CLINICAL PRACTICE GUIDELINE

Acute Coronary Syndrome (NSTEACS)

SCOPE (Area):Emergency Department
SCOPE (Staff): Emergency Staff

PURPOSE and SCOPE

This guideline refers to the assessment and management of patients presenting to the Royal Melbourne Hospital (RMH) Emergency Department (ED) with a suspected Non ST-Elevation Acute Coronary Syndrome (NSTEACS).

DEFINITIONS

Acute coronary syndromes (ACS) include "a broad spectrum of clinical presentations, spanning ST-segment-elevation myocardial infarction (STEMI), through to an accelerated pattern of angina without evidence of myonecrosis" 1

CONTRAINDICATIONS

- Patient with chest pain and ECG criteria for ST-Elevation Myocardial Infarction (STEMI). These patients require an urgent reperfusion strategy implemented. **Refer to STEMI guideline for management of these patients.**
- Patients who present following VF arrest should be referred to cardiology on arrival for consideration of urgent reperfusion, regardless of ECG findings.

ISSUES TO CONSIDER

- Whilst chest pain is the commonest presentation of coronary insufficiency patients may present with a wide variety of symptoms and signs.
- The initial ECG has a low sensitivity for ACS; a normal ECG does not rule out ACS.
- A normal troponin level at 6-8 hours after the last episode of chest pain has a high sensitivity for detecting acute myocardial infarction, however normal levels do not exclude ACS (grade A recommendation).12

PROCEDURE

- Patients presenting to RMH ED with a high suspicion of ACS are triaged to an area capable of cardiac monitoring and resuscitation
- Apply high flow oxygen if hypoxia (02 sats<93%) or shocked and obtain iv access
- Give Aspirin 300mg orally unless already taken or contraindicated
- Titrate sub-lingual Glyceryl Trinitrate (GTN) and intravenous morphine as required to treat ongoing chest pain
- An ECG should be completed **within 5 minutes of arrival** and assessed by an ED Medical Officer (MO)

ED ASSESSMENT

Assess the likelihood of NSTEACS as the cause of the patient's presentation; evaluate presence and severity of complications (e.g arrhythmias, cardiac failure) or possible alternative diagnoses. If NSTEACS remains the main differential diagnosis, proceed with risk stratification.

Initial investigations:

Troponin

- FBE
- UEC (treat hypo and hyperkalemia)
- Glucose
- CXR
- Continuous ECG- monitoring heart rhythm and ST segment
- Serial ECGs:
  - Every 10-15 minutes during ongoing symptoms
  - Immediately if symptoms change
  - At 6 & 12 hrs post arrival in ED for asymptomatic patients

High-risk features

Presentation with clinical features consistent with acute coronary syndromes (ACS) and any of the following high-risk features:

- Repetitive or prolonged (> 10 minutes) ongoing chest pain or discomfort;
- Elevated level of troponin
- Persistent or dynamic electrocardiographic changes of ST-segment depression ≥ 0.5 mm or new T-wave inversion ≥ 2 mm;
- Transient ST-segment elevation (≥ 0.5 mm) in more than two contiguous leads;
- Haemodynamic compromise — systolic blood pressure < 90 mmHg, cool peripheries, diaphoresis, Killip Class > I, and/or new-onset mitral regurgitation;
- Sustained ventricular tachycardia;
- Syncope;
- Left ventricular systolic dysfunction (left ventricular ejection fraction < 0.40);
- Prior percutaneous coronary intervention within 6 months or prior coronary artery bypass surgery;
- Presence of known diabetes (with typical symptoms of ACS); or
- Chronic kidney disease (estimated glomerular filtration rate < 60 mL/minute) (with typical symptoms of ACS).

Intermediate-risk features

Presentation with clinical features consistent with ACS and any of the following intermediate risk features AND NOT meeting the criteria for high-risk ACS:

- Chest pain or discomfort within the past 48 hours that occurred at rest, or was repetitive or prolonged (but currently resolved);
- Age > 65 years;
- Known coronary heart disease — prior myocardial infarction with left ventricular ejection fraction ≥ 0.40, or known coronary lesion more than 50% stenosed;
- No high-risk changes on electrocardiography (see above);
- Two or more of the following risk factors: known hypertension, family history, active smoking or hyperlipidaemia;
- Presence of known diabetes (with atypical symptoms of ACS);
- Chronic kidney disease (estimated glomerular filtration rate < 60 mL/minute) (with atypical symptoms of ACS); or
- Prior aspirin use.

