MANAGEMENT OF ACUTE CORONARY SYNDROME

Definition:

ACS consists of STEMI, NSTEMI and unstable angina. STEMI and NSTEMI are associated with rise in cardiac biomarker, whereas unstable angina is the presence of ischaemic symptoms without elevation in cardiac biomarker with/ without ECG changes. In reality, UA and NSTEMI are often indistinguishable in the initial presentation

Myocardial infarction is defined as the death of cardiac muscle cell that is caused by ischaemia

Diagnosis of MI:

- Rise in cardiac biomarker with at least one of the following:
    - Symptoms of ischaemia
    - Pathological Q waves in ECG
    - New ST segment changes or new LBBB
    - Regional wall motion abnormality or image evidence of new loss of viable myocardium

Initial management:

- Resususcitation and stabilization
- Identify STEMI: prompt revascularizton by primary PCI or fibrinolysis
- Monitor for complications:
    - APO
    - Cardiogenic shock
    - Arrhythmia
- Patients who are referred to the ICU invariably have complications as a direct result of ACS or other conditions warranting ICU care (eg. concurrent sepsis, other organ dysfunction, peri-operative ACS requiring a period of observation)
- Pharmacological agents (discuss below). For details, please refer to AHA guideline:

http://my.americanheart.org/professional/StatementsGuidelines/ByTopic/TopicsA-C/ACCAHA-Joint-Guidelines_UCM_321694_Article.jsp

General measures:

- Oxygen
- Analgesia
- Bed rest, avoid valsalva manoeuvres, consider laxative
- elect ECG monitoring based on infarct location and rhythm

Investigations and Monitoring

- 12-lead ECG on presentation. Non-diagnostic ECG should be repeated at 15-30min interval followed by Q6h for the first 24 hour
- 2 sets of cardiac Troponin T. First set should be done on presentation and if normal, do 2nd set at > 6 hours apart
- CPK daily for 3 days
- Other routine bloods including clotting profile
- CXR
- Intra-arterial pressure monitoring
- CVP if haemodynamic unstable or need inotropic agents or vasopressors

Drug therapy:

- Anti-ischaemic therapy:
  - Nitrates: sublingual, intravenous
    - GTN infusion is commonly used vasodilator in ICU, to reduce preload especially in APO
  - Statin: some data suggested intense initial therapy rather than gradual dose titration

  - Antithrombotic therapy:
    - Anti-platelet: aspirin, clopidogrel
    - Anticoagulation: LMWH

STEMI:

- Revascularization:
- Please discuss with senior about the local protocol

- Primary PCI:

- Class I indications: symptoms onset < 12 hours, patients who are contraindicated for fibrinolytic therapy, patients with cardiogenic shock or acute severe HF irrespective of time delay
- Class IIa indication: symptoms onset 12-24 hours

- Fibrinolytic:
- If PCI is not readily available, it is reasonable to give fibrinolytic if the onset of symptom is within 12 hours
- Important absolute contra-indications:
- Any prior ICH, known cerebral vascular lesion, known malignant intracranial neoplasm, recent ischaemic stroke, suspected aortic dissection, recent head injury
- Relative contra-indications:
- Significant HT (SBP>180mmHg or DBP>110mmHg), recent major surgery
- Choice of fibrinolytic: better to use fibrin specific agent. Eg tenecteplase, reteplase, alteplase. Streptokinase is out of the favour due to its antigenicity and relative low successful rate

- Management of patient with primary PCI/ fibrinolysis
- Repeat ECG 60-90 mins after revascularization
- Lack of resolution of ST segment elevation by at least 50% in 60mins and on-going ischaemic symptoms are suggestive of failure in revasucularization. Need to consider rescue PCI
- Look for bleeding: from invasive line, spontaneous bleeding
- Monitor reperfusion arrhythmias