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Title: EGFR frequency and response to chemotherapy in a Brazilian NSCLC population

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Body: Introduction: Epidermal growth factor receptor (EGFR) is one of the major molecular targets for cancer diagnosis and therapy. Aim: The purpose of this study was to estimate and compare the frequency of EGFR in a Brazilian NSCLC population, and to associate them with clinical outcome, and response to platinum derivatives and paclitaxel chemotherapy. Materials and Methods: 124 biopsies of NSCLC patients were collected and analyzed by PCR-SSCP (used as screening for mutation in the EGFR gene, exons 18-21). The samples were further cloned and sequenced to confirm the mutation. Results: Out of 124 patients, only 64 had clinical conditions for chemotherapy Among them, 35 patients were diagnosed with adenocarcinoma. The frequency of mutation in the EGFR gene in the 124 patients was 4.83%. Among the 64 patients who responded, or not, to QTX the frequency was 9.3%, and among the adenocarcinoma patients, 17.1%. Multivariate logistic regression analysis confirmed that the chance of patients having a mutation in the EGFR gene and having a positive QTX response is 14 times higher than in patients without this mutation [OR= 14.38; 95% CI= 1.41 - 146.68; p= 0.024]. Patients with ECOG 2 showed bad response to QTX [OR= 3.9; 95% CI= 1.0 - 3.93; p= 0.034]. Conclusions: A more personalizing patient-oriented therapy is a promising approach for selecting the most appropriate therapies aiming to optimize effectiveness, minimize toxicity, and reduce costs, increasing survival and quality of life. However, more studies are needed to confirm these results, and to define how the drugs sequence should be used in this group of patients.

