

CLINICAL PRACTICE GUIDELINES

*Management of
Unstable Angina and
Non ST Elevation
Myocardial Infarction*

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1. Introduction

1.1 Classification of facilities in the health sector

Minimal facility centre

- Trained medical officer - 24 hour cover
- Trained nurse - 24 hour cover
- ECG
- CXR
- Monitoring facilities
- Availability of the following drugs
 - Streptokinase
 - Low molecular weight Heparin

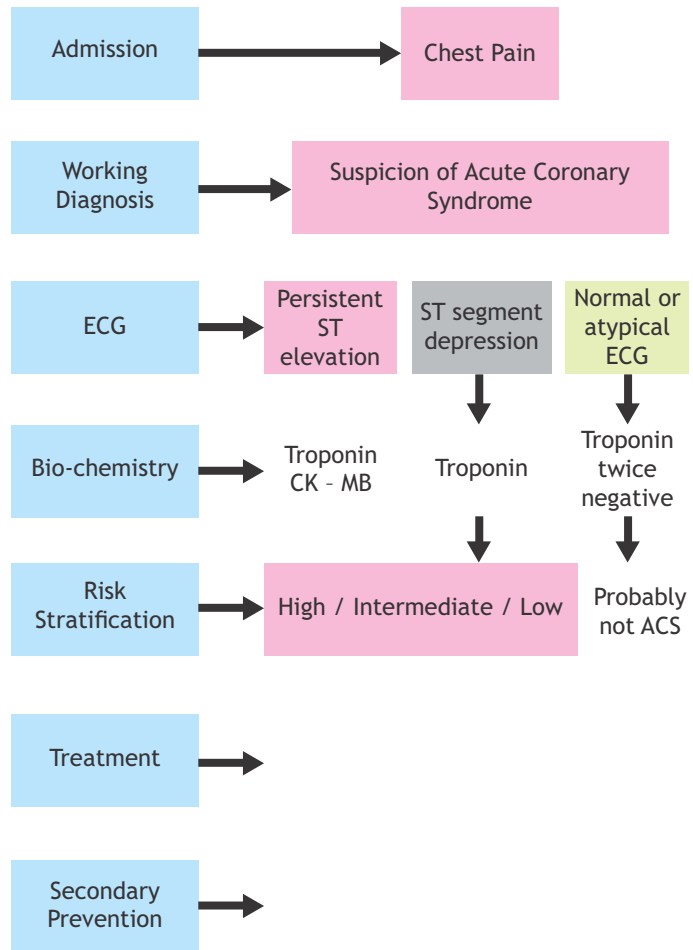
Intermediate facility centre

- All of the above
- ICU (Intensive Care Unit) with temporary pacing facilities
- Laboratory facilities
 - Cardiac markers
 - Basic haematological tests
- 2D Echocardiographic facilities

Full facility centre

- All of the above
- Dedicated fully equipped CCU (Coronary Care Unit)
 - IABP (Intra Aortic Balloon Pump)
 - Ventilator support
 - Availability of GPIIb/IIIa receptor blockers
- 24 hour functioning cardiac catheterization laboratory with interventionalist staff