Low-risk features

Presentation with clinical features consistent with an acute coronary syndrome without intermediate-risk or high-risk features. This includes onset of anginal symptoms within the last month, or worsening in severity or frequency of angina, or lowering of anginal threshold.

ED MANAGEMENT

HIGH RISK NSTEACS

- Ongoing continuous ECG monitoring, supplemental oxygen with chest pain
- Titrate intravenous GTN (grade D recommendation) unless BP<100 mmHg systolic
- Refer to Cardiology for admission. Decisions to treat with clopidogrel, unfractionated heparin or subcutaneous enoxaparin, GpIIb/IIIa inhibitors, g β-blockers and glycaemic control should be made in conjunction with Cardiology.

INTERMEDIATE RISK NSTEACS

- Ongoing continuous ECG, supplemental oxygen with shock or 02sats<93% (recurrent or prolonged >10min ongoing chest pain or discomfort in ED re-categorises patient as high risk NSTEACS and precludes admission to Chest Pain Evaluation Unit)
- Refer to RMH Cardiology team:
- Ongoing monitoring, assessment, serial ECGs, troponin assays (second troponin at 6 hours after baseline troponin taken on arrival in ED or 8/24 after onset of last symptoms of ACS, whichever is the longest timeframe) and provocative testing if these are normal. These may take place within the RMH Chest Pain Evaluation Unit (CPEU) if the patient meets eligibility criteria. Refer to **Short Stay Unit Chest Pain Clinical Pathway available on CKB** for Admission and Exclusion criteria.
- Decision to admit patients to CPEU will be made in conjunction between senior cardiology and ED MO.
- Patients ineligible for CPEU will require admission as a cardiology inpatient.
- If at any time patient exhibits 1 or more high risk features the patient should be re-classified as high risk NSTEACS and commenced on the high risk NSTEACS management plan.

LOW RISK PATIENTS

- Ongoing continuous ECG monitoring (chest pain or discomfort that was prolonged >10minutes, repetitive or occurred at rest re-categorises patient as intermediate risk NSTEACS: Ongoing or recurrent chest pain or discomfort in ED re-categorises patient as high risk NSTEACS).
- Repeat assessment, ECG and troponin assay at 6 hours after baseline troponin taken on arrival in ED or 8/24 after onset of last symptoms of ACS, whichever is the longest timeframe)
- This may take place within the RMH SSU, utilising a monitored bed, if the patient otherwise meets the ED SSU Low Risk Chest Pain Pathway criteria.(Pathway available on CKB)
- Decision to admit patients to SSU will be made by ED SMS or Registrar
- Patients are to be admitted to SSU under ED
- If at any time patient exhibits 1 or more intermediate or high risk features the patient should be re-classified and commenced on intermediate or high risk NSTEACS plan.
- If repeat ECG and troponin assay normal and there are no further symptoms of ACS, these patients may be discharged by ED on upgraded medical therapy with risk factor education and modification, and GP f/u for community provocative testing (aim within 72/24, must occur within 2/52) and cardiac outpatient referral as appropriate. All follow up instructions including recommendations to represent should be written and time and action specific.
- These patients will not require Cardiology referral or review unless ED SMS or registrar considers RMH provocative testing or follow up indicated, or unless there are any other ED SMS or registrar concerns that require Cardiology input.
- Alternative causes of chest pain should be considered and investigated as appropriate.

DISCHARGE CONSIDERATIONS FOR ALL PATIENTS WITH PROVEN OR SUSPECTED ACS

- Optimisation of Medical management refer to LMO for:
  - Medications as appropriate; antiplatelet agent(s), β-blockers, angiotensin converting enzyme inhibitor, statin and other therapies
  - Lifestyle advice regarding risk factor modification
  - Ongoing prevention and cardiac rehabilitation programs
  - Early glucose tolerance testing
  - Fish oil (dietary increase +/- supplements) (grade B recommendation)
  - Psychosocial factors
- Written chest pain action plan
  - rest and self-administration of short-acting nitrates;
  - self-administration of aspirin unless contraindicated (most patients should already be taking aspirin);
  - calling an ambulance (dialing 000) if chest pain or discomfort is not completely relieved within 10 minutes; and
  - individualised clinician notification and action plan for those living in areas where an ambulance is not readily available.

RELATED DOCUMENTS

SSU Low Risk ED Chest Pain Clinical Pathway
Chest Pain Evaluation Unit Pathway
ED NSTEACS Flow Chart
CPEU NSTEACS Flow Chart
Management of ST-Elevation Myocardial Infarct clinical guideline
Code AMI flowsheet

REFERENCES

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