Evolution of Biomarker Testing among Non-squamous Non-small Cell Lung Cancer Patients and Impact on Turnaround Times

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BACKGROUND

- Lung cancer is the leading cause of cancer and cancer-related deaths in Canada1.
- Almost half of patients with advanced non-squamous non-small cell lung cancer (NSCLC) have targetable mutations2.
- Molecular testing results drive treatment decisions in patients with advanced non-squamous NSCLC, thus the availability of complete biomarker testing impacts patient treatment and outcomes.

OBJECTIVE

To describe real-world genomic testing and turnaround times in patients with advanced (III/IV) non-squamous NSCLC at a quaternary cancer centre (Princess Margaret Cancer Centre, Toronto, Canada).

METHODS

- Ambispective review of 3 patient cohorts diagnosed with non-squamous NSCLC at the centre over time:
  - Cohort 1 (2015-2017) patients had reflex EGFR (EntroGen®) and ALK (5A4 IHC) single gene testing on tumor samples.
  - Cohort 2 (2017-2019) patients had reflex EGFR (EntroGen®) and ALK (5A4 IHC) single gene testing on tumor samples.
- Actionable genomic alterations (AGA) identified, turnaround time for result sign out from biopsy, test request and/or initiation are described.

RESULTS

- Table 1. Patient demographics at diagnosis.
- Table 2. Actionable genomic alterations identified.
- Table 3. Availability of molecular results at Medical Oncology consultation.
- Table 4. Molecular testing and treatment outcomes for Stage IV patients.

CONCLUSIONS

- Expanded profiling identifies more patients with AGA leading to more targeted first-line therapies beyond chemotherapy.
- The TAT of NGS panels appears similar, but longer than qPCR (C1). This increases the time from testing to treatment decision at time of Medical Oncology consultation, and onset of treatment.
- Acceleration of all steps in NGS testing, including both pathologist review and signout and lab NGS process, are an important area for future improvement.

REFERENCES


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