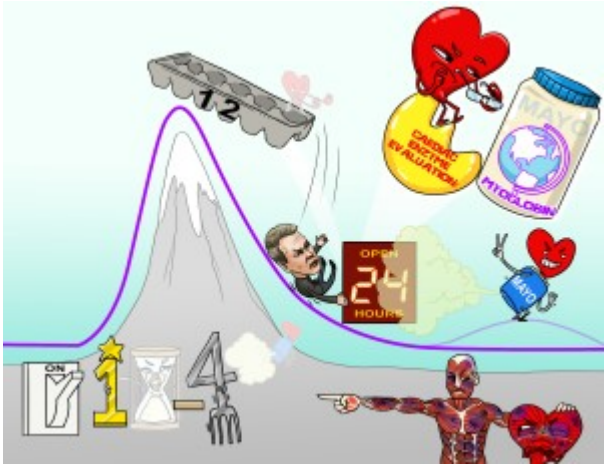
Cardiac Enzyme Evaluation: Myoglobin

Myoglobin is a low-molecular-weight heme protein released during muscle tissue injury. Although it may be used to help measure myocardial damage, myoglobin is not specific to cardiac injury. The onset of increased levels of myoglobin is 1-4 hours, the peak is 12 hours, and returns to baseline levels within 24 hours. If the patient has a suspected myocardial injury or infarction, additional data such as symptoms, history, and ECG changes should be considered. When determining the presence of myocardial injury, other cardiac enzymes to consider include creatine kinase CK-MB and troponin (refer to the Picmonics on "Creatine Kinase CK-MB - Cardiac Enzyme Evaluation" and "Troponin - Cardiac Enzyme Evaluation").



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Measures

Skeletal or Cardiac Muscle Injury

Skeleton-muscle-man and Heart Muscle Injured

Myoglobin is an enzyme released during skeletal or cardiac muscle injury. The protein is also released when hemoglobin leaks from damaged red blood cells. Although it may be used to help determine myocardial damage, myoglobin is not specific to cardiac injury. Increased myoglobin levels indicate early myocardial injury but lacks specificity for diagnosing, since it is not specific to cardiac injury.

Time Ranges

Onset: 1 - 4 Hours

On-switch with (1) Wand and (4) Fork

The onset of elevated myoglobin levels is within 1-4 hours. Since myoglobin is released into the bloodstream approximately one hour after myocardial injury, it is the earliest indicator of myocardial injury.

Peak: 12 Hours

Peak of mountain with (12) Dozen

The peak of increased myoglobin levels is within 12 hours.

Return to Normal: 24 Hours

Return to Ground with Open (24) Hour sign

After myocardial damage, myoglobin levels return to baseline within 24 hours. The only way to diagnose myocardial reinfarction is a determining increased myoglobin levels after 24 hours of initial symptoms.

Considerations

Elevation After 24 Hours: Reinfarction

Elevation After Open (24) Hours sign and Returning Mayo-heart Infarction-fart

After 24 hours of initial symptoms, the patient's myoglobin levels should return to normal. If the levels remain elevated after 24 hours, the patient may be experiencing myocardial reinfarction.

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