PET based response evaluation according to Lugano classification: Where are we in daily practice?

Hodgkin Lymphoma

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• Are the Deauville criteria used?
• What about Deauville score 3 - reproduceability
• Discrimination score 1 and 2
• Discrimination score 4 and 5
• End-of-treatment PET if interim PET negative?
• Impact of a positive End-of-treatment PET?
Are the Deauville criteria used?
Scoring among five readers

Probability of concordance

Five categories:
D1 vs D2 vs D3 vs D4 vs D5
0.422

Three categories:
D1,2 vs D3 vs D4,5
0.604

Two categories:
D1,2 vs D3,4,5
0.674

Two categories:
D1,2,3 vs D4,5
0.864
Deauville score 3 - reproduceability

Central vs. local PET interpretation

PFS from PET panel date +/- 95%%CI

Pts. at Risk

<table>
<thead>
<tr>
<th>Group</th>
<th>0</th>
<th>12</th>
<th>24</th>
<th>36</th>
<th>48</th>
<th>60</th>
<th>72</th>
</tr>
</thead>
<tbody>
<tr>
<td>cPET-, lPET-</td>
<td>513</td>
<td>475</td>
<td>411</td>
<td>309</td>
<td>215</td>
<td>109</td>
<td>42</td>
</tr>
<tr>
<td>cPET-, lPET+</td>
<td>35</td>
<td>30</td>
<td>26</td>
<td>21</td>
<td>16</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>cPET+, lPET-</td>
<td>36</td>
<td>33</td>
<td>26</td>
<td>20</td>
<td>15</td>
<td>10</td>
<td>2</td>
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<tr>
<td>cPET+, lPET+</td>
<td>155</td>
<td>129</td>
<td>116</td>
<td>84</td>
<td>51</td>
<td>28</td>
<td>9</td>
</tr>
</tbody>
</table>
Discrimination score 1 and 2

log–rank test, \( p = 0.0318 \)

- visual score, \( RC1 < 3 \)
- visual score, \( RC1 \geq 3 \)

log–rank test, \( p = 0.1629 \)

- visual score, \( RC1 < 4 \)
- visual score, \( RC1 \geq 4 \)
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
<th>Positive predictive value (%)</th>
<th>Negative predictive value (%)</th>
<th>Accuracy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>97</td>
<td>76</td>
<td>64</td>
<td>98</td>
<td>84</td>
</tr>
<tr>
<td>DC4&lt;sup&gt;b&lt;/sup&gt;</td>
<td>92</td>
<td>87</td>
<td>74</td>
<td>92</td>
<td>86</td>
</tr>
</tbody>
</table>

<sup>a</sup> *Deauville Criteria considering scores 3 – 5 as positive*  
<sup>b</sup> *Deauville Criteria considering scores 4 and 5 as positive*
Progression-free survival of 331 evaluable patients with Hodgkin lymphoma treated with response-adapted therapy on the Southwest Oncology Group S0816 trial
Hodgkin lymphoma: a negative interim-PET cannot circumvent the need for end-of-treatment-PET evaluation
Impact of a positive End-of-treatment PET?

J. Radford et al. NEJM 2015

A Intention-to-Treat Analysis

Progression-free Survival (%)

Rate ratio, 1.57 (95% CI, 0.84–2.97)
P=0.16

No. at Risk
Radiotherapy 209 198 188 170 134 99 57 30 13 2 0
No further treatment 211 190 181 153 129 89 50 14 5 0 0

Months since Randomization
Thank you for your attention!