The Shrewsbury and Telford Hospital NHS Trust

Management of suspected cardiac chest pain in the Emergency Department

Ref no: 2857

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On presentation

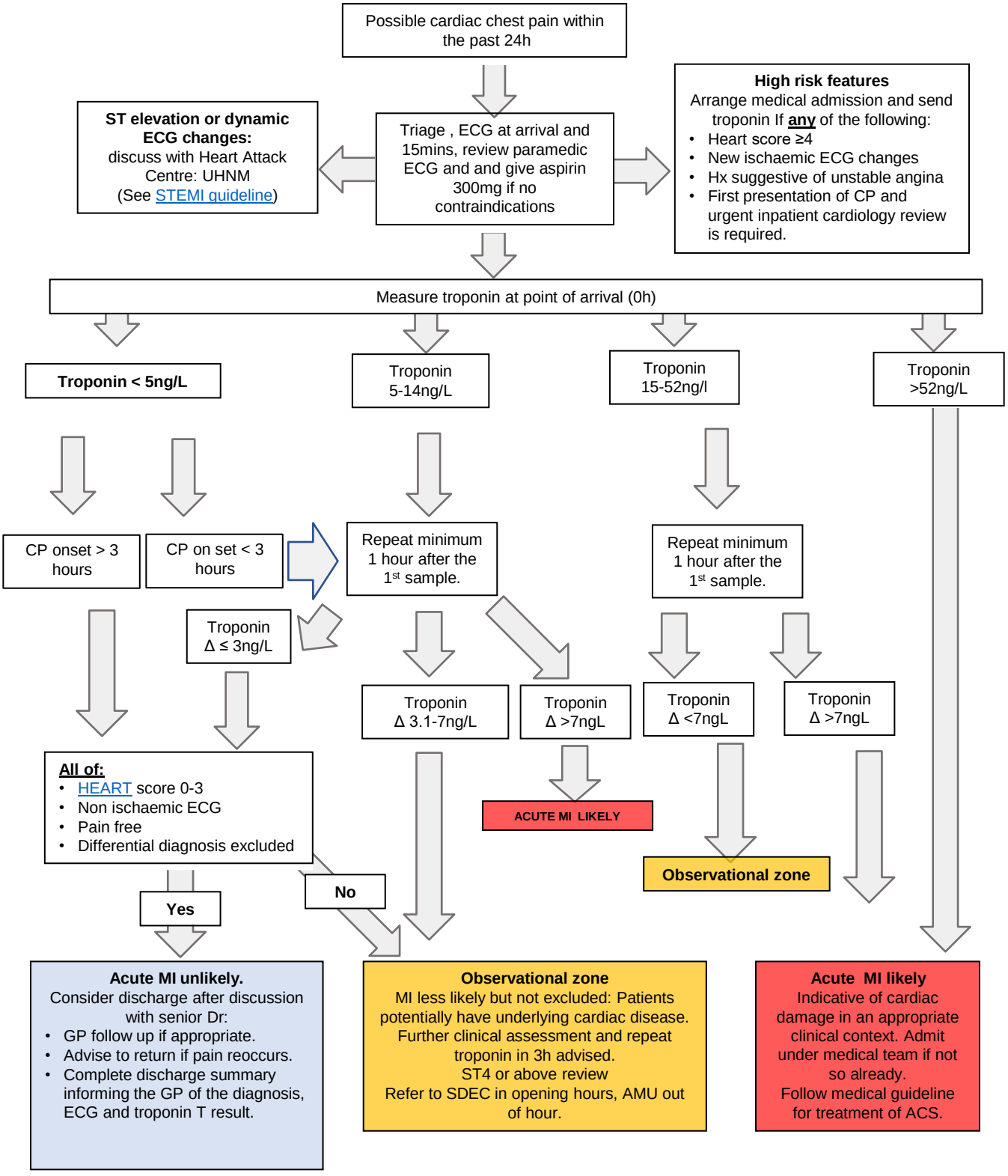
- ECG to be performed and reviewed within 15 minutes of arrival.

- If ST elevation or new LBBB follow STEMI pathway. (Dynamic ECG changes/ significant ST depression may also need to be discussed with the UHNM (University Hospital North Midlands). SATH Cardiologist is available for advice,via switch board, if uncertainty remain regarding further management.

