La prognosi del blocco AV dopo impianto di pacemaker

S.C. Cardiologia - Ospedali del Tigullio – Lavagna (GE)

Milena Aste 7/4/2016
Real world questions

• Which AVB needs pacing?
• Does AVB cause syncope?
• Is cardiac pacing effective in AVB-induced syncope?
• How to manage an unexplained syncope in undocumented (suspected) AVB?
Real world questions

- Which AVB needs pacing?
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Which AVB needs pacing?

Second degree AV block (Mobitz II)

Second degree AV block (2:1 block)

Third degree AV block with junctional escape
Real world questions

• Which AVB needs pacing?
• Does AVB cause syncope?
• Is cardiac pacing effective in AVB-induced syncope?
• How to manage an unexplained syncope in undocumented (suspected) AVB?
AVB and symptoms

- Syncope: 40%
- Dizzy spells: 21%
- Bradycardia: 22%
- Heart failure: 7.30%
- Other: 9.40%

Real world questions

• Which AVB needs pacing?
• Does AVB cause syncope?
• Is cardiac pacing effective in AVB-induced syncope?
• How to manage an unexplained syncope in undocumented (suspected) AVB?
**Is cardiac pacing effective in AVB-induced syncope?**

**Mean age:** 72±11 years  
**Follow-up:** 63±45 months  
**115 patients**

<table>
<thead>
<tr>
<th></th>
<th>Syncope before pacemaker</th>
<th>Syncope after pacemaker</th>
<th>Syncopal recurrence rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>73 (44%)</td>
<td>6 (3.4%)</td>
<td>7%</td>
</tr>
</tbody>
</table>

*Langenfeld et al, PACE, 1988*
Mean age: 70±14 years
Follow-up: 42±20 months

13 patients
Is cardiac pacing effective in AVB-induced syncope?

Europace Advance Access published February 6, 2016

doi:10.1093/europace/euv425

Syncope in patients paced for atrioventricular block

Milena Aste, Daniele Oddone, Paolo Donateo, Alberto Solano, Roberto Maggi, Francesco Croci, Diana Solari, and Michele Brignole*
Syncope in patients paced for AVB

Total population: 229 patients
Mean age: 80 ± 10 years
Follow up: 33 ±16 months

AVB documented and syncope
AVB undocumented and syncope
AVB, no syncope

Aste et al, Europace, 2016
Syncope in patients paced for AVB

Recurrence of syncope with pacemaker

Log rank: $p = 0.2$

<table>
<thead>
<tr>
<th>Months</th>
<th>AVB, no syncope</th>
<th>AVB + syncope</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>12</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>24</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>36</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>48</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>60</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

Number at risk
- Group: AVB + Syn: 91
  - 0 months: 83
  - 12 months: 69
  - 24 months: 43
  - 36 months: 27
  - 48 months: 16
- Group: AVB, No Syn: 132
  - 0 months: 114
  - 12 months: 92
  - 24 months: 61
  - 36 months: 32
  - 48 months: 17

Aste et al, Europace, 2016
Syncope in patients paced for AVB

Recurrence of syncope with pacemaker

- AVB, syncope: 1%
- AVB, no syncope: 3%
- Suspected AVB, syncope: 14%

Log rank: p = 0.001

Number at risk:
- AVB, no syncope: 132, 114, 92, 61, 32, 17
- AVB, syncope: 70, 64, 54, 30, 19, 12
- Undocumented AVB, syncope: 21, 19, 15, 13, 8, 4

Aste et al, Europace, 2016
Syncope in patients paced for AVB

Recurrence of syncope with pacemaker

- Persistent AVB
- Intermittent AVB
- Undocumented AVB

Log rank: p = 0.01

Number at risk
Group: Intermittent
45 42 34 20 13 9
Group: Persistent
25 22 20 10 6 3
Group: Undocumented
21 19 15 13 8 4

Aste et al, Europace, 2016
Syncope in patients paced for AVB

Aste et al, Europace, 2016
Real world questions

• Which AVB needs pacing?
• Does AVB cause syncope?
• Is cardiac pacing effective in AVB-induced syncope?
• How to manage an unexplained syncope in undocumented (suspected) AVB?
How to manage an unexplained syncope in suspected AVB?

Recurrence of syncope with pacemaker

- AVB, syncope: 1%
- AVB, no syncope: 3%
- Suspected AVB, syncope: 14%

Log rank: p = 0.001

Number at risk:

- AVB, no syncope: 132, 114, 92, 61, 32, 17
- AVB, syncope: 70, 64, 54, 30, 19, 12
- Undocumented AVB, syncope: 21, 19, 15, 13, 8, 4

Aste et al, Europace, 2016
How to manage an unexplained syncope in suspected AVB?

Recurrence of syncope and/or presyncope

<table>
<thead>
<tr>
<th>Condition</th>
<th>Months</th>
<th>0</th>
<th>12</th>
<th>24</th>
<th>36</th>
<th>48</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVB, no syncope</td>
<td></td>
<td>132</td>
<td>114</td>
<td>92</td>
<td>60</td>
<td>31</td>
<td>16</td>
</tr>
<tr>
<td>AVB, syncope</td>
<td></td>
<td>70</td>
<td>63</td>
<td>53</td>
<td>26</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Undocumented AVB, syncope</td>
<td></td>
<td>21</td>
<td>18</td>
<td>15</td>
<td>13</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

Log rank: $p = 0.002$

Aste et al, Europace, 2016
EP Study-ILR Guided Pacemaker Implantation versus Empiric Pacing in Patients with Bifascicular block and Syncope

Kalscheur and Donateo, et al, submitted
EP Study-ILR Guided Pacemaker Implantation versus Empiric Pacing in Patients with Bifascicular block and Syncope

Recurrence of syncope after PM implantation

Syncope free (%)

Number at risk

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>12</th>
<th>24</th>
<th>36</th>
<th>48</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empiric</td>
<td>26</td>
<td>20</td>
<td>14</td>
<td>11</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>EPS/ILR Guided</td>
<td>17</td>
<td>15</td>
<td>13</td>
<td>8</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

$p=0.02$

Kalscheur and Donateo et al, submitted
Cardiac pacing in patients with bifascicular block and unexplained syncope: the PRESS trial

Santini M et al Circ Arrhythm Electrophysiol. 2013
### Indication for cardiac pacing in patients with BBB

<table>
<thead>
<tr>
<th>Indication</th>
<th>Class</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) BBB, unexplained syncope and abnormal EPS. Pacing is indicated in patients with syncope, BBB and positive EPS defined as HV interval of ≥70 ms, or second- or third-degree His-Purkinje block demonstrated during incremental atrial pacing or with pharmacological challenge</td>
<td>I</td>
<td>B</td>
</tr>
<tr>
<td>3) BBB, unexplained syncope with non-diagnostic investigations. Pacing may be considered in selected patients with unexplained syncope and BBB</td>
<td>IIb</td>
<td>B</td>
</tr>
</tbody>
</table>

**Clinical perspectives:**
Old patients with BBB and unexplained syncope after a reasonable work-up might benefit from empirical PM, especially if syncope is unpredictable (with no or short prodrome) or has occurred in supine position or during effort.
• AVB III or AVB II Mobitz 2 needs cardiac pacing.
• Syncope is a common symptom of AVB.
• Cardiac pacing treats efficacely syncope when AVB is documented.
• In an unexplained syncope and BBB think to undocumented AVB; remember EPS/ILR approach.
• In frail patients with BBB and unexplained syncope, look for structural heart disease.
Grazie per l’attenzione!