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TUMOUR BIOLOGY AND PATHOLOGY

3P Notable variation of molecular testing in metastatic lung cancer in the Netherlands

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Background: Adequate and timely testing for molecular alterations in NSCLC is necessary to enable treatment with tyrosine kinase inhibitors (TKI) when a certain mutation or rearrangement is present. On a nationwide basis, we aimed to assess the performance of molecular testing for EGFR and/or KRAS mutation, and ALK and ROS rearrangement in a cohort of metastatic NSCLC.

Methods: All stage IV non-squamous NSCLC from 2013 and 2015 were identified from the Netherlands Cancer Registry and matched to the Dutch Pathology Registry (PALGA). Using information extracted from pathology reports, proportions of tumors tested for EGFR and/or KRAS and ALK, and in 2015 also for ROS, within 3 months after diagnosis, were determined, and variation between 48 laboratories was assessed. In a best practice session with 4 laboratories with highest testing proportions, we tried to identify a process for the best possible flow and highest possible testing proportions.

Results: In total, 6,619 tumors were included (2013: N = 3,195; 2015: N = 3,424). In 2013, EGFR and/or KRAS testing was performed in 73.1% (variation between laboratories 30.6% to 91.7%) and was significantly higher in 2015: 78.9% (40.0% to 91.0%). Of the EGFR/KRAS wildtype (wt) tumors, 49.5% underwent ALK testing in 2013 (6.3% to 100%) and 77.4% in 2015 (32.5% to 100%), which was significantly higher. ROS testing was performed for 50.9% (0% to 100%) of the EGFR/KRAS wt tumors from 2015. In 2015, 6, 7 and 13 laboratories tested significantly less often for EGFR/KRAS, ALK and ROS, respectively, than the national proportion. Insufficient tissue was the most stated reason for not testing. The best practice session showed that, among other, dedicated specialized personnel, good communication with short lines, and a work culture of critical openness and honesty are essential for adequate molecular testing.

Conclusions: Although molecular testing proportions were significantly higher in 2015, improvement remains possible in some laboratories/hospitals, considering that some patients were possibly unjustly not eligible for TKI. Feedback on molecular testing performance was sent to individual laboratories, so they can review, and, if needed, improve their practice.

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