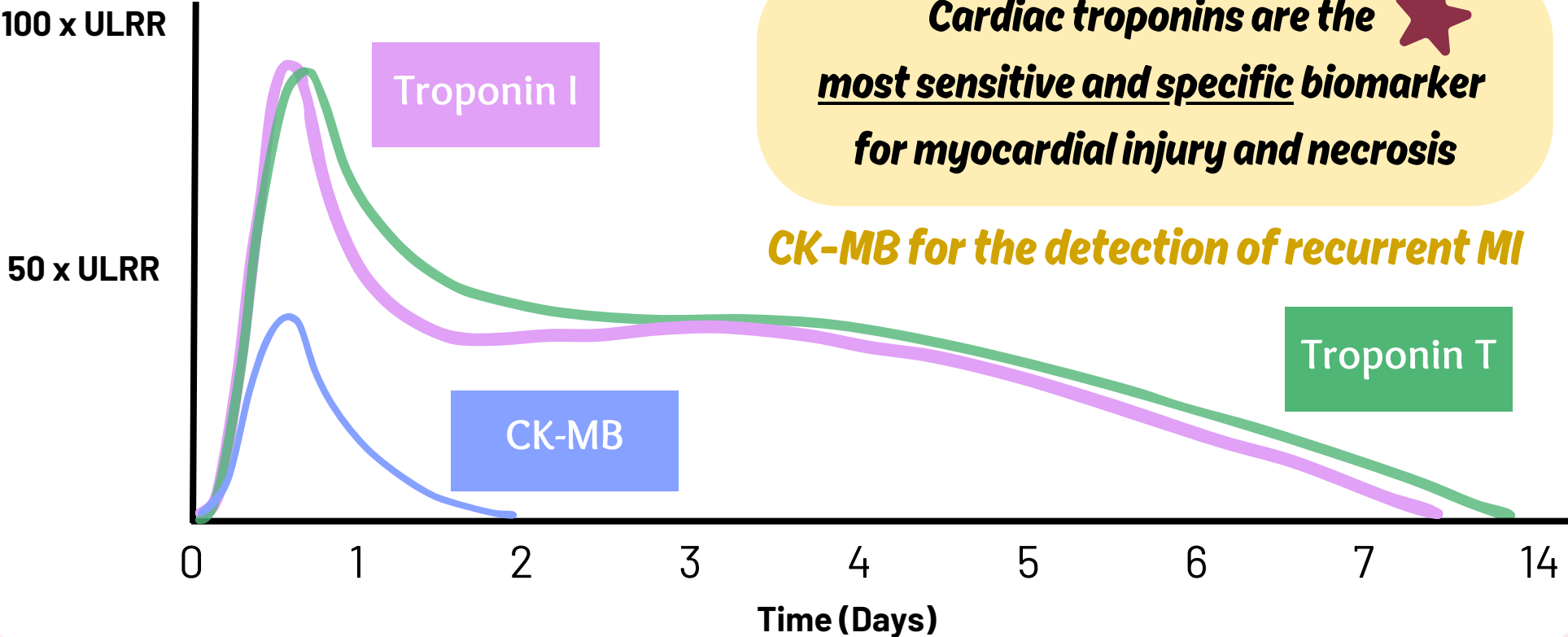
Ischaemic type chest pain
 > 30 minutes

3 Cardiac Biomarker



Rise and/or fall in
troponin (I & T) levels, at least
one value above the 99th percentile
of upper reference limit

CARDIAC BIOMARKERS



Protein	First detection (hrs after sx onset)	Duration of detection	Sensitivity	Specificity
Troponin I	3-4 hours	7-10 days	++++	++++
Troponin T	3-4 hours	7-14 days	++++	++++
CK-MB	2-3 hours	1-2 days	+++	+++

COMPLICATIONS FROM STEMI



ACUTE MYOCARDIAL INFARCTION

**Within
24 hours**

- Arrhythmias (Vfib or VTach)
- Heart failure
- Cardiogenic shock

3-7 days

- Rupture of papillary muscle
- Ventricular septal rupture
- Left ventricular free wall rupture



> 2 weeks

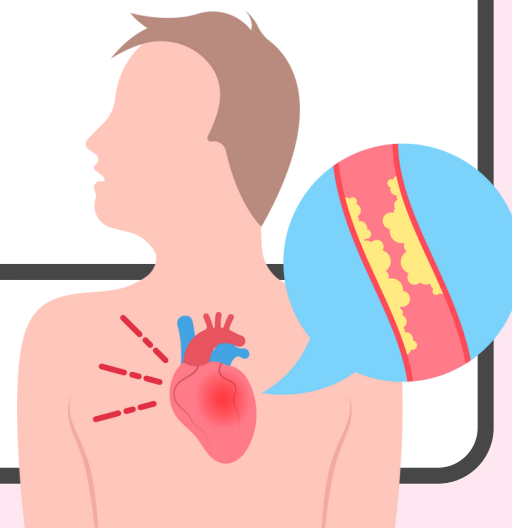
- Dressler's syndrome (pericarditis)
- Aneurysm

