poster#1422p: comprehensive genomic profiling (cgp) changes management and improves survival in patients with advanced non-small cell lung cancer (aNSCLC)

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Background:
- Advances in therapies for patients with NSCLC require personalizing treatment based on patients’ tumor genetic profiles to improve outcomes. Approaches to evaluate tumor biomarkers include a range of testing from single gene testing to small panels to Cgp which includes hundreds of genes and signatures like TMB and MSI.
- This study compared actionable biomarker detection, matched targeted therapy receipt, and clinical outcomes in patients with aNSCLC tested with Cgp vs small panels.

Methods:
- This is a retrospective study of adult patients in the US community setting diagnosed with aNSCLC between 1/1/2015 and 12/31/2020.
- Patients were followed from aNSCLC diagnosis (index) until the earliest of death or study end and (9/30/2021) categorized based on the most comprehensive testing during follow-up as small panel (≤52 genes) or Cgp (>52 genes).
- Biomarker actionability was defined by OncoKB classification: FDA recognized (Level 1), standard of care (Level 2), or categorized based on the most comprehensive testing during follow-up as small panel (≤52 genes) or Cgp (>52 genes).
- Likelihood of receipt of matched therapy was assessed using logistic regression; Kaplan-Meier and Cox proportional hazards models were used to assess real-world overall survival (rwOS).

Results:

1. Patient Characteristics
Among 3,884 patients
- Median age 68 years, 73% Non-White, 50% male, 73% Non-Hispanic White
- 20% received Cgp and 80% small panel as the most comprehensive test

2. Biomarker Actionability
- A significantly higher proportion of patients tested with Cgp had actionable results compared to patients tested with only small panels (32% vs 14%; p<0.001)
- Of patients with actionable biomarkers, a higher proportion of CGP patients received matched therapies compared to small panel (39% vs 29%; p<0.001)

Patients who received Cgp testing had improved use of matched therapies and greater real world overall survival compared to patients receiving small panel testing. Broader adoption of Cgp may improve detection of actionable biomarkers, increasing utilization of appropriate matched therapies resulting in better outcomes.

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Dr. Simon serves as a consultant to Syapse.

3. Testing Type as a Predictor of Matched Therapy Receipt

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Logistic Regression Model Specification*</th>
<th>Outcome</th>
<th>Population</th>
<th>Model output OR (95% CI) for Cgp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cgp Prior to 1L vs. Small Panel</td>
<td>Matched therapy per OncoKB level 1 or 2 in any line*</td>
<td>1,739 patients tested prior to 1L</td>
<td>3.21 (1.98, 5.19)</td>
<td></td>
</tr>
</tbody>
</table>

4. rwOS from aNSCLC Diagnosis, by Testing Type and Receipt of Systemic Therapy

<table>
<thead>
<tr>
<th>Number at Risk</th>
<th>Testing/Treatment Group</th>
<th>Median, months (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small panel with any systemic therapy</td>
<td>1852</td>
<td>15 (14-16)</td>
</tr>
<tr>
<td>Small panel and no systemic therapy</td>
<td>1253</td>
<td>4 (4-5)</td>
</tr>
<tr>
<td>Cgp with any systemic therapy</td>
<td>603</td>
<td>22 (18-25)</td>
</tr>
<tr>
<td>Cgp and no systemic therapy</td>
<td>176</td>
<td>10 (6-15)</td>
</tr>
</tbody>
</table>

Treated patients receiving Cgp testing during follow-up had greater median rwOS (22 months vs. 15 months) compared to treated patients tested using only small panel.

5. Predictors of rwOS by Testing Type in a Cox Proportional Hazard Model

<table>
<thead>
<tr>
<th>Alive</th>
<th>Deceased</th>
<th>Hazard Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 1186</td>
<td>N = 2698</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>906 (76%)</td>
<td>2,139 (82%)</td>
</tr>
<tr>
<td>Yes</td>
<td>280 (24%)</td>
<td>499 (18%)</td>
</tr>
</tbody>
</table>

Cgp testing was associated with significantly reduced mortality (HR 0.8)

Model adjusted for for year of aNSCLC, stage, histology, age, sex, race/ethnicity, median income, smoking history, CCI, ECOG, number of metastatic sites, and health system.

CGP prior to 1L treatment was associated with higher likelihood of receiving matched therapy among treated patients.

CGP Testing

CGP Prior to 1L vs. Small Panel

Matched therapy per OncoKB level 1 or 2 in any line*

1,739 patients tested prior to 1L

3.21 (1.98, 5.19)