

High Sensitivity Troponin I Algorithm

Possible Ischemic Presentation



Immediate 12-lead electrocardiogram and clinical risk assessment ^a



****STEMI Guidelines****

NSTEMI?



Baseline hs-cTnI (0h) ^b



> Sex specific 99th % URL & high-risk ^{a,c}



Higher Risk Acute Myocardial Infarction



Prompt Cardiac Evaluation

2-h Sample



0 & 2h < Sex specific 99th % URL
AND
< 5ng/L change
AND
Symptoms > 4h

0 or 2h > sex specific 99th % URL



Significant Delta ^{d,e}



Low risk for acute myocardial injury



Acute Myocardial Injury



Repeat hs-cTnI at 4h and 6h (if necessary)



Insignificant delta & Low Risk

+

Myocardial Ischemia

Significant Delta ^{d,e}

Chronic myocardial injury



Acute cardiac injury



Acute myocardial infarction

^a Risk score eg. HEART, EDACS, TIMI,

^b If 0h hs-cTnI is < 4 ng/L, symptom onset is > 2h, & low risk, Negative predictive value for MI is ~99.5%. Consider alternate diagnosis

^c Positive predictive value of 70% for MI if baseline hs-cTnI >200 ng/L Proceed to 2h sample if clinically indicated

^d If baseline is <100 ng/L	if baseline ≥ 100ng/L
Sig. 2hΔ is 10 ng/L	Sig. 2hΔ is 10%
Sig. 4hΔ is 15ng/L	Sig. 4hΔ is 15%
Sig. 6hΔ is 20ng/L	Sig. 6hΔ is 20%

*At least one cTnI must be elevated for rules to apply

^e If samples are collected >10-20h after onset of acute chest pain, troponin may have peaked and delta criteria may not apply. Declining troponin can be significant (ie. old MI). Same criteria are used with negative delta.

99th % URL
Male: 35 ng/L
Female: 17 ng/L