2. Initial assessment of patients admitted with a suspicion of Acute Coronary Syndrome (ACS)



3. Risk stratification

High risk

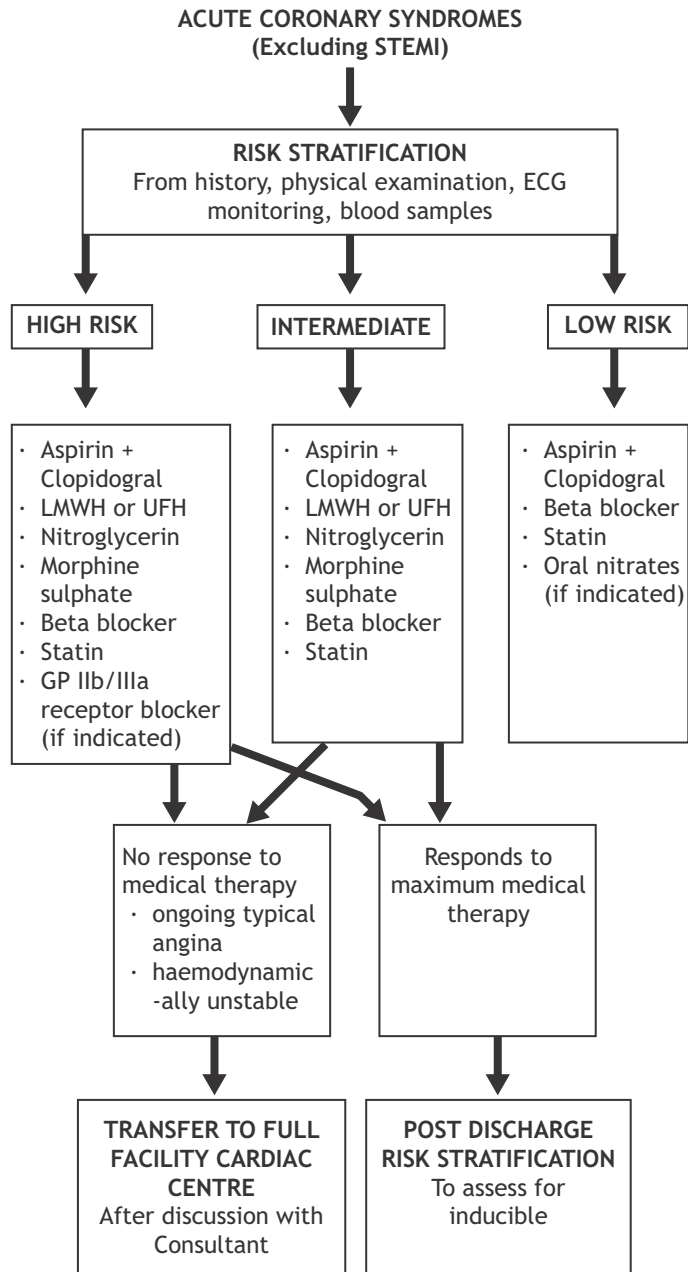
- Prolonged (>20min) or recurrent chest pain not responding to medical management
- Haemodynamic instability (evidence of heart failure or hypotension)
- Life threatening arrhythmias (VT or VF)
- 2mm or more ST segment depression in multiple (≥ 5) ECG leads
- Elevated troponin levels

Intermediate risk

- Prolonged (>20min) or recurrent chest pain responding to medical management
- Early post infarction angina
- 2mm or more ST segment depression in < 5 leads

Low risk

- No recurrence of chest pain after admission
- No elevation of biochemical cardiac markers
- No ST segment depression
- Normal ECG



4. Acute coronary syndromes

4.1 Definition

Acute Coronary Syndromes (ACS) consists of a spectrum of disease which includes unstable angina (UA), non ST elevation myocardial infarction (NSTEMI) and ST elevation myocardial infarction (STEMI)

This guideline will be dealing with the management of unstable angina and non ST elevation myocardial infarction

4.2 Diagnosis

History

It is important to obtain a careful history and a precise description of the symptoms

Patients may present with exacerbation of stable angina or severe bouts of recurrent chest pain of recent onset, Atypical presentations include sudden onset of shortness of breath, diaphoresis or epigastric discomfort

Physical examination

In most patients abnormal physical signs may not be present. Physical examination with particular attention to the possible presence of heart failure, valvular heart disease (aortic stenosis) and pulmonary disease is required.

Investigations

- A 12 lead electrocardiogram (ECG) should be recorded as early as possible. This ECG should be assessed promptly by an appropriately qualified person.

