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# Esophageal cancer and the importance of epidermal growth factor receptor (EGFR)

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**ABSTRACT**

Esophageal squamous cell carcinoma (ESCC) is one of the most frequent malignancies, worldwide. It is important to find out what prognostic factors can facilitate diagnosis, optimize therapeutic decisions, and improve the survival of these patients.

Despite improvements in surgical techniques combined with chemotherapy and/or radiotherapy, the novel therapies such as small molecule inhibitors of tyrosine kinases (TKIs) and humanized monoclonal antibodies (mAbs) are very much needed. On the other hand, neoadjuvant chemotherapy which may improve the outcome is accompanied by toxicity by destruction of normal cells. Side effects may be avoided by developing therapies that specifically target molecular characteristics of tumors.

Epidermal growth factor receptor (EGFR) is one of tyrosine kinases receptors widely distributed in human epithelial cell membrane. Genetic polymorphisms in EGFR genes influence cell cycle progression, angiogenesis, apoptosis and metastasis. EGFR mutations are mostly observed in lung tumors; curiously they are more prevalent in Asian women diagnosed with adenocarcinoma. Also, esophageal SCC shows a relatively high incidence of EGFR (33%) and/or HER2 (31%) overexpression. Patients who carry these mutations in EGFR have been founded tending to have a better response to gefitinib, an EGFR-TKI, whereas patients with the wild-type genotype show a better response to conventional chemotherapy. Therefore, finding clinical characteristics and environmental interactions with EGFR can affect on investigations about novel anti-cancer therapies like monoclonal antibodies and gene therapy and studies which identify patients who may benefit from EGFR targeted therapies. Hence, it may be effective on the improvement of prognosis in these patients.

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