INTRODUCTION

• The National Comprehensive Cancer Network (NCCN) recommends that patients with a/mNSCLC receive targeted therapy or immunotherapy.

• Molecular testing for biomarkers in patients with a/mNSCLC is essential for diagnostic purposes and use of targeted therapy

  - While current guidelines focus on testing of genes associated with approved drugs, they also suggest performing broader molecular profiling due to the rapidly changing treatment landscape.

• While high 1L testing rates were previously observed,2 with the exception of lower testing rates for newly approved actionable biomarkers in community practices, testing patterns across later LOT for patients with a/mNSCLC remain unclear

METHODS

Data source

This retrospective real-world study used the ConcertAI Patient360® database to assess biomarker testing patterns and biopsy rates among adults with nonsquamous a/mNSCLC (2017–2022)

Patients

Inclusion criteria

• A confirmed diagnosis of advanced, local, or metastatic (Stage 3B or above) NSCLC on or after January 1, 2017, and received systemic therapy

  • ≥18 years of age at the date of diagnosis

  • Histology code for nonsquamous NSCLC

  • Received ≥1 LOT within 90 days of diagnosis

  • ≥90 days of follow-up after diagnosis date

Exclusion criteria

• Presence of histology for small cell lung cancer or squamous cell carcinoma

• Received 1L therapy for cancer other than lung cancer

• Received primary cancer diagnoses other than NSCLC within 1 year prior to the initial NSCLC diagnosis, allowing for benign cancer and skin cancer

• Clinical trials participation

Study analysis

• Biopsy and biomarker testing assessed actionable genetic alterations (ALK, BRAF, EGFR, KRAS, NTRK, RET, ROS1) and PD-L1 by LOT (1L, 2L, third-line [3L]), test modality (immunohistochemistry, fluorescence in situ hybridization, chromogenic in situ hybridization, next-generation sequencing [NGS], PCR), and sample type (tissue/liquid)

• The frequency and the proportion distribution of outcomes and patient characteristics were determined

• The two-sided 95% CI was calculated using the Clopper-Pearson exact binomial tests for binary variables4, and methods for multinomial proportions for nonmultinomial variables, such as Sison and Glaz

RESULTS

After application of inclusion and exclusion criteria, 4528 patients were included in the analyses

Patient population and demographics

• Of 4528 patients, 51% were female, 76% were White, 70% were treated in community settings, and the mean (SD) age at index a/mNSCLC diagnosis was 67.2 (10.2) years

• Most patients were stage 3B or higher at index a/mNSCLC diagnosis (98.4%)

Biomarker testing rate

• NGS was the most commonly used testing modality associated with approved drugs, they also suggest performing broader molecular profiling due to the rapidly changing treatment landscape.

• Among patients who received the corresponding line, the retesting rate was 29% at 2L, 35% at 2L, and 26% at 3L from 2020–2022

• Biomarker testing was most often performed with blood through all LOT

Later-line biomarker retesting and rebiopsy rates

• Among patients who received the corresponding line, and received any biomarker testing for their prior line, the retesting rate was 29% at 2L, and 25% at 3L from 2017–2022, and 35% at 2L and 26% at 3L from 2020–2022

• The overall 2L rebiopsy rate was 20%, and 3L rebiopsy rate was 17%

• Among patients who received 2L or 3L treatment and had at least 1 biopsy at the corresponding line setting, the rebiopsy rate during the overall period (2017–2022) was 19% for tissue and 39% for liquid at 2L, and 13% for tissue and 38% for liquid at 3L

• During the 2L rebiopsy period, the rebiopsy rate was 21% for tissue and 36% for liquid at 2L, and 10% for tissue and 42% for liquid at 3L

CONCLUSIONS

Tissue was most frequently used in first-line (1L) for biomarker testing; however, tissue was not regularly rebiopsied in second-line plus (2L+) settings

While biomarker testing rates dropped as patients navigated through LOT, the retesting rate was higher among patients with an actionable mutation in 1L

Standardization of biomarker testing post-1L is needed to facilitate optimal later-line treatment decisions and individualized care for patients with a/mNSCLC