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Angiogenesis genetic polymorphisms and non-small-cell lung cancer: Overcoming a challenge

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Lung cancer is a highly prevalent disease worldwide. Currently, it is the leading cause of cancer-related death in western nations. Non-small-cell lung cancer (NSCLC) corresponds to 85 % of all histological types. Risk factors are usually associated with Tabaco consumption, occupational exposure, radon and also passive smoking. Lung cancer diagnosis often occurs in advanced stages, IIIB and IV. Thus systemic therapies, such as cytotoxic agents and therapeutically targets, acquired a main role in NSCLC management approach. To date, many factors have influence in NSCLC behavior and therefore in clinical response to target therapies, such as epidermal growth factor (EGF) and its receptor (EGFR) and vascular endothelial growth factor (VEGF) and its receptor (VEGFR). Angiogenic related genetic polymorphisms are current object of main interest in NSCLC research. Recently, a Portuguese study identified EGF +61 A/G polymorphism as risk factor for NSCLC advanced patients. Furthermore, others genetic polymorphisms, such as VEGF -2578 C/A and VEGF -1154 G/A, were correlated with increased tumor VEGF expression, vascular density and worse survival. This topic will address the state of art concerning genetic polymorphisms and NSCLC behavior, as well as the related targets therapies in this regard.

Key-words: lung cancer; non-small-cell lung cancer; epidermal growth factor; epidermal growth factor receptor; EGFR; EGF; vascular endothelial growth factor; vascular endothelial growth factor receptor; erlotinib; gefitnib; bevacizumab

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