Abstract: 614

**Myocardial 123I-mIBG scintigraphy as a tool to optimize CRT patient selection**

**Authors:**
DO Verschure\(^1\), HJ Verberne\(^1\), \(^1\)Academic Medical Center of Amsterdam, Nuclear Medicine - Amsterdam - Netherlands,

**Topic(s):**
Nuclear Cardiology, Other

**Citation:**
European Heart Journal - Cardiovascular Imaging (2019) 20 (Supplement 1), i350

**Aim**
Cardiac resynchronization therapy (CRT) is a disease modifying therapy in patients with chronic heart failure (CHF). Eligibility for CRT is based on QRS duration and NYHA functional capacity only. However, one-third of CHF patients does not benefit from CRT. Moreover, CRT is associated with malfunction and high costs. This study evaluated whether 123I-mIBG assessed cardiac sympathetic activity could optimize CRT patient selection.

**Methods**
42 stable CHF subjects (age 65.5±8.5 years, 71% male, LVEF 23±6.5%) referred for CRT-Defibrillator implantation were enrolled. All subjects underwent planar 123I-mIBG scintigraphy prior to CRT implantation. Early and late heart-to-mediastinum (H/M) ratio and 123I-mIBG washout (WO) were calculated. Changes in LVEF, QRS duration and NYHA functional class between baseline and 1 year follow-up were used as parameters of CRT response.

**Results**
Response to CRT was defined as improvement of QRS duration (n=26), NYHA functional class (n=24) and LVEF (n=28). Of all three response parameters only improvement of NYHA could be independently predicted by WO (p=0.003). None of the other myocardial 123I-mIBG parameters was associated with CRT response.

**Conclusion**
In stable CHF WO was associated with improvement of NYHA. Therefore, although preliminary, myocardial 123I-mIBG scintigraphy might help to optimize CRT patient selection.
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<table>
<thead>
<tr>
<th>Parameter</th>
<th>All (n =42)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>65.5 ± 8.5</td>
</tr>
<tr>
<td>Male (%)</td>
<td>30 (71)</td>
</tr>
<tr>
<td>Ischaemic heart disease (%)</td>
<td>16 (38)</td>
</tr>
<tr>
<td>NYHA II/III</td>
<td>28 (67)/ 14 (33)</td>
</tr>
<tr>
<td>LVEF (%)</td>
<td>22.8 ± 6.5</td>
</tr>
<tr>
<td>QRS time (msec)</td>
<td>153 ± 23</td>
</tr>
</tbody>
</table>

Planar 123I-mIBG using ME collimator

<table>
<thead>
<tr>
<th>Parameter</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Early H/M ratio</td>
<td>2.14 ± 0.41</td>
</tr>
<tr>
<td>Late H/M ratio</td>
<td>1.86 ± 0.41</td>
</tr>
<tr>
<td>123I-mIBG WO</td>
<td>12.8 ± 10.1</td>
</tr>
</tbody>
</table>