Whittington Health NHS

Acute Coronary Syndrome (ACS)

Version:	7.0
Ratified by:	(Original) Clinical Guidelines Committee
Date ratified:	Updated July 2013, minor update January 2016, no change required October 2019
Name of originator/author:	Dr Thomas Kaier, Dr David Brull
Name of responsible committee/individual:	As above
Date re-issued:	October 2019
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Target audience:	All clinicians, specifically ED and Cardiology staff.

A Whittington Hospital Clinical Management Guideline

Acute Coronary Syndrome describes a range of clinical scenarios where the patient presents with prolonged anginal chest pain at rest or on mild exertion with or without either ECG changes or myocardial injury (troponin rise).
Acute ST elevation myocardial infarction (STEMI) is a subset of ACS and we have incorporated the latest guidance into this document.

Summary of changes

- 3-hour Troponin “MI rule-out” (European Society of Cardiology guidelines)
- Ticagrelor (in place of Clopidogrel) for high-risk Non-ST Elevation ACS and for ST Elevation ACS
- ACS with high-risk clinical features and recurrent chest pain to be referred urgently for angiography within 24 hours of presentation.
- Involve Cardiology early in the management of high risk patients

Clinical Suspicion of ACS

History, examination, serial ECGs, blood tests (FBC, U+Es, Troponin T, glucose, lipids) & GRACE score.

The decision to admit is clinical (and does not depend on Troponin alone).

Refer all ACS patients for Cardiology review.

CHEST PAIN

Non-ischaemic Chest Pain
Explore other causes e.g. PE, aortic dissection, pneumonia, myo-/ pericarditis, pneumothorax

ST Elevation / new LBBB
Persistent ST elevation ≥1mm in ≥2 limb leads or ≥2mm in ≥2 chest leads

LAS Critical Transfer To Heart Hospital for Primary PCI
Tel: 0207 902 2511

Emergency Transfer to Heart Hospital
Give Aspirin 300mg and ***Ticagrelor 180mg**
Call 020 3456 7898 to inform Heart Hospital Cardiology SpR when patient en route

Urgently discuss patients who are unfit/unstable for immediate transfer.
Haemodynamic instability / Stroke with dense hemiplegia / Acute confusion / Major co-morbidity

If ITU bed required, but unavailable at The Heart Hospital, Consultant to Consultant referral may facilitate transfer. If no ITU bed consider Royal Free / London Chest or Harefield Hospitals as alternative PCI centres.

IF transfer for PCI unavailable thrombolyse (unless contraindicated) within 30 minutes of diagnosis

Non-ST Elevation ACS (NSTEACS)
Transient ST Elevation, ST depression, T-wave inversion, normal ECG

Stable Angina
i.e. no prolonged, resting or nocturnal angina

Rapid Access Chest Pain Clinic Referral

Take single Troponin if pain >6 hours ago

Repeat Troponin at 3 hours if pain onset <6 hours ago and initial Troponin <14ng/l

If Troponin <14ng/l and 6-month GRACE <1.5% mortality risk, discharge and refer to Rapid Access Chest Pain Clinic *provided* patient pain free and mobilizing with no high risk clinical features.

Troponin <14ng/l Calculate GRACE Score

High Risk	**Intermediate Risk**	**Low Risk**
6 month GRACE >8% mortality	6 month GRACE 3-8% mortality	6 month GRACE 1.5-3% mortality

****Transfer to Heart Hospital for Urgent Coronary Angiography within 24 hours of admission, any NSTEACS patient presenting with high-risk clinical features (see box below)**
Discuss ALL High Risk ACS patients with Cardiology (call Heart Hospital SpR out of hours)
Consider coronary angiography within 96 hours of admission for ALL intermediate & high-risk ACS patients

Initial drug therapy
Aspirin 300mg + Ticagrelor 180mg stat dose (* see Ticagrelor guidance)
Fondaparinux 2.5mg s/c
NB if creatinine >244µmol/L, use heparin (UFH)

