CARDIOGENIC SHOCK

Pump failure · perfuse the organs, fix the cause

PUMP
failure

DEFINE: sustained hypotension (SBP < 90 or need for pressors) + end-organ hypoperfusion (↑ lactate, oliguria, cool / mottled, altered mentation) from a CARDIAC cause. Stage with SCAI A-E.

FIND THE CAUSE

MI until proven otherwise

- **Acute MI (commonest) -** LV pump failure - urgent revascularisation
- **Mechanical -** papillary muscle / VSD rupture, free-wall, acute valve failure
- **RV infarct -** clear lungs + raised JVP + hypotension; needs preload
- **Other -** myocarditis, arrhythmia, tamponade, decompensated HF, drug toxicity

DIAGNOSE

- **ECG + troponin -** identify STEMI / ischaemia straight away
- **Echo -** LV / RV function, valves, effusion, mechanical complication
- **Perfusion -** serial lactate, $ScvO_2$, urine output, mentation
- **Haemodynamics -** low cardiac index with high filling pressures (± PA catheter)

TREAT

restore perfusion, fix the cause, escalate early

REVASCULARISE

Emergency PCI for the culprit artery in MI (CULPRIT-SHOCK: culprit-only first). This is the priority.

DRUGS

Norepinephrine first-line for pressure; add an inotrope (dobutamine / milrinone) for low output. Cautious fluids (a challenge if underfilled / RV).

MECHANICAL SUPPORT

Impella / VA-ECMO for refractory shock (IABP has no mortality benefit). Involve the shock team and escalate EARLY.

TAILOR TO THE CAUSE

RV INFARCT

Needs PRELOAD - fluids, avoid nitrates / diuretics; maintain AV synchrony; support the RV.

ARRHYTHMIA

Cardiovert unstable tachyarrhythmia; pace symptomatic bradycardia; correct electrolytes.

MECHANICAL

Papillary / septal / free-wall rupture, acute valve failure → urgent surgery / device.

SCAI STAGES: A at-risk · B beginning (hypotension / tachycardia, no hypoperfusion) · C classic (hypoperfusion, needs pressor / inotrope / support) · D deteriorating · E extremis (arrest / collapse). Stage guides how fast to escalate.

PEARLS & PITFALLS

- Most cardiogenic shock is acute MI - emergency revascularisation is the single biggest life-saver.
- RV infarct shock needs preload (fluids) and avoidance of nitrates - do not diurese it.
- Norepinephrine is the first-line vasopressor; dopamine causes more arrhythmia and death.
- IABP does not improve survival; escalate to Impella / VA-ECMO early via a shock team.

References: SCAI Cardiogenic Shock 2022 · ESC HF 2021 · CULPRIT-SHOCK 2017 · IABP-SHOCK II 2012.

Educational aid; verify doses against local protocol and patient factors.