Heart Failure of Unknown Etiology: Clinical Guidance by CMR

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Potential Conflicts of Interest

Medical Advisory Board - Services Sanofi-Aventis
Medical Advisory Board - Novartis
Research Agreements - Siemens Medical
Completely different prognosis

Felker GM et al. NEJM 2000;342:1077-84
CMR Impacts 2/3 patients with heart failure

Abbasi SA et al. JCMR 2013;15:89-97
Heart failure of unknown etiology

Clinical heart failure

LV systolic dysfunction

No history of MI or ECG Q waves

No clinical data suggesting CAD

CMR Additional Value

1. CAD vs non-CAD
2. Global/regional function
3. Inflammatory etiologies: Myocarditis, sarcoidosis, Tako-Tsubo
4. Other etiologies

CMR = cardiovascular magnetic resonance
Ischemic vs non-ischemic: CMR

Assomull RG et al. Circulation 2011;124:1351-60
Ischemic vs non-ischemic: CMR

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CMR = cardiovascular magnetic resonance
Real Time cines coming to clinical use

Fernandes JL et al. Unpublished data.

WIP
Sparse Sample
11.5x acceleration
Heart failure of unknown etiology

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CMR = cardiovascular magnetic resonance
Sarcoidosis

Sensitivity 100% - Specificity 78%
PPV 55% - NPV 100%

Abnormal thallium: 43% sensitivity

Smedema JP et al. JACC 2005;45:1683-90
Tako-Tsubo

Akashi YJ et al. Herz 2010;35:231-239
Myocarditis
Heart failure of unknown etiology

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4. Other etiologies

CMR= cardiovascular magnetic resonance
Hypertrophic cardiomyopathy

Quarta G et al. JACC Img 2011;11:1220-4
Chan RH et al. Circulation 2014;130:484-95
Chagas Disease

Table 2. Myocardial Fibrosis by MRI

<table>
<thead>
<tr>
<th></th>
<th>All (n = 51)</th>
<th>IND (n = 15)</th>
<th>CHD (n = 26)</th>
<th>VT (n = 10)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>With MF</td>
<td>35 (68.6)</td>
<td>3 (20.0)</td>
<td>22 (84.6)</td>
<td>10 (100)</td>
<td>&lt; 0.001*</td>
</tr>
<tr>
<td>Without MF</td>
<td>16 (31.4)</td>
<td>12 (80.0)</td>
<td>4 (15.4)</td>
<td>0 (0)</td>
<td>&lt; 0.001†</td>
</tr>
<tr>
<td>MF (% of LV mass)</td>
<td>13.4 ± 13.2</td>
<td>0.9 ± 2.3</td>
<td>16.0 ± 12.3</td>
<td>25.4 ± 9.8</td>
<td></td>
</tr>
</tbody>
</table>
Miscellaneous

Amyloidosis

Endomyocardial fibrosis

Non-compaction
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