Ticagrelor 90mg bd for 12 months and Aspirin 75 mg od for life,
Fondaparinux / UFH (up to 5 days)

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****ACS High Risk Clinical Features**
Recurrent/ongoing cardiac discomfort AND >1 of:

- ≥1mm ST depression or transient ST elevation
- Deep T-wave inversion V1-4
- Dynamic T wave inversion >2mm in >2 contiguous leads
- Haemodynamic instability (hypotension, pulmonary oedema)
- VT/VF due to myocardial ischaemia
- Troponin T > 0.1µg/l

*Considerations regarding Ticagrelor prescribing

Please discuss with Cardiology

1. Ticagrelor is contraindicated with strong CYP3A4 inhibitors (e.g., ketoconazole, clarithromycin, nefazodone, ritonavir, and atazanavir)
2. Ticagrelor should be avoided due to reduction in efficacy with strong CYP3A4 enzyme inducers (e.g. rifampicin, dexamethasone, phenytoin, carbamazepine and phenobarbital)
3. Ticagrelor may not be tolerated due to side effects/adverse reactions (eg. unexpected bradycardia, dyspnoea)
4. Consider once-daily alternative (Prasugrel or Clopidogrel) if there is concern over patient compliance with Ticagrelor twice-daily dosing

Alternative to Ticagrelor in ST Elevation and high risk NSTEAC: Prasugrel

Loading dose 60 mg then 10 mg od
(5mg od in >75 years, weight<60kg)

Consider Prasugrel

1. If Ticagrelor contraindicated or concern re. compliance
2. Particularly consider in diabetics
3. For treatment of acute stent thrombosis on Clopidogrel
4. Previous CVA/TIA is a contraindication to Prasugrel

Consider Clopidogrel for patients with high bleeding risk

(Age > 75yrs, high clinical risk of upper GI bleed, weight <60kg)

Treat all patients (unless contraindicated)

- **Dual antiplatelet therapy**, (e.g. Aspirin 75mg od and either Clopidogrel 75mg od, Ticagrelor 90mg bd or Prasugrel 10mg od)
- **Beta-blocker**, e.g. Bisoprolol 1.25mg od (if contraindicated consider Diltiazem SR or Verapamil SR)

GRACE score

The scoring system can be used to predict in-hospital 6-month mortality and assess risk of future adverse cardiovascular events.
Online calculator: http://www.outcomes-umassmed.org/grace/acs_risk/acs_risk_content.html (iPhone version available for download)

Cardiology Cover

Whittington Cardiology SpR through bleep **3038** or **3096** (9am - 5pm)
Out of hours: Cardiology SpR at The Heart Hospital, 020 3456 7898 (bleep via switch)

Treatment of Hyperglycaemia (blood glucose ≥ 10mmol/L)

Set up insulin sliding scale - proforma found on trust intranet within clinical guidelines. Check glucose hourly, aiming for blood glucose 4-8mmol/L.
If the patient is not known diabetic check glucose after an overnight fast 12 hours after discontinuation of insulin infusion.
Check HbA1C in all patients with hyperglycaemia on admission.
Check K+ at admission and 24 hours.
Refer to the diabetes team.

Risk Factor Modification

Offer all patients information and advice about their diagnosis and arrangements for follow-up.

Prior to discharge:

- Request an **echocardiogram** to assess LV function (optimize Heart function as appropriate)
- Actively manage cardiovascular risk factors (offer Nicotine Replacement Therapy) and introduce **drug therapy for secondary prevention** (Aspirin, Clopidogrel/Ticagrelor, beta-blocker, ACE inhibitor, statin)
- Promote **lifestyle changes** (smoking cessation, diet and exercise advice)
- Refer for **cardiac rehabilitation** (please copy a discharge letter to cardiology secretaries, clinic 3A)