ETV e hipertension pulmonar

IX Multidisciplinary Forum on Venous Thromboembolism

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Pulmonary Hypertension French Network
CTEPH Epidemiology

**International CTEPH registry**

- Recruited: n = 679
- 5 patients with no operability data (non-operated)
  - Operable: n = 427
  - Non-operable: n = 247
    - Non-operated: n = 54
      - 7 died
      - 37 refused surgery
      - 10 waiting for surgery
    - Operated: n = 373
    - Operated*: n = 13
    - Non-operated: n = 234
      - Operated: n = 386 (56.8%)

L Bertoletti, RIETE, May 2013

Pepke-Zaba J et al. Circulation 2011
CTEPH Epidemiology

All patients (n=679)

- No difference in sex ratio
- Past history of PE: 3/4
  - Recurrent PE: 1/3
- Past history of DVT: 1/2

Operable patients (n=427)

Vs non operable

International CTEPH registry

L Bertoletti, RIETE, May 2013
CTEPH Epidemiology

All patients (n=679)

- No difference in sex ratio
- Past history of PE : 3/4
- Recurrent PE : 1/3
- Past history of DVT : 1/2

Operable patients (n=427) Vs non operable

- male
- Past history of PE
- Recurrent PE
- Past history of DVT
Gender in PE patients

Men with PE: ↑ frequency of associated DVT

<table>
<thead>
<tr>
<th>Table 5</th>
<th>Contribution of each diagnostic test to rule in and to rule out PE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women (n = 1486)</td>
</tr>
<tr>
<td>PE ruled out, n</td>
<td>1159</td>
</tr>
<tr>
<td>Negative DD in non high CP</td>
<td>435 (37.5)</td>
</tr>
<tr>
<td>Negative CT</td>
<td>706 (60.9)</td>
</tr>
<tr>
<td>Other negative tests (V/Q scan, PA)</td>
<td>18 (1.6)</td>
</tr>
<tr>
<td>PE ruled in, n</td>
<td>327</td>
</tr>
<tr>
<td>Positive proximal CUS in</td>
<td>107 (32.7)</td>
</tr>
<tr>
<td>either positive DD or high CP patients</td>
<td>213 (65.1)</td>
</tr>
<tr>
<td>Positive CT</td>
<td>7 (0.5)</td>
</tr>
<tr>
<td>Other positive tests (V/Q scan, PA)</td>
<td>7 (0.5)</td>
</tr>
</tbody>
</table>
DVT, PE, and CTEPH

Prognostic value of DVT in PE

5183 patients with PE and concomitant DVT:

Risk of Recurrent PE = \( \times 4.23 \)

Risk of Fatal PE = \( \times 4.25 \)

L Bertoletti, RIETE, May 2013

Jiménez D and the RIETE Investigators. Am J Respir Crit Care Med 2010
2375 patients with proximal DVT without symptomatic PE: « Silent PE » in 842 patients (35%)
CTEPH Epidemiology

All patients (n=679)

- No difference in sex ratio
- Past history of PE : 3/4
  - Recurrent PE : 1/3
- Past history of DVT : 1/2
- Potential others causes of Pulmonary hypertension : 1/5

Operable patients (n=427) Vs non operable

- male
  - Past history of PE
  - Recurrent PE
  - Past history of DVT
- Potential others causes of Pulmonary hypertension
Comorbidities and CTEPH

- **TTE** (6 to 24 months after PE) in **557 patients**:
  - sPAP>50 mmHg: 62 patients (11.1%; 95% CI: 8.72-14.1)