EARLY MANAGEMENT OF STEMI

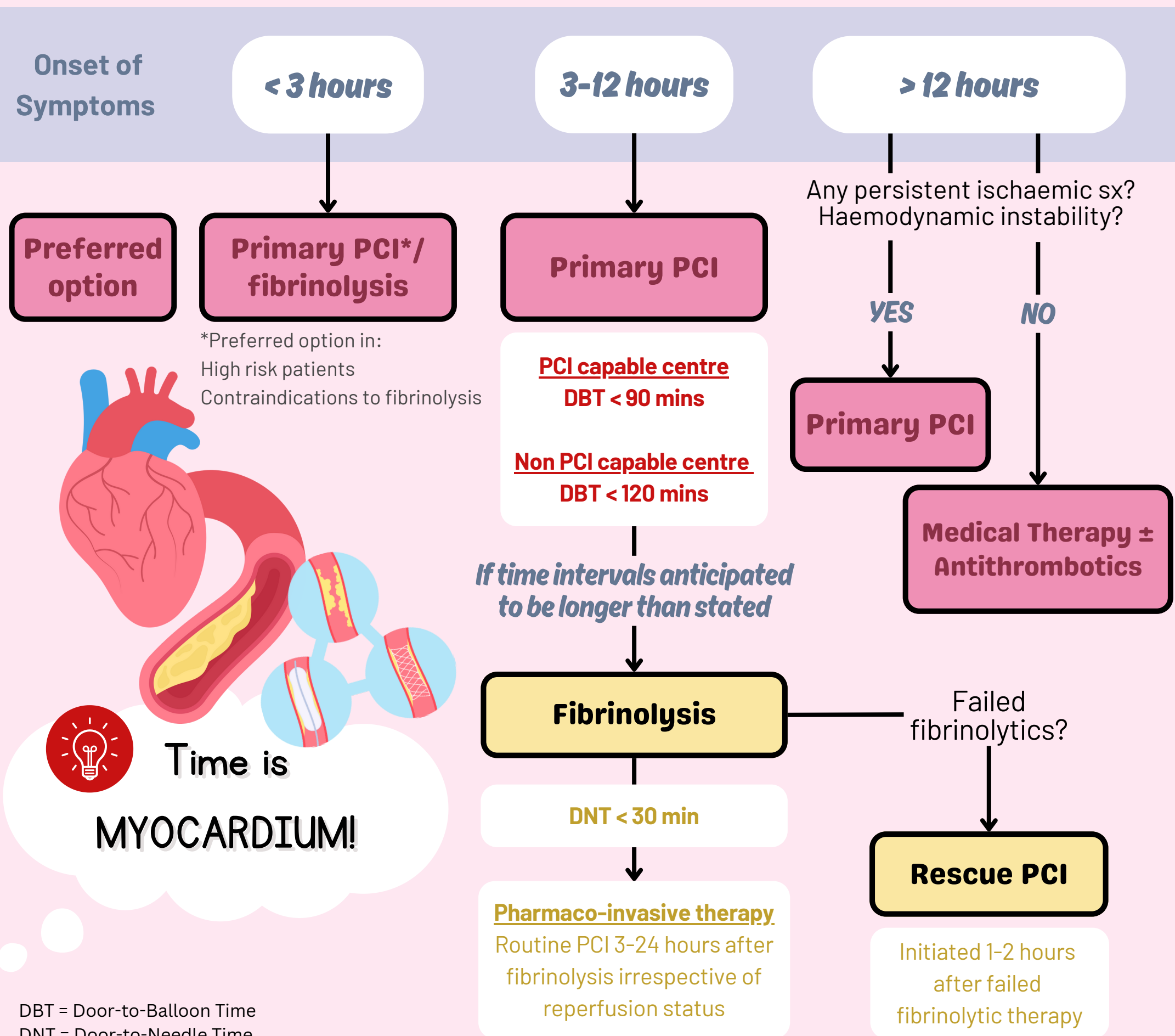
- 1. Pain relief*
- 2. Establishing early reperfusion*
- 3. Treatment of complications*



<u>M</u>orphine	For pain management Watchout for adverse events – hypotension and respi depression
<u>O</u>xygen	ONLY in patients with hypoxaemia SpO2 < 95% or PaO2 < 60 mmHg
<u>N</u>itrates	One dose of sublingual GTN by tablet or spray if chest pain persists Avoid if SBP < 90 mmHg
<u>A</u>ntiplatelet	Aspirin 300 mg + Clopidogrel 300 mg
<u>S</u>tent/ <u>S</u>treptokinase/ <u>S</u>urgery	- Stent: Primary PCI - Streptokinase: Fibrinolytic therapy - Surgery: CABG
<u>H</u>eparin	Anticoagulant



REPERFUSION STRATEGIES



TEST YOUR KNOWLEDGE!

A 69-year-old man presents to a large metropolitan emergency department with acute onset, left-sided chest pain, crushing in nature and radiating to the left jaw. He is alert, with a blood pressure of 130/90 mmHg and has an oxygen saturation of 98% breathing room air.

Which one of the following is the most appropriate next step in management?

- A. Intravenous glyceryl trinitrate infusion
- B. Administer high-flow oxygen by Hudson mask
- C. Perform an ECG
- D. Subcutaneous morphine
- E. Perform bedside point-of-care troponin



REFERENCES



1. <https://www.moh.gov.my/moh/resources/penerbitan/CPG/CPG%20STEMI%202019.pdf>
2. <https://www.cardioguide.ca/ecg-leads>
3. <https://www.saem.org/about-saem/academies-interest-groups-affiliates2/cdem/for-students/online-education/m3-curriculum/group-electrocardiogram-%28ecg%29-rhythm-recognition/stemi>
4. <https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.121.057659#F2>
5. [Clinical_Guidelines_for_the_Management_of_Acute_Coronary_Syndromes_2016.pdf \(heartfoundation.org.au\)](#)