- Clinical assessment to include:
  - Review paramedic ECG and notes.
  - Evaluate cardiac risk factors.
  - Perform HEART score. (Troponin results may not be available).
  - Prescribe Aspirin 300mg if no contraindications.
  - For further management and troponin testing see flow chart.
  - For treatment of ACS follow the medical teams ACS guidelines availableon the intranet.

HEART SCORE		
History	Slightly suspicious	0
	Moderately suspicious	+1
	Highly suspicious	+2
ECG	Normal	0
	Non-specific repolarization disturbance	+1
	Significant ST deviation	+2
Age	<45	0
	45-64	+1
	≥65	+2
Risk factors	No known risk factors	0
	1-2 risk factors	+1
	≥3 risk factors or history of atherosclerotic disease	+2
Troponin	≤normal limit	0
	1–3× normal limit	+1
	>3× normal limit	+2
Risk factors: HTN, Hypercholesterolemia, DM, Obesity (BMI >30 kg/m²), Smoking (current, or smoking cessation ≤3m), Positive family history (parent or sibling with CVD before age 65), Atherosclerotic disease: prior MI, PCI/CABG, CVA/TIA, or peripheral arterial disease.		

ED cardiac chest pain pathway



Accompany notes for the SATH Chest Pain Pathway

- This pathway is not a substitute for careful history taking, clinical examination and scrutinyof serial ECGs. In cases where clinician judgement differ from pathway then clinician judgement should take precedence.
- Any patient with ongoing or recurrent ischaemic sounding chest pain or ischaemic changes on their ECG should be referred to the medical team for further assessment,irrespective of the initial troponin result.

Notes on troponins

- **Troponin testing**: Troponins are taken on arrival (0h) and 3h after the 0h troponin if required. Using the chest pain pathway and troponin result patients can be categorisedinto one of the following groups:

Rule out group:
Any of the following:
- 0h troponin <5ng/L providing chest pain onset more than 3h ago
- <14ng/L more than 6h after chest pain onset.
- Delta change between 0h and 3h troponin ≤3ng/L

Patients can be considered for discharge (see criteria). Follow up can be arranged with the GP if required.

Observational group:
- Delta change in troponin 4-7ng/L makes acute MI less likely but does not exclude it. Patients in this group potentially have underlying cardiac disease which may require investigation. Alternative causes of raised troponin must be considered.
- Further troponin testing in 3h is advised.
- Medical admission is advised. Further investigation or follow up may be required in this group depending on the clinical presentation.

Rule in group: Any of the following:
- 0h troponin >52ng/L
- Delta change of >7ng/L.

These patients require medical admission and possibly CCU. Ensure serial ECGs are performed. Further management can be found on the medical team's ACS guideline.

Stable elevations in Troponin:
- Troponin levels 14-52ng/L with less than 3ng/L delta change represent stable elevations in troponin and makes an acute MI unlikely in an appropriate clinical context.
- All raised troponin T results are important and predict adverse outcomes therefore the cause must be considered.
- Stable elevations have many possible causes many of which are chronic in nature. Chronic causes include advanced age, hypertension, structural heart disease and renal failure. Potential acute causes include pulmonary embolism, aortic dissection and sepsis.
- It is important for a senior decision maker determine the need for further investigation or admission.
    - Alternative diagnosis must be considered.
    - If the history is suggestive of cardiac cause or the patient is unwell the patientshould be admitted under the medics for further assessment.
    - If a chronic cause is suspected the patient can be considered for discharge.

Repeat troponin testing on CDU

The following patients can be considered for CDU admission to await 3h troponin, after discussion with an ED senior doctor, providing they meet the full CDU criteria. If the patientdoesn't meet CDU criteria they should be admitted under the medical team.

