B-QuiCK: Acute coronary syndrome (ACS)

Acute coronary syndrome (ACS) encompasses ST-segment-elevation myocardial infarction (STEMI) and non-ST-segment-elevation acute coronary syndrome (NSTEACS). NSTEACS includes non-ST-segment-elevation myocardial infarction (NSTEMI) and unstable angina.

Investigation

Patient presents with chest pain that may be due to a cardiac cause:

- **Take a symptom history,** e.g. pain characteristics: nature, onset, duration, location, radiation, precipitating and relieving factors
- **Perform physical examination,** e.g. pulse, heart rate and rhythm, blood pressure, oxygen saturation, chest auscultation
- **Perform a 12-lead ECG as soon as possible**

Have a high clinical suspicion for ACS in patients with:

- Chest pain/discomfort and/or pain in upper arms, back or jaw, lasting longer than 15 minutes
- Chest pain or discomfort in combination with nausea, vomiting, sweating or dyspnoea
- New-onset chest pain, or a sudden deterioration in previously stable angina, with chest pain episodes lasting longer than 15 minutes, recurring frequently and following little or no exertion

Patients should be urgently referred for acute cardiology assessment (check local HealthPathways for the referral protocol in your area) if:

- They have recent (i.e. past few days) or ongoing chest discomfort with any of the following features:
  - Occurs at rest or on minimal exertion
  - Lasting longer than 15 minutes and/or recurrent pain within one hour
  - Associated symptoms, e.g. dyspnoea, nausea, vomiting, sweating, dizziness
  - Rapidly progressing despite standard treatment
  - Haemodynamic compromise, e.g. hypotension, tachycardia
- Abnormalities consistent with ACS are detected on ECG:
  - ST-segment elevation or depression
  - Pathological Q waves
  - T wave changes, especially biphasic T waves or prominent negative T waves (Wellens' sign)
  - New bundle branch block

Referral is also recommended if the ECG is inconclusive/normal but suspicion of a cardiac cause remains

Request troponin testing only if time allows, e.g. delayed hospital transfer, opportunistically if inserting an IV line for pain relief. If the situation is less urgent, e.g. low suspicion for ACS, symptom-free for over 24 hours, troponin testing may also be considered.

Low suspicion for ACS. Some HealthPathways recommend calculating EDACS to assess the likelihood of ACS in patients with lower suspicion (e.g. no significant findings on ECG). The score is calculated based on age, sex and the presence of certain features, and in conjunction with clinical judgement, helps to determine whether the patient can be managed in the community. Check local HealthPathways for further information.

Immediate management

While awaiting ambulance transfer:

- Monitor and record blood pressure, heart rate and oxygen saturation
- Offer **pain relief** as soon as possible
  - **Sublingual GTN** – administer one to two sprays, repeat in five minutes, and then repeat again in another five minutes if pain persists. Monitor for hypotension.
    - Use with caution or avoid if haemodynamic instability, phosphodiesterase-type 5 inhibitor (e.g. sildenafil) use within the last 24 – 48 hours, inferior/right ventricular infarction on ECG (see NZF for a full list of cautions and contraindications)
  - **IV morphine** (5 – 10 mg in incremental doses) if still experiencing pain despite GTN
- Give **aspirin 300 mg** (dissolved or chewed) as soon as possible, even if taking regular low dose aspirin
- **Dual antiplatelet treatment**: aspirin plus ticagrelor or clopidogrel - not usually administered in a primary care setting (and the medicines are not routinely available), unless there are significant delays in transporting to hospital (discuss with the accepting clinician)
- Only administer **oxygen** if the patient is hypoxic (oxygen saturation < 90 – 93%) or has signs of heart failure or cardiogenic shock. Do not exceed an oxygen saturation > 96%.
- Document all medicines given, including doses and time of administration and transfer this information with the patient

If the patient has ST-segment elevation and will not reach a percutaneous coronary intervention (PCI)-capable centre within 90 minutes of presentation, for a PCI to be performed in under 120 minutes, contact the on-call cardiologist or emergency department consultant who may suggest **fibrinolysis** in primary care if the required medicines are available.