

High-sensitivity troponin

THE WAY THAT TROPONIN TESTS ARE REPORTED IS CHANGING, AND THIS WILL HAVE AN IMPORTANT IMPACT ON THE CLINIC USE OF THIS INFORMATION. THIS IS A QUICK GUIDE TO THE IMPORTANCE AND USE OF TROPONIN IN THE ASSESSMENT OF PATIENTS PRESENTING ACUTELY TO THE OXFORD RADCLIFFE HOSPITALS NHS TRUST.

Important points to note:

- Troponin assays have been validated in the assessment of **acute chest pain due to suspected myocardial ischaemia** – NOT for atypical chest pain, pleuritic chest pain, musculoskeletal injury etc. Troponin should NOT be requested unless the clinical suspicion is of ischaemic chest pain
- Troponin will now be detectable in the “normal” population**, and will be reported in the **new units of ng/L** (an order of magnitude lower than before).
- The universal definition of myocardial infarction states a troponin concentration above the 99th centile of the distribution expected in a normal population should be used as a positive “cut-off”. This is different for men and women, and there will therefore be **sex-specific positive threshold values** of:
 - ≥17 ng/L for women
 - ≥34 ng/L for men
- If you **suspect a patient is presenting with chest pain due to myocardial ischaemia**, then **please follow the flow chart opposite** for guidance on how to use the new assays in clinical practice – this will lead to the early triage of patients who clearly need admission, and will allow the safe discharge of patients at low risk earlier (often without having to wait for repeat troponin samples). **The Cardiology Advanced Nurse Practitioners will be available to assist** with this process and to facilitate appropriate urgent investigations and admissions.
- If **troponin is elevated above the sex-specific threshold, but the patient is not presenting with chest pain due to suspected myocardial ischaemia** (you might argue this patient should not have had a troponin measured), then **this is NOT a type 1 myocardial infarction** (i.e. due to atherosclerotic plaque rupture/thrombosis) and **“ACS” treatment has not been demonstrated to reduce risk**. Here it should be considered as a marker of general risk/illness, and perhaps best thought of as **myocardial injury**. Alternative causes of cardiac stress/strain should be sought i.e. infection, PE, cardiac failure, valvular disease, myocarditis, contusion..... and treated appropriately. **The patients should be referred to the appropriate team for consideration of investigation and admission i.e. General Medicine or General Surgery.**

Chest pain AND suspected acute coronary syndrome

- Review of pre-hospital and departmental ECG by senior staff **within 10 mins**
- Immediate IV access** and bloods including **high-sensitivity cardiac troponin (hs-cTnI)**

ECG Non-diagnostic

- Consider Aspirin 300 mg
- Sublingual nitrate or analgesia
- Further investigation if indicated

ST-depression/T-wave inversion

New horizontal or downsloping ST-depression ≥2 mm or deep symmetrical T-wave inversion in 2 adjacent leads

- Contact Cardio ANP (JR bleep 1485 / Horton bleep 9608) or Cardio SpR out-of-hours (4205)**
- Aspirin 300 mg loading dose
- Sublingual nitrate or analgesia
- Consider** Ticagrelor 180 mg loading dose
[http://ouh.oxnet.nhs.uk/Pharmacy/Mils/MILV8N2.pdf]

ST-segment elevation

≥2 mm in 2 adjacent chest leads or >1mm in 2 adjacent limb leads or new LBBB or >2mm ST depression V1-3 (posterior)

- Initiate PPCI pathway**
Call 21459
- Inform Cardio ANP (1485)**
- Aspirin 300 mg loading dose
- Ticagrelor 180 mg loading dose
- Sublingual nitrate or analgesia
[http://ouh.oxnet.nhs.uk/Pharmacy/Mils/MILV8N2.pdf]

Review admission hs-cTnI
SEE FOOTNOTE *

Admit and hs-cTnI at 6hrs

<5 ng/L

≥5 ng/L AND
≤17 ng/L (♀), ≤34 ng/L (♂)

>17 ng/L (♀), >34 ng/L (♂)

Repeat hs-cTnI at 1 hr / Repeat ECG
SEE FOOTNOTE *

CHANGE <2 ng/L AND
≤17 ng/L (♀), ≤34 ng/L (♂)

CHANGE >2 ng/L AND
≤17 ng/L (♀), ≤34 ng/L (♂)

>17 ng/L (♀), >34 ng/L (♂)

- Myocardial Infarction ruled out**
- Clear alternative diagnosis: treat as appropriate
 - Atypical chest pain or recent negative investigations: reassure, ask GP to follow up
 - Typical cardiac pain on exertion with no previous investigations: refer to Cardio ANP** for review prior to discharge

- Myocardial Infarction ruled out but may require further investigation**
- Refer to Cardio ANP** for review *prior to discharge* for consideration of appropriate outpatient investigation or further review

Cardiology Contacts
Cardio ANP (JR) bleep 1485
 (Mon-Fri 08:00-20:00; Sat-Sun 08:00-16:00)
Cardio ANP (HGH) bleep 9608
 (Mon-Fri 08:00-16:00)
Cardiology StR bleep 4205

- Myocardial Injury or Infarction**
- Refer to Cardiology ANP**
 - Arrange admission
 - Repeat hs-cTnI at 6 hrs
 - Consider alternative causes of myocardial injury (e.g. heart failure, arrhythmia, sepsis, PE)
 - If diagnosis of type I MI then add Ticagrelor 180 mg and consider Fondaparinux 2.5 mg od
[http://ouh.oxnet.nhs.uk/Pharmacy/Mils/MILV8N2.pdf]

*** IN ALL PATIENTS WITH CHEST PAIN PRESENTING WITHIN 2 HOURS OF ONSET, THEN hs-cTnI MUST BE REPEATED AT 3 HRS (NOT ADMISSION/1HR AS IN PATHWAY) BEFORE REASSURING/DISCHARGING**