Clinical impact of adherence to NCCN biomarker testing guidelines on survival for patients with non-squamous, advanced non-small-cell lung cancer (aNSCLC)

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BACKGROUND

• In the US, the 5-year survival for lung cancer patients is 27.7% (2019), this is a 26% improvement over the past 10 years.
• The National Comprehensive Cancer Network (NCCN) guideline recommends molecular diagnostic testing as part of the pathologic evaluation for patients with non-squamous aNSCLC. However, not all patients with cancer are tested and treated in routine practice.
• Few studies have examined the impact of adherence to biomarker testing on patient outcomes in a real-world setting.

OBJECTIVE

• The primary objective of this study was to evaluate the clinical impact of adherence to NCCN biomarker testing guidelines on overall survival and risk of mortality among advanced non-squamous NSCLC patients using real-world data.
• Additional analyses were conducted for those with an initial diagnosis of stage 4 and also assessed overall survival truncated at one year.

STUDY METHODS & DESIGN

NCCN Biomarker Guideline Pathway

aNSCLC non-squamous cell

Adherent

Non-adherent

Evidence of reported biomarker testing was assessed as any time between 14 days prior to and 90 days after index date (aNSCLC diagnosis date).

Statistical Analysis

• Median survival (95% CI) was calculated using Kaplan-Meier analysis.
• Unadjusted and adjusted Cox proportional hazard regression models were used to evaluate the association between testing status and overall survival.
• For the multivariable model, clinical variables at baseline were identified a priori (age, sex, smoking, stage) along with variables that were statistical significant or with change in hazard ratio (HR) estimates of 10% or more from univariable models.

RESULTS

Table 1. Patient Demographics & Clinical Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Full cohort</th>
<th>Non-adherent group</th>
<th>Adherent group*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean, SD)**</td>
<td>67.9 (9.9)</td>
<td>68.2 (9.5)</td>
<td>67.7 (10.1)</td>
</tr>
<tr>
<td>Male, %</td>
<td>48%</td>
<td>50%</td>
<td>47%</td>
</tr>
<tr>
<td>White, %</td>
<td>68%</td>
<td>69%</td>
<td>68%</td>
</tr>
<tr>
<td>Community practice, %</td>
<td>91%</td>
<td>92%</td>
<td>91%</td>
</tr>
<tr>
<td>Had insurance, %</td>
<td>67%</td>
<td>68%</td>
<td>68%</td>
</tr>
<tr>
<td>Smoking history, %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>84%</td>
<td>89%</td>
<td>82%</td>
</tr>
<tr>
<td>Diagnosed between 2016-2019, %</td>
<td>44%</td>
<td>29%</td>
<td>51%</td>
</tr>
<tr>
<td>Initially diagnosed at advanced stage‡</td>
<td>75%</td>
<td>43%</td>
<td>84%</td>
</tr>
<tr>
<td>Stage IV only~</td>
<td>65%</td>
<td>43%</td>
<td>75%</td>
</tr>
<tr>
<td>Days between aNSCLC dx to first biomarker test result, median (IQR)</td>
<td>11.7 (5.3-22.7)</td>
<td>11.8 (6.3-23.6)</td>
<td>11.7 (6.3-22.3)</td>
</tr>
<tr>
<td>Days between first biomarker test result to FLOT (if available), median (IQR)</td>
<td>19 (9-31)</td>
<td>11.7 (5.3-22.7)</td>
<td>11.8 (6.3-23.6)</td>
</tr>
</tbody>
</table>

SUMMARY OF KEY FINDINGS

Overall population of patients with non-squamous aNSCLC (Table 1).

• Mean age at diagnosis was 68 years (SD 10 years).
• 34% of patients had history of smoking; 75% had initial advanced stage diagnosis.
• 91% were from community practices; 67% had insurance plans.
• Majority of overall survival was biomarker test results reported within 31 days after an advanced diagnosis.
• Most patients had their first line of treatment initiated by 31 days after biomarker results were reported.

Comparing biomarker testing adherent vs. non-adherent group (Table 2).

• 51% vs 23% were diagnosed between 2016-2019.
• 84% vs 55% were initially diagnosed at advanced stage.
• 75% vs 43% were stage IV at initial diagnosis.

Full cohort - Overall risk for all-cause mortality

• After adjusting for age, sex, smoking, stage: HR [95% CI] = 0.89 [0.86 - 0.92].

Stage IV - Overall risk for all-cause mortality

• After adjusting for age, sex, smoking, stage: HR [95% CI] = 0.80 [0.77 - 0.84].

CONCLUSIONS

In this large cohort of patients with non-squamous aNSCLC primarily being treated in US community oncology practices:

• About two-thirds appear to be adherent to NCCN biomarker testing guidelines.
• Patients who were in the adherent group:
  • About two-thirds appear to be adherent to NCCN biomarker testing guidelines.
  • And slightly more survival time compared to those in the non-adherent group.
• Results from this study reaffirms the value of individual biomarker testing for treatment selection, and also demonstrates that a precision medicine approach supported by NCCN guidelines should be integral to the management of patients with aNSCLC.

REFERENCES


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