

Cardiovascular Study Notes

Cardiac Arrest Management

Arrest – Neonates

Up to 4 weeks old and <6.5 kg

Management

- DRABC — brachial pulse
- CCP Backup!
- Place SpO₂ monitor on right hand
- EtCO₂
- Ensure airway patency (neutral head position)
- If baby not breathing and heart rate <100bpm, stimulate
- If HR <60bpm utilise 100% O₂ BVM
- If HR >60bpm and <100bpm utilise RA BVM
- If HR <100bpm, use BVM for 30 seconds (40-60L/min – 1 squeeze/second)
- Reassess after 30 seconds
- If HR <60bpm, use BVM with 100% O₂
- Consider PEEP
- If HR still <60bpm → 3 compressions, 1 breath
- If IV unobtainable in <1min, use IO
- Consider adrenaline
- Consider sodium chloride 0.9% (10-20ml/kg)
- Consider reversible causes
- When pulse >100bpm, STOP CPR
- Consider SFM 2L/Min
- Code 1 transport

Arrest – Paediatrics

4 weeks to 12 years

Management

- DRABC
- If patient bradycardic and hypotensive → PADS ON!
- If witnessed arrest – 3 stacked shocks
- CCP backup!
- BRAVO backup!
- Two officers – 15 compressions, 2 breaths
- If 1-8 years use 1 hand, if 9-12 years use 2 hands
- PADS ON! (if 6 years or older, adult pads) → ANTERIOR-POSTERIOR
- Utilise sniffing position
- Igel (sizes 2-3) or OPA if obtainable + BVM
- EtCO₂ → ventilate to 35-45mmHg
- AED mode – initiate rhythm analysis
- COACHED
- If shockable rhythm
- ≥6 years (25kg) use 200J adult pads
- <6 years (<25kg) use 50j paediatric pads
- Check carotid pulse
- Resume chest compressions for 2 minutes
- If refractory to 3 x DCCS (and another crew) consider
- IV access (within 1 min)
- Amiodarone (priority) → CCP only
- Adrenaline

- If rhythm unshockable, prioritise ADRENALINE
- Consider sodium chloride 0.9% (10-20ml per kg)
- If refractory to standard care, call QAS consult + consider special circumstances
- Consider reversible causes
- Transport (CODE 1) and pre-notify

Arrest – Adults

Management

- DRABC
- If witnessed arrest – 3 stacked shocks
- CCP backup!
- BRAVO backup!
- Commence CPR
- Apply defib pads – ANTERIOR-LATERAL
- Initiate rhythm analysis
- COACHED
- If obtainable, IGEL + BVM ventilation (1 breath/6 seconds = 10 breaths/min)
- EtCO₂ → ventilate to 35-45mmHg
- Deliver single shock 200j DCCS
- Check carotid pulse
- Resume chest compressions for 2 minutes
- If obtainable, IV access
- If refractory to 3 x DCCS consider
- Amiodarone (priority)
- Adrenaline
- If patient 30-35 degrees, double adrenaline time
- Alternate pad position
- If refractory to 5 x DCCS consider
- Amiodarone (2nd and final dose)
- If unshockable rhythm, continue CPR + adrenaline
- If STEMI identified, contact QAS consult line

- Consider reversible causes
- Prioritise IV/IO access
- Cannulate L ACF with 18G first for cardiac catheterisation
- If ROSC – 12 lead ECG
- Transport (CODE 1) and pre-notify

Acute Coronary Syndrome / Myocardial Infarction

Acute Myocardial Infarction

Assessment

- DRABC
- OPQRST
- GCS + PEARL
- 12 Lead (within 10 minutes)
- CAPERSSS + AUSCULTATE

Treatment

- GTN (only if in pain)
- Aspirin
- Defib pads + CCP backup code 1
- Oxygen
- Antiemetic
- Fentanyl (preferred in ACS) if in pain

STEMI

- If inferior STEMI → V4R
- If posterior STEMI → V7-V9
- Request CODE 1 CCP backup
- pPCI referral (within 60 minutes)
- Heparin
- Ticagrelor OR clopidogrel

Thrombolysis

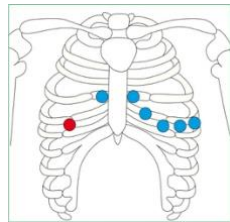
- Thrombolysis (more than 60 minutes)
- Tenecteplase
- Clopidogrel
- Enoxaparin
- Transport (CODE 1) and pre-notify

Acute Coronary Syndrome

Medical emergency caused by a sudden reduced blood flow to the heart. Conditions include myocardial infarctions and unstable angina.

Heart Attack VS Cardiac Arrest

A heart attack (STEMI) is a circulation problem where blood flow to the heart is blocked. A cardiac arrest is an electrical problem where the heart activity suddenly stops.



STEMI

Severe type of heart attack caused by a complete blockage of a coronary artery. Often full thickness “transmural”.

In a STEMI, the damage is mainly to the myocardial tissue, not the conduction system. Ventricular depolarisation still travels quickly through the intact His–Purkinje fibres, so the QRS remains narrow (<0.12 s). The main ECG change is ST elevation due to abnormal repolarisation, not delayed depolarisation.

Non-ST Elevation Myocardial Infarction

Type of heart attack caused by a partial blockage of a coronary artery. It is diagnosed by a blood test but presents with ACS symptoms and possible ST depression.

Inferior STEMI

- Blockage of the right coronary artery or left circumflex artery. Usually presents with hypotension so GTN is contraindicated.
- Lead V4R is used to diagnose the position of the block.