Follow STEMI protocol

ECG meets STEMI criteria

Acute CP / ischemic equivalent

Presenting ECG

No significant ST deviation

Draw 0h hs-Tnl

SXS ≥ 3 hrs &
HEART score 0-3 &
0h Trop < 5 ng/L

SXS < 3 hrs; OR
HEART score ≥ 4; OR
0h Trop ≥ 5 and < 100 ng/L

Draw 1h hs-Tnl

HEART score 0-6 &
0h Trop < 5 ng/L &
1h delta < 5 ng/L

HEART score ≥ 7; OR
0h Trop ≥ 5 ng/L and < 100 ng/L; OR
1h delta ≥ 5 and < 15; OR

Draw 3h hs-Tnl

HEART score ≥ 7; OR
Any Trop ≥ 100; OR
Any delta³ ≥ 25 ng/L

SXS < 3 hrs &
HEART score 0-3 &
0h Trop < 5 ng/L

Any Trop ≥ 100; OR
1h delta ≥ 15 ng/L

LOW RISK
- Consider discharge and OP follow-up

INTERMEDIATE RISK
Consider:
- Shared decision making
- OP follow-up for HEART score 0-3
- Observation and stress testing / CTA
- If hs-Tnl 50-100 and high suspicion for NSTEMI, may manage as high-risk

HIGH RISK
Consider:
- Cardiology consult
- Admission
- Follow treatment guidelines for most likely diagnosis (Type 1 NSTEMI, Type 2 MI, or nonischemic myocardial injury)

Footnotes:
1. Beckman UniCel DxI Access analyzer “abnormal” (>99th percentile) cut points: >14.9 mg/L (women); >19.8 ng/L (men)
2. Refers to acute findings not seen on prior ECGs, and not associated with LVH, LBBB, RBBB, or early repolarization
3. “No delta”, “All deltas”, or “Any delta” includes 0→1h, 1→3h, and 0→3h changes in hsTnl

Grady, EUH, EUHM, ESJH, EJCH hs-troponin I clinical protocol

EMERGENCY DEPARTMENT ONLY
(Beatman Coulter UniCel DxI analyzer)
Summary of dispositions:

**Discharge:**
- Symptoms >3hr, initial hsTn <5, HEART score <4
- Initial hsTn <5, 1hr delta <5, HEART score 0-6
- 0, 1, 3hr hsTn normal*, all deltas <5, HEART score <7
- Intermediate risk and shared decision making chooses home with outpatient follow-up

**Admit / consult:**
- Usual indications (STEMI, etc.)
- Any hsTn delta >25
- Any hsTn >100 (T0hr, T1hr, or T3hr)
- hsTn of 50 – 100 (indeterminate range) with high suspicion for ACS

**Intermediate risk** (CDU or Shared Decision Making):
- hsTn between normal* and 50
- hsTn between normal* and 100 and low suspicion of ACS
- hsTn delta between 5 – 25 (5-15 at 1hr)
- HEART score >3 with clinical concern

* Normal = 99%ile, sex based = <15(F) / <20(M) ng/L
hsTn levels above are in ng/L
LOW RISK
- Consider discharge and OP follow-up

HEAR(T) Score

0-3

Symptoms

>3 hour

<3 hour

0 hour HS-Trop

<5

<5

1 hour HS-Trop

Δ <4

Δ <4

3 hour HS-Trop

All <15 (F), <20 (M) and Δ <5
INTERMEDIATE RISK
Consider:
- Shared decision making
- OP follow-up for HEART score 0-3
- Observation and stress testing / CTA
- If hs-TnI 50-100 and high suspicion for NSTEMI, may manage as high-risk
**HIGH RISK**
Consider:
- Cardiology consult
- Admission
- Follow treatment guidelines for most likely diagnosis (Type 1 NSTEMI, Type 2 MI, or nonischemic myocardial injury)
### Equivalency of values: TnI vs. hs-TnI (EUH, EUHM, ESJH, EJCH, Grady) *

Note the following differences between standard troponin I and high-sensitivity troponin I (hs-TnI):

1. Units of measurement are different. hs-TnI is reported **as integers in ng/L** (whereas TnI was in ng/mL)
2. To convert from hs-TnI to standard TnI (for clinical context), **divide by 1000**. Example: hs-TnI value of 100 ng/L corresponds to a standard TnI value of 0.1 ng/mL. See table below.
3. hs-TnI has different “abnormal” cut point, (or 99th percentile value) in women and men.

<table>
<thead>
<tr>
<th>standard TnI (ng/mL)</th>
<th>hs-TnI (ng/L)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0023</td>
<td>&lt; 2.3</td>
<td>LOQ** for hs-TnI</td>
</tr>
<tr>
<td>0.015</td>
<td>15</td>
<td>99 percentile (abnormal) hs-TnI value for women</td>
</tr>
<tr>
<td>0.02</td>
<td>20</td>
<td>99 percentile (abnormal) hs-TnI value for men</td>
</tr>
<tr>
<td>0.03</td>
<td>30</td>
<td>99 percentile (abnormal) standard TnI value</td>
</tr>
<tr>
<td>0.04</td>
<td>40</td>
<td>99 percentile (abnormal) standard TnI value</td>
</tr>
<tr>
<td>0.05</td>
<td>50</td>
<td>99 percentile (abnormal) standard TnI value</td>
</tr>
<tr>
<td>0.1</td>
<td>100</td>
<td>99 percentile (abnormal) standard TnI value</td>
</tr>
<tr>
<td>0.5</td>
<td>500</td>
<td>99 percentile (abnormal) standard TnI value</td>
</tr>
<tr>
<td>1</td>
<td>1000</td>
<td>99 percentile (abnormal) standard TnI value</td>
</tr>
<tr>
<td>10</td>
<td>10000</td>
<td>99 percentile (abnormal) standard TnI value</td>
</tr>
<tr>
<td>25</td>
<td>&gt; 25000</td>
<td>Highest reportable value of analytic range for hs-TnI</td>
</tr>
<tr>
<td>&gt;70</td>
<td></td>
<td>Highest reportable value of analytic range for TnI</td>
</tr>
</tbody>
</table>

* Grady, EUH, EUHM, ESJH, and EJCH use a Beckman Coulter UniCel DxI analyzer with the following “abnormal” (>99th percentile) cut points: >14.9 mg/L in women; >19.8 ng/L in men. These cut points do NOT apply for EUOSH, EDH, EHH, or ELTAC (see separate protocols for these operating units).

** LOQ: Lowest hs-TnI concentration that is reportable as a number with specified certainty

hs-TnI: high-sensitivity troponin I