The following ECG findings may be seen:

- ST segment elevation signifying complete occlusion of a major coronary artery
- Transient or persistent ST segment depression
- Non specific ECG changes (eg. bundle branch block and T wave inversion)
- Normal ECG

Comparison with a previous ECG if available is very valuable, particularly in patients with pre-existing cardiac pathology.

It should be noted that the initial ECG has a low sensitivity for ACS and that a normal ECG does not rule out ACS.

- Repeated ECG's may be necessary before an ACS is ruled out.

Laboratory tests

Serum Troponin I or T levels - if negative, repeat 8 hours after last episode of pain

- (Blood could also be sent for full blood count, serum creatinine and electrolytes, glucose and lipid levels)

Cardiac enzymes (CK and CKMB)

4.3 Risk stratification

- Patients should be categorized into high, intermediate and low risk groups and managed accordingly. (vide chart No: 4)

High risk patients are those with prolonged (>20min) or recurrent chest pain often refractory to medical management. They may be haemodynamically unstable with evidence of heart failure, hypotension or develop life threatening arrhythmias (eg. ventricular tachycardia/fibrillation). The cardiac troponin levels are usually elevated. The ECG frequently shows >2mm ST depression in multiple leads.

Intermediate risk patient would have a few of the features mentioned above.

Low risk patients usually do not have a recurrence of chest pain after admission. There is no elevation of biochemical cardiac markers of any ST segment changes. The ECG is likely to be normal.

4.4 Management

- Any patient with a typical history suggestive of ACS should be admitted to hospital.
- Aspirin 300mg and a loading dose of Clopidogrel (300mg) should be given on admission unless contraindicated.
- Oxygen, oral or intravenous nitrates and intravenous morphine should be given as required. Continuous ECG monitoring is desirable.
- All patients with suspected ACS should be on long term Aspirin 75 to 150mg daily and continued indefinitely. Patients should also be on Clopidogrel 75mg daily for a minimum of 6 to 9 months.
- Patients should also be on unfractionated heparin or low molecular weight heparin (LMWH) for a period of 3 to 5 days.
- The dosage of unfractionated heparin requires monitoring according to APTT which should be maintained at twice the control value.
- Low molecular weight heparin (i.e. Enoxaparin) 1mg/kg b.d. is given subcutaneously and does not require monitoring. Elderly patients (over 75 years) should be given a lower dose due to the risk of bleeding (i.e. 0.75mg/kg b.d.).

- High risk patients and those in whom a percutaneous coronary intervention (PCI) is planned may be considered for glycoprotein IIb/IIIa (GPIIb/IIIa) receptor blockers.

Due to the risk of bleeding, all patients on multiple anti thrombotic drugs should be closely monitored. Fibrinolytics are contraindicated in patients without persistent ST elevation.

- Patients with ongoing chest pain, hypertension or heart failure should be given intravenous Glyceryl trinitrate commencing 5 - 10µg/mt and titrated upwards according to the response.

- Unless contraindicated, all patients with unstable angina or NONSTEMI should be given a beta blocker (eg. atenolol, metoprolol) and continued long term. Non dihydropyridine calcium antagonists may be given to those who have contraindications to or who are known not to tolerate a beta blocker.

All patients should also be given a statin (eg. atorvastatin 20mg or simvastatin 40mg) irrespective of the lipid level.

All high risk patients and those not responding to the above regime should be referred to a full facility centre with a view to coronary angiography.

Post discharge risk stratification which includes a treadmill exercise test should be done.

4.5 Long term management

- Aggressive risk factor modification is warranted in all patients.
- Cessation of smoking is mandatory.
- Blood pressure control should be optimized.
- Serum lipid levels should be monitored at regular intervals so that target levels are maintained.
- Control of diabetes should be optimized.
- ACE inhibitors should be considered in high risk patients

Since coronary atherosclerosis and its complications are multifactorial, much attention should be paid to treat all modifiable risk factors in an effort to reduce recurrence of cardiac events