Implementation Of EGFR Mutation Testing In Antwerp, Belgium: The Hermes-Project

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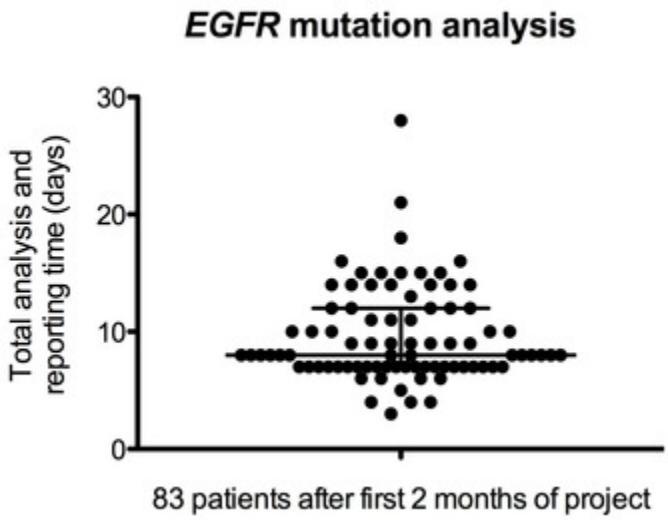
RATIONALE: Epithelial growth factor receptor tyrosine kinase inhibitors (EGFR TKI) are the preferred first-line treatment in metastatic non-small cell lung cancer (NSCLC) patients whose tumor harbors an activating EGFR mutation. Such a personalized treatment requires that the EGFR mutation testing be carried out in a timely fashion. The aim of the Hermes project was to implement the centralized EGFR mutation testing in daily practice in the hospitals in the province of Antwerp and to determine the frequency of EGFR mutation in our Belgian population of NSCLC.

METHODS: Pulmonologists and pathologists from 11 different hospitals in Antwerp participated in this study. After written informed consent was obtained, tissue samples of lung cancer patients were sent to one of the two central labs for EGFR mutation analysis. We measured the time each step took until the treating physician got the report of the mutation analysis. After an initial 2-month period those logistic steps that took too long could be remediated.

RESULTS: From November 2010 until June 2011 samples of 107 lung cancer patients were included. The demographics of the patients were as follows: median age 65 year; 64% men; 98% Caucasian/ 1 % Asian/ ethnicity unknown in 1pt; 42% smokers/ 46% ex-smokers/ 12% never-smokers; 78% adenocarcinoma/ 12% squamous/ 1% large cell/ 5% NSCLC NOS/ 1% SCLC/ 3% unknown. In 5 samples the EGFR analysis could not be performed due to lack of tumoral cells or insufficient DNA quality. In the first 2-month period, the median time for the total analysis reporting took a median of 10 days. However in 9/24 patients it took the local labs between 5 and 16 days to ship the samples to the central lab. After this logistic process was optimized, it took ≤14 calendar days to get the mutation results in 88% of patients (median time of 9 days; see figure).



In 7 patients an activating EGFR mutation was found (6 exon 19 deletions and 1 exon 21 L858R). The mutations were found in 4 men/ 3 women; 2 smokers/ 3 ex-smokers/ 2 never-smokers; 6 Caucasians/ 1 Asian; 7 adenocarcinomas.

CONCLUSIONS: In the province of Antwerp EGFR mutation analysis can be performed within 14 days in the routine clinical practice. In our Belgian population activating EGFR mutations occurred in 7% of NSCLC patients: 57% occurred in men and 71% in (ex-) smokers.

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