<table>
<thead>
<tr>
<th>Comorbidities</th>
<th>All patients HR (95% CI)</th>
<th>Only women HR (95% CI)</th>
<th>Only men HR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥70 years</td>
<td>-</td>
<td>2.5 (0.9-6.8)</td>
<td>-</td>
</tr>
<tr>
<td>Female ≥70 years</td>
<td></td>
<td>2.0 (1.0-3.7)*</td>
<td>-</td>
</tr>
<tr>
<td>Chronic heart or lung disease</td>
<td>2.4 (1.3-4.4)†</td>
<td>2.8 (1.4-5.9)†</td>
<td>5.9 (1.3-26)*</td>
</tr>
<tr>
<td>Immobility ≥4 days</td>
<td>-</td>
<td>-</td>
<td>3.7 (0.9-14.8)</td>
</tr>
<tr>
<td>Shock index ≥1</td>
<td>-</td>
<td>-</td>
<td>4.0 (0.9-17.5)</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>2.8 (1.3-6.1)†</td>
<td>2.6 (1.1-5.7)*</td>
<td>-</td>
</tr>
<tr>
<td>Right bundle branch block</td>
<td>-</td>
<td>-</td>
<td>3.7 (1.0-13.1)*</td>
</tr>
<tr>
<td>S(_1)Q(_3)T(_3) pattern</td>
<td>-</td>
<td>-</td>
<td>0.1 (0.02-0.8)*</td>
</tr>
<tr>
<td>Varicose veins</td>
<td>1.8 (1.0-3.3)*</td>
<td>-</td>
<td>9.0 (2.0-41)†</td>
</tr>
<tr>
<td>Pleuritic pain</td>
<td>0.6 (0.3-1.0)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

L Bertoletti, RIETE, May 2013

Oterro R and the RIETE Investigators, Thromb Res 2013
1. International CTEPH registry:
   - Huge international collaboration, but highly selected population.
   - History of PE in 3/4 patients, recurrent PE in 1/3
   - Frequency of past DVT
   - Operable group: male, with past VTE, without comorbidities.

2. RIETE registry:
   - Huge international collaboration, but closer to « real-life »

3. Conjunction between RIETE and the CTEPH registry:
   - may provide complementary data
   - comfort « thrombosis hypothesis » of CTEPH... in 3/4 patients.

L Bertoletti, RIETE, May 2013
Thanks for your attention!
(and to S & H)
1. In patients with proven Chronic Thrombo-Embolic Pulmonary Hypertension (CTEPH), past history of PE is known in:
   a. A minority of patients
   b. Only in patients with biologic thrombophilia
   c. A majority of patients
   d. All patients
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   a. A minority of patients
   b. Only in patients with biologic thrombophilia
   c. A majority of patients
   d. All patients
2. In patients with proven CTEPH, past history of DVT is:
   a. Unusual
   b. Unnecessary to conclude to CTEPH
   c. Known for a majority of patients
   d. Known for all patients
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   a. Unusual
   b. **Unnecessary to conclude to CTEPH**
   c. Known for a majority of patients
   d. Known for all patients

L Bertoletti, RITE, May 2013
Pre-test

3. In patients with history of PE, elevated systolic Pulmonary Arterial Pressure is:
   a. exceptional
   b. Sufficient to conclude to CTEPH
   c. Possibly linked to comorbidities
   d. Found in a majority of patients
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<table>
<thead>
<tr>
<th></th>
<th>Tous les Patients (679)</th>
<th>Patients Opérables (427)</th>
<th>Patients Non-opérables (247)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (% hommes)</td>
<td>50</td>
<td>53,4</td>
<td>44,5</td>
<td>0,03</td>
</tr>
<tr>
<td>Age (median)</td>
<td>63</td>
<td>61</td>
<td>67</td>
<td>0,43</td>
</tr>
<tr>
<td>Past history of PE (%)</td>
<td>74,8</td>
<td>77,5</td>
<td>70</td>
<td>0,034</td>
</tr>
<tr>
<td>Past history of PEs (%)</td>
<td>32,8</td>
<td>35</td>
<td>28,8</td>
<td>0,2</td>
</tr>
<tr>
<td>Past history of DVT (%)</td>
<td>56</td>
<td>60,4</td>
<td>49</td>
<td>0,03</td>
</tr>
<tr>
<td>Fibrinolytic (%)</td>
<td>14,4</td>
<td>18,5</td>
<td>6,6</td>
<td>&lt;0,01</td>
</tr>
<tr>
<td>IVCF (%)</td>
<td>12,4</td>
<td>13,7*</td>
<td>10,2</td>
<td>0,31</td>
</tr>
<tr>
<td>Others potential causes of PH (%)</td>
<td>21</td>
<td>17</td>
<td>27</td>
<td>&lt;0,01</td>
</tr>
</tbody>
</table>

*40% en pré-hop

Pepke-Zaba J et al. Circulation 2011