ACS-like Myocarditis vs. Acute Myocardial Infarction: Continuous Clinical Challenge

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Disclosures

None
Background

- Myocarditis with an acute coronary syndrome (ACS)-like presentation poses an important clinical challenge.

- Comparing ACS-like myocarditis with AMI patients can shed light on the similarities and the important differences between the two clinical syndromes.
Aim

To compare the clinical, laboratory and echo-cardiographic characteristics of patients with ACS-like myocarditis and acute myocardial infarction.
Methods – study population

- Retrospective analysis of consecutive patients with acute myocarditis between Sep. 2002 and May 2012

- Diagnosis of ACS-like myocarditis was based on the combination of suggestive clinical setting and cardiac MRI findings consistent with myocarditis

- Comprehensive demographic, clinical, laboratory and imaging data were gathered to a registry
Methods – study population

• The control group consisted of consecutive patients hospitalized in ICCU with first non-ST elevation myocardial infarction.

• No evidence of prior structural heart disease including any degree of left ventricular hypertrophy (LVH).

• Elderly NSTEMI patients (age>65) were excluded to achieve a minimal degree of matching between the cohort populations.
## Patient Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Myocarditis (n=101)</th>
<th>NSTEMI (n=122)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean, y)</td>
<td>34</td>
<td>52.75</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Gender (male)</td>
<td>95%</td>
<td>89%</td>
<td></td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>4.90%</td>
<td>16.50%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Hypertension</td>
<td>7.80%</td>
<td>19.70%</td>
<td></td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>15.70%</td>
<td>51.20%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Smoker</td>
<td>26.50%</td>
<td>55.10%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>BMI (mean, kg/m²)</td>
<td>25.9</td>
<td>27.07</td>
<td></td>
</tr>
<tr>
<td>Family Hx of CAD</td>
<td>12.70%</td>
<td>41.70%</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Coronary Angiography</td>
<td>41.60%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
Myocarditis Patients
101 pts.

45 pts. (44.6%) WMA

56 pts. (55.4%) No WMA

37 pts. (82.2%) Localized WMA

8 pts. (17.8%) Diffuse WMA

Myocarditis - Regional Wall Motion Abnormality Distribution
NSTEMI Patients
122 pts.

50 pts. (41.0%) No WMA

69 pts. (97.2%) Localized WMA

2 pts. (2.8%) Diffuse WMA

72 pts. (59.0%) WMA
Results

- Echocardiographic regional WMA were reported, yet global hypokinesis, is still considered as a common echo presentation of myocarditis.

- We show that diffuse LV dysfunction is more prevalent in myocarditis than MI (7.9% vs. 1.6%, p=0.013).

- Yet regional WMA is a common finding, shown in 36.6% of all patients and 82% of patients with WMA.
# Results

## Indices of Myocardial Involvement

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</tr>
</thead>
<tbody>
<tr>
<td>EF (%)</td>
<td>54</td>
<td>54.5</td>
<td>NS</td>
</tr>
<tr>
<td>Wall Motion Score Index</td>
<td>1.2</td>
<td>1.2</td>
<td>NS</td>
</tr>
<tr>
<td>Peak CPK</td>
<td>648.5</td>
<td>433</td>
<td>p=0.004</td>
</tr>
<tr>
<td>Peak cT1</td>
<td>14.5</td>
<td>5.7</td>
<td>p&lt;0.001</td>
</tr>
</tbody>
</table>

## Clinical Outcomes

<table>
<thead>
<tr>
<th>Clinical Outcomes</th>
<th>Myocarditis (n=101)</th>
<th>NSTEMI (n=122)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulmonary congestion &amp; Cardiogenic shock</td>
<td>1.98%</td>
<td>0.80%</td>
<td>NS</td>
</tr>
<tr>
<td>Ventricular Arrhythmia</td>
<td>7.92%</td>
<td>3.30%</td>
<td>p=0.07</td>
</tr>
</tbody>
</table>
Limitations

- Retrospective analysis
- Single center
- No long term follow up
- Not known viral ethiology
Conclusions

- Localized regional WMA prevalent in patients with ACS-like myocarditis, emphasizing the diagnostic dilemma

- Interestingly, we show higher cardiac biomarkers elevation for the same extent of myocardial dysfunction in patients with acute myocarditis compared to myocardial infarction
Thank you...
Myocarditis - Regional Wall Motion Abnormality Distribution

- Septum
- Lateral
- Posterior
- Inferior
- Anterior