OBJECTIVES

1. Understand the Clinical Documentation Improvement Specialists’ responsibility to increase knowledge of all clinical conditions that reflect the most accurate SOI of the patient.
2. Understand the pathophysiology of type 2 MI.
3. Differentiate non-ischemic vs. ischemic positive troponin.
4. Identify clinical terms and indicators for type 2 MI.
5. Provide an algorithm for decision making.

Pathophysiology of Type 2 MI

Onset of myocardial ischemia is the initial step in the development of MI and results from an imbalance between oxygen supply and demand.

Myocardial Infarction Secondary to an Ischemic Imbalance (MI Type 2)

In instances of myocardial injury with necrosis, where a condition other than CAD contributes to an imbalance between myocardial oxygen supply and/or demand, the term ‘MI type 2’ is employed. In critically ill patients, or in patients undergoing major (non-cardiac) surgery, elevated values of cardiac biomarkers may appear, due to the direct toxic effects of endogenous or exogenous high circulating catecholamine levels. Also, coronary vasospasm and/or endothelial dysfunction have the potential to cause MI (Thygesen et al., 2012).

Clinical Indicators and Treatment

- A cTn level >99th percentile of the URL is considered elevated and is the cut-off level for a diagnosis of MI.
- It is important to distinguish acute causes of cTn elevation, which require a rise and/or fall of cTn values, from chronic elevations that tend not to change acutely.

When to QUERY

The table below is a useful tool to help distinguish between ischemic and non-ischemic reasons for elevated troponin levels.

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Ischemic</th>
<th>Non-ischemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of CAD</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>History of MI</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>EKG changes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Presence of Q waves</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Pain in the chest, upper extremities, mandible, or epigastric region</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dyspnea and fatigue</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Signs of Myocardial ischemia:
- History of CAD
- History of MI
- EKG changes
- Presence of Q waves
- Pain in the chest, upper extremities, mandible, or epigastric region
- Dyspnea and fatigue

Treatment of Type 2 MI

Treatment of Type 2 MI is based on addressing the underlying cause of the ischemia e.g. hypoxia, hypovolemia/hemorrhage, hypertension. Therefore typical treatments for AMI (Type 1) may not apply.

References


