
DATE: 30 May 2016

RESEARCH QUESTIONS

1. What is the accuracy of programmed death ligand 1 (PD-L1) diagnostic antibody assays?
2. What is the clinical utility of PD-L1 testing in patients with non-small cell lung cancer?
3. What is the effectiveness of programmed cell death protein 1 (PD-1)/PD-L1 checkpoint inhibitors for treating patients with non-small cell lung cancer with different levels of PD-L1 expression?

KEY FINDINGS

Two health technology assessments, five systematic reviews, three randomized controlled trials, and two non-randomized studies were identified regarding the effectiveness of PD-1/PD-L1 checkpoint inhibitors for treating patients with non-small cell lung cancer with different levels of PD-L1 expression. No relevant studies were identified regarding the accuracy of diagnostic antibody assays or clinical utility of PD-L1 testing.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. Methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials and non-randomized studies. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between Jan 1, 2011 and May 23, 2016. Internet links were provided, where available.

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### SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

<table>
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<tr>
<th>Table 1: Selection Criteria</th>
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<tr>
<td><strong>Population</strong></td>
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<tr>
<td>Q1: Patients with cancer</td>
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<tr>
<td>Q2, Q3: Patients with non-small cell lung cancer</td>
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<td><strong>Intervention</strong></td>
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<td>Q1, Q2: PD-L1 testing</td>
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<td>Q3: PD-1/PD-L1 checkpoint inhibitors (nivolumab, pembrolizumab, atezolizumab [MPDL3280A], durvalumab [MEDI4736], and avelumab [MSB0010718C])</td>
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<td><strong>Comparator</strong></td>
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<td>Q1, Q2: Any</td>
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<td>Q3: Different PD-L1 expression levels</td>
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<td><strong>Outcomes</strong></td>
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<tr>
<td>Diagnostic accuracy, clinical utility (benefits and harms of testing), overall survival, progression-free survival, quality of life, objective response rate, duration of response, and time to response</td>
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<tr>
<td><strong>Study Designs</strong></td>
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<td>Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies</td>
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PD-L1 = programmed death ligand 1; PD-L1 = programmed death ligand 1.

### RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, and non-randomized studies.

Two health technology assessments, five systematic reviews, three randomized controlled trials, and two non-randomized studies were identified regarding the effectiveness of PD-1/PD-L1 checkpoint inhibitors for treating patients with non-small cell lung cancer with different levels of PD-L1 expression. No relevant studies were identified regarding the accuracy of diagnostic antibody assays or clinical utility of PD-L1 testing.

Additional references of potential interest are provided in the appendix.

### Health Technology Assessments

   See: 6.2 Efficacy and safety – further studies, page 10

Systematic Reviews and Meta-analyses


Randomized Controlled Trials


Non-Randomized Studies

APPENDIX – FURTHER INFORMATION:

Review Articles


Additional References

