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## 130P EGFR mutations in lung adenocarcinoma and brain metastases: A Croatian single institution experience

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**Background:** The brain, bones and lungs are common sites of metastasis in non-small cell lung cancer. We aimed to investigate the metastatic pattern of epidermal growth factor receptor (EGFR) mutations by analyzing the incidence of different metastatic sites in EGFR positive (+) lung adenocarcinoma patients with brain metastases (BM).

**Methods:** Data from medical records at the Clinic for Respiratory Diseases "Jordanovac" were collected for this retrospective cohort study. Caucasian Croatian patients with primary lung adenocarcinoma (PLA) and EGFR+ mutation status (2014-2015) were included.

**Results:** Of 116 EGFR+ patients, 24 (21.0%) were diagnosed with BM. The majority of EGFR+ patients (n = 17, 70.8%) were less than 65 years old at BM diagnosis. There were fewer males (n = 4, 16.7%) than females. Only four patients (all female, 16.7%) were active smokers at diagnosis of PLA. Median age at diagnosis of BM was 62 years (range: 43-78 years). Most patients (n = 20, 83.3%) had good performance status (PS, ECOG 0-1) and normal to increased body mass index (n = 17, 70.8%). Weight loss at presentation was reported by 10 patients (41.6%). The majority (n = 16, 66.7%) initially presented to the emergency department. In 8 patients (33.3%), symptoms related to BM appeared prior to or at the same time as the PLA. Oral tyrosine kinase inhibitor (TKI) treatment was received in second line (n = 8, 33.3%) after progression of disease following first line chemotherapy. Most patients with multiple BM (n = 18, 75.0%) received whole brain palliative radiotherapy; three could not due to poor PS. The main extracranial sites of metastases were bone (n = 16, 66.7%), liver (n = 7, 29.2%) and pleura (n = 19, 79.2%). The most common EGFR mutations were single exon 19 deletion (n = 13, 54.2%) and exon 21 L858R (n = 5, 20.8%). One patient (4.2%) had a double mutation (exon 19 and 21) and another (4.2%) had a rare single exon 18 mutation. Exon 20 T790M mutation occurred in 16.7% of patients (n = 4). The median overall survival (mOS) was 7.7 months versus 20.1 months from time of diagnosis of BM versus from PLA, respectively.

**Conclusions:** Early diagnosis of BM and extracranial metastases in EGFR mutant PLA patients is key to improving clinical outcomes, quality of life, and overall survival.

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