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High Sensitivity Troponin

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Major Changes

- Transition from conventional to high-sensitivity Troponin T
 - Results not interchangeable, but are deemed clinically equivalent
- New assay is “High-Sensitivity”
 - Variation $\leq 10\%$ at upper 99th percentile (very precise)
 - Whole numbers, no more decimals (different units of report: ng/L)
 - Quantifiable troponin in $> 50\%$ of normal patients
- Very high negative predictive value
 - $> 99\%$ within 3 hours
- **5.00 ng/mL (very abnormal) is not the same as 5 ng/L (normal)**

Major Changes

- Due to the sensitivity of this assay, patients with renal or stable cardiac disease will routinely have detectable/quantifiable values
 - These values may be elevated, but typically stable over time
 - Can be observed with conventional assay; however, frequency may increase
- Critical to evaluate the rise and/or fall of troponin to diagnose AMI
 - Acute events lead to rapid release of cardiac troponin, which is then cleared over time



Common Assay Characteristics

Characteristics

- High levels of biotin may interfere with testing
 - Skin/hair health products
- Troponin is very sensitive to the effects of hemolysis
 - Analytical and physical interference
 - **20% + decrease in value**
 - Samples must be of high quality

Example Interference Table

Interferent	Concentration/Effect
Biotin	Decrease (> 5 mg/day)
Hemolysis	Decrease (> 100 mg/dL)
Icteria	> 25 mg/dL
Lipemia	> 1500 mg/dL
HAMA	Variable effect

Benefits of High-Sensitivity Cardiac Troponin

- Reduced time to MI rule-out
 - 1-2 hour rule-out protocols exist
- 20% reduction in total costs
 - Reduced ED stay (20%, 79 min)
 - 35% decrease in stress tests
 - No additional catheterizations
- Sex-specific cutoffs may improve gender inequalities in ACS treatment/outcome

