Genomic Testing for Lung Cancer

PATIENT SELECTION
- All patients with lung cancer should get genomic testing.
- Patients with adenocarcinoma of the lung, age younger than 65, or mixed histology have the highest rates of genomic alterations.

TYPE OF BIOPSY
- Primary tumors and metastatic lesions are equally suitable for genomic testing.
- Bone biopsies are potentially suboptimal due to decalcification and degradation of DNA.

TREATMENT DECISIONS
Clinicians should wait for genomic testing results before initiating immunotherapy or checkpoint inhibitors to avoid toxicities like pneumonitis.

LACK OF RESPONSE TO IMMUNOTHERAPY
Lung cancer with EGFR mutations or ALK rearrangements have close to zero response to immunotherapy and benefit the most from targeted therapy.

COMMUNICATION
Communication between medical oncologists and interventionalists (eg, radiology, pulmonary) is essential to ensure sufficient tissue.

LIQUID BIOPSY
- Liquid biopsy evaluates cell-free DNA from multiple sources, including DNA shed from tumor in peripheral blood.
- Sensitivity is 70%-80%, and specificity is near 100%.

TESTING
- Multigene testing like next gene sequencing (NGS) is encouraged to detect a wide range of mutations, using least amount of tissue.
- Multigene testing is generally less costly than sequential gene testing but may have preauthorization requirements.

WAITING TIME
- Results for liquid biopsies usually come back in 5-7 business days.
- Results from tissue biopsies can range from 1 to 4 weeks depending of the platform utilized and whether sequential testing was ordered.

CLINICAL TRIALS
Genomic testing increases patients’ treatment options, such as enrollment in clinical trials.

MISSING THE TARGET
- Testing rates for EGFR and ALK improved over time to 87% and 70%, respectively, in 2018.
- Rates for ROS1 testing remained low in 2018, at only 15%-28%.

To learn more go to foundation.chestnet.org/lung-cancer

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