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Title: Epidermal growth factor receptor mutation status in advanced non-small cell lung cancer: A single institution experience

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Body: Background: Epidermal Growth Factor Receptor (EGFR) mutations are found in 10-20% of non-small cell lung cancer (NSCLC) and are associated with response to EGFR tyrosine kinase inhibitors (TKIs). The aim of this study is to examine the prevalence of EGFR mutations among patients with advanced non-squamous NSCLC treated in our institution and evaluate the associations of EGFR mutations with clinicopathological characteristics. Methods: We examined the EGFR mutations in exons 19 and 21 using sequence analysis of 133 patients with NSCLC from April 2010 till February 2012. Patients harboring EGFR mutations were treated with EGFR-TKIs, patients EGFR negative - with standart chemotherapy. 54 patients with advanced NSCLC who were not tested for EGFR mutations treated with standart chemotherapy were considered as the control group. Results: EGFR mutations were found in 18 patients (13.5%): female 30.3% (10/33), male 8.0% (8/100) ($P<0.01$); never smokers 37.9% (11/29), former smokers 10.0% (2/20), current smokers 5.9% (5/84) ($P<0.01$); adenocarcinomas 17.4% (15/86), large cell carcinomas 7.5% (3/40) ($P>0.05$). Overall response rate was 85.7% in EGFR mutation positive, 32.9% in EGFR mutation negative and 31.5% in control groups ($P<0.05$). The median progression-free survival in EGFR mutation negative group and in control group was 5.6 months (95% CI of 4.3 to 7.0) and 5.3 months (95% CI of 4.9 to 5.7), respectively but had not been reached yet in EGFR mutation positive group ($P<0.05$). Conclusions: The frequency of EGFR mutations is similar that presented in Europe. Screening of patients with NSCLC for EGFR mutations have a role in treatment decisions.