# 10 Cardiac Emergencies Every Physician Must Not Miss

One-page summary · Dr A M Thirugnanam, MD, MSICP, FSCAI, Ph.D., Senior Interventional Cardiologist · Academy of Elite Doctors

| Emergency | Recognise | Act now | The trap |
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| **01 STEMI and equivalents** Trials: ISIS-2, STREAM, STREAM-2 | ECG within 10 min. ST elevation in 2 contiguous leads. Equivalents: posterior MI, de Winter T waves, LBBB/paced with Sgarbossa criteria, diffuse ST depression + STE in aVR. | Aspirin load + P2Y12 per pathway. Primary PCI if contact-to-wire within 120 min; otherwise lysis within 10 min of diagnosis (half-dose tenecteplase at 75+), then angiography in 2-24 h. | A normal first ECG: repeat every 15-30 min. Never wait for troponin in a clear STEMI. |
| **02 Aortic dissection** | Sudden tearing pain to the back. Pulse deficit or arm SBP difference over 20 mmHg. New AR murmur, neuro deficit, syncope. ADD-RS 2+ = high risk. | CT aortography (echo/TOE if unstable). IV beta-blocker first: HR below 60, SBP 100-120. Vasodilator only after. Type A: immediate surgery. | Lysis, heparin or DAPT can kill. Type A into the RCA can mimic inferior STEMI. |
| **03 Pulmonary embolism** Trials: PEITHO | Unexplained dyspnoea, tachycardia, pleuritic pain, syncope. Wells; PERC only if low probability; D-dimer if not high; CTPA. Shock: dilated RV on echo. | High probability: start LMWH/UFH before imaging. Shock: systemic lysis (e.g. alteplase 100 mg over 2 h). Intermediate-high: anticoagulate, monitor, rescue lysis. | Normal SpO2 and clear CXR do not exclude PE. No routine full-dose lysis if normotensive. |
| **04 Cardiac tamponade** | Hypotension, raised JVP, muffled sounds (often incomplete). Pulsus paradoxus over 10 mmHg. Low voltage, electrical alternans. Echo: RA/RV diastolic collapse. | Urgent echo-guided pericardiocentesis. Cautious fluid bolus to bridge. Post-MI, dissection or trauma: think rupture, call the surgeon. | Intubation/positive pressure can cause arrest. No diuretics or vasodilators. |
| **05 Cardiogenic shock** Trials: SHOCK, CULPRIT-SHOCK, DanGer Shock | SBP below 90 or on vasopressors, with hypoperfusion (cold, confused, oliguric, lactate above 2). Find the cause: ECG with V4R, echo. | MI shock: emergency revascularisation, culprit-only PCI. Noradrenaline first; add inotrope if low output. Early transfer to a shock centre; MCS in selected STEMI shock. | Missed RV infarct: needs fluids, nitrates crash it. Do not wait to 'stabilise' before the cath lab. |
| **06 Unstable tachyarrhythmias** Trials: REVERT | Unstable = shock, syncope, ischaemic pain, heart failure. Broad-complex = VT until proven otherwise. Irregular broad = pre-excited AF. Long QT + polymorphic = torsades. | Unstable: synchronised DC cardioversion. Stable VT: IV amiodarone 300 mg. SVT: modified Valsalva, then adenosine 6 mg, then 12 mg. Torsades: IV magnesium 2 g. | Verapamil in broad-complex tachycardia. AV-nodal blockers in pre-excited AF. |
| **07 Complete heart block** | Slow pulse with syncope, hypotension or heart failure. AV dissociation, broad escape, pauses over 3 s. Look for inferior MI, hyperkalaemia, drugs. | IV atropine per ALS protocol (e.g. 1 mg, repeat to 3 mg). No response: transcutaneous pacing or adrenaline/dopamine infusion; temporary transvenous pacing. | Missing reversible causes (K+, beta-blocker, CCB, digoxin). Atropine rarely works in infranodal block. |
| **08 Acute pulmonary oedema** | Sudden dyspnoea, orthopnoea, frothy sputum, crackles; often hypertensive ('flash'). Find the trigger: ischaemia, BP surge, arrhythmia, valve, infection. | Sit up; O2 if SpO2 below 90%. Early CPAP/NIV. IV furosemide (at least usual oral dose IV). IV nitrate if SBP above 110. ECG, troponin, echo. | Routine morphine: no benefit, possible harm. Nitrates in severe AS or hypotension. |
| **09 Hypertensive emergency** | Severe BP (often above 180/120) WITH acute organ damage: encephalopathy, ACS, pulmonary oedema, dissection, AKI, eclampsia. Fundi: haemorrhages, papilloedema. | HDU/ICU, arterial line, IV labetalol or nicardipine. Lower MAP by no more than 25% in the first hours. Faster targets: dissection, pre-eclampsia; stroke has its own. | Sublingual nifedipine or a rapid drop: stroke, MI. IV drugs for urgency without organ damage. |
| **10 Hyperkalaemia** | Peaked T, long PR, lost P, broad QRS, sine wave, bradycardia/AV block. Think CKD, ACEi/ARB/MRA, K+ supplements. | Protect: calcium gluconate 10% 30 mL IV over 5-10 min, repeat if ECG unchanged. Shift: insulin 10 U + glucose 25 g; nebulised salbutamol. Remove: stop drugs, binders, dialysis. | Waiting for the lab when the ECG shows it. Hypoglycaemia after insulin: check glucose for 6 h. |

## THREE RULES FOR THE FIRST HOUR

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| 1. Read the ECG in 10 minutes, then look with echo. | 2. Before any blood thinner, ask: could this be a dissection? | 3. Treat the cause, not the number, and call the cardiologist in the first hour. |

Educational summary for registered medical practitioners. Doses follow current international guidelines; always follow your local protocols and adapt to the individual patient. Abbreviations: ADD-RS, Aortic Dissection Detection Risk Score; MCS, mechanical circulatory support; NIV, non-invasive ventilation. Learn all 12 modules in the Practical Cardiology Certificate for Physicians: cardiologycourse.com