- Low risk (HEART SCORE 0-3), no ischaemic ECG changes and ongoing chest pain witheither:
  - 0h troponin ≤14 ng/L.
  - 0h trop < 30ng/L providing **ALL** of the following:
    - ❖ Troponin is suspected to be chronically elevated with a history unlikely to beACS.
    - ❖ Alternative causes of raised troponins have been considered.
    - ❖ The patient is likely to be discharged if no significant change in troponin at 3h

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Discharge from ED

- All patients who present with chest pain must be reviewed by a senior doctor prior todischarge.
- Ensure no ongoing pain and alternative diagnosis have been considered.
- If troponin above 14ng/L careful consideration should be given to the cause. (see noteson raised troponins).
- Follow up: There is currently no rapid access chest pain clinic from ED. Patients shouldbe followed up by their GP if required. If it is felt that urgent Cardiology follow up is needed then the patient should be admitted to AMU.
- Advise patients to return if further episodes of chest pain.
- Patients discharge letter: Record diagnosis, ECG Findings, troponin results and if followup is required.

Clinical Decisions Unit

LOW RISK CHEST PAIN PROFORMA

All patients admitted to the CDU MUST have a pathway completed.
No patient is to be admitted to CDU without the Management in ED box being completed.

Patient Name:	Admitting Clinician:
DOB:	Authorised by (Consultant, Senior doctor overnight)
Hospital No:	

OBSERVATIONS						
Time	Pulse	BP	RR	Sats	Fio2	GCS

0h troponin result		3h troponin due	
HEART score			

Inclusion Criteria Must meet all for CDU acceptance	[ ] Age >18 years. [ ] HEART score 0-3 (including 0h trop). [ ] Discussed with ED senior. [ ] Mobile and self caring. [ ] 0h troponin ≤ 14ng/L and <6h from onset **or** troponin 15- 30 ng/L where troponin suspected to be chronically elevated.
Exclusion Criteria: Managed in ED and refer to appropriate speciality if any apply	[ ] Ongoing chest pain. [ ] Acutely symptomatic CCF. [ ] Haemo-dynamic instability (SBP <100 or >180mmHg, HR <50 or >100bpm). [ ] Irrespective of HEART score, new/evolving ischaemic ECG changes. [ ] Acute MI/revascularisation in past 4/52. [ ] Co-morbidity or social reason requiring hospital admission. [ ] Not fit for safe discharge.

Summary of Possible ACS (UA/NSTEMI) Management Guideline	
Management in ED	[ ] Triage and Paramedic ECG documented in the notes and signed. [ ] Results of 0h troponin and HEART score documented. [ ] Aspirin 300mg oral stat if not received already (if no contraindications). [ ] Bloods – Troponin T, FBC, U+E.
Prior to transfer to CDU	[ ] Drug card completed [ ] VTE assessment done [ ] Document time of repeat troponin if required.
Management in CDU	[ ] Observations 1h. [ ] Repeat ECG. [ ] Review if condition changes – e.g. new ECG changes or new chest pain, EWS ≥5. [ ] Transfer back to ED if significant ECG changes or significant delta change in 3h troponin.
For admission (at any time or after final review)	[ ] Social circumstance prevent discharge within 24 hours. [ ] Ongoing/recurring cardiac sounding chest pain. [ ] New ECG abnormalities. [ ] Significant delta change in troponin at 3h. [ ] Patient is felt to need urgent Cardiology assessment.
Criteria for discharge (after final review)	[ ] No cardiac sounding chest pain whilst on CDU. [ ] Repeat troponin not suggestive of ACS. [ ] No ECG changes whilst in CDU. [ ] Case reviewed by senior doctor. [ ] Alternative diagnosis considered. [ ] GP letter completed.

STEMI or new LBBB pathway

- ABC assessment and cannula
- Give the patient the following medication if no contraindications:

Aspirin 300mg Oxygen if sats <94% Morphine GTN Ticagrelor 180mg PO

- ECG: write place, date, time, RSH or PRH ED and patient label, details with yourinterpretation and signature/ GMC number.
- Send ECG immediately via receptionist:

Email: cardiacassessmentnurses.uhns@nhs.net

- Call Heart Attack Centre UHNM (Stoke) and speak to the Cardiac sister to confirmthat the email has been received and refer the patient

Phone: 01782 675 005 or 01782 675 000

- Call WM ambulance services: 01384 215520
  - Request a paramedic crew emergency transfer from your Emergency Department to CCU at University Hospital North Midlands ST4 6QG

- If any concerns or patient is unstable for transfer discuss with:
  - Cardiology registrar at Heart Attack Centre
  - Med Reg/ Cardiology Reg/ ITU Reg on your site