12. Chest Pain (Acute Coronary Syndrome) Algorithm

This clinical pathway is intended to supplement, rather than substitute for, professional judgment and may be changed depending upon a patient's individual needs. Failure to comply with this pathway does not represent a breach of the standard of care.

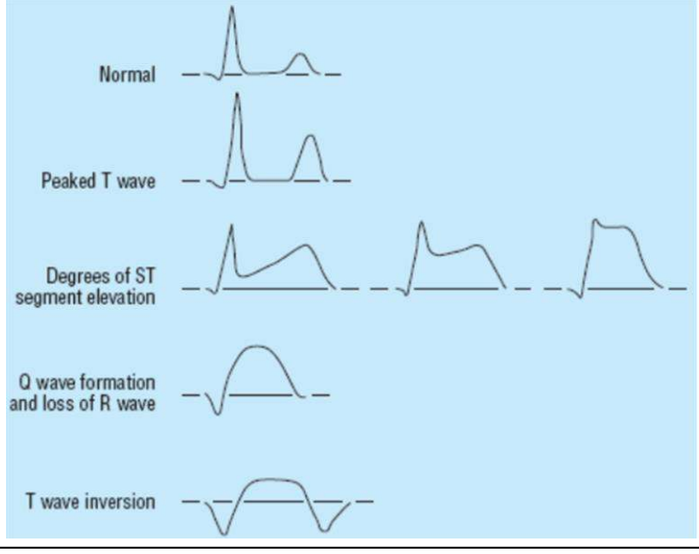
Chest Discomfort Suggestive of Ischemia
(includes **anginal equivalents** (atypical symptoms) like exertional pain in the ear, jaw, neck, shoulder, arm, back, or epigastric area; exertional dyspnoea; nausea and vomiting; diaphoresis; and fatigue.

- Monitor, support ABCs in the **Resuscitation Room (ER)**. Be prepared to provide CPR
- **Obtain/review 12-lead ECG**
  - Do a **V4R** if ST elevation in lead V1 with simultaneous ST depression in V2 -? **Right sided STEMI**
  - Do **V7 - V9** if ST depressions ≥ 1 mm with upright T-waves in ≥ 2 contiguous anterior precordial leads (V1 to V3) -? **Posterior STEMI**
  - If there is **ST elevation in aVR ≥ 1mm** and **aVR ≥ V1** with widespread horizontal ST depression, most prominent in leads I, II and V4-6 – **consult a Cardiologist/Physician** immediately for PCI (**Left main coronary artery occlusion/Proximal LAD lesion/ Severe sub endocardial ischaemia, nonlocalized**)
  - Sinus Tachycardia, T wave inversion in III & V1, V3 or (S1, Q3, T3) pattern – Consider a **PE – see 13. Pulmonary Embolus Algorithm**
- Check vital signs (BP, PR, RR, SPO_2, T°C, **RBS**)
- Start Oxygen **IF** SPO_2 < 90% or if patient is dyspnoeic. Maintain SPO_2 ≥ 90%
- Establish IV access and send blood samples for **UEC**
- Perform brief, targeted history, physical exam – **Indicate time of symptoms onset**

- **Aspirin 300mg** to chew (if not given, Not Allergic, No active Upper GI Bleeding or Retinal bleeding, not a haemophiliac, No severe untreated BPs).
- For pain, **DO NOT GIVE NSAIDS** (e.g. ibuprofen, diclofenac) as this will increase the patient's risk of death. **Give morphine 2-4mg**. **DO NOT** give morphine if:
  - SBP < 90mmHg (or 30 mm Hg below the patient's known baseline),
  - Heart rate > 100 bpm, or < 50 bpm.
  - Right ventricular infarction (right ventricular infarction causes a preload dependent state)
  - Use of sildenafil or vardenafil within the previous 24 hours or tadalafil within the previous 48 hours.
- For persistent pain, **consult a Cardiologist/Physician**

- **Consider other life threatening causes of chest pain** (**pulmonary embolus, cardiac tamponade, aortic dissection, tension pneumothorax, oesophageal rupture**)
- **Review initial 12-lead ECG**

Sequence of ECG changes seen during evolution of myocardial infarction



ST Elevation	MI Description	Coronaries affected
V2 – V5	Anterior	LAD
V1 – V2	Septal	Septal LAD
II, III, aVF	Inferior	RCx (20%) or RCA (80%)
V1 – V4	Anterolateral	
V3 – V6, I, aVL	Anteroseptal	
I, aVL, V5, V6	Lateral	LCx
V7, V8, V9	Posterior	RCx
V1, V4R	RV	RCA

ST elevation
ST-Elevation MI (STEMI)

ST depression > 0.5mm or dynamic T-wave inversion ≥ 2mm; strongly suspicious for ischemia
High-Risk Unstable Angina/Non-ST-Elevation MI (UA/NSTEMI)

Normal or Non-diagnostic changes in ST segment or T wave
Intermediate/Low Risk UA

Consult a Cardiologist/Physician
Consider immediate transfer to an appropriate facility