Introduction

Esophageal cancer is the fifth most common malignancy and the fourth leading cause of cancer mortality in China. According to the Chinese cancer registry annual report in 2012, esophageal cancer accounts for nearly 1 in 10 of all cancer deaths. Despite the fact that much progress has been made in diagnosis and systemic chemotherapy regimens, the overall prognosis of esophageal cancer continues to be bleak. The 5-year survival rate, all stages included, is around 15-25%.[1] The remission of a significant unmet medical need for esophageal cancer treatment.

EGFR expression was reported in 30~90% esophagus cancers and overexpression of EGFR was found to be associated with worse survival.[2] Unlike colon cancer, K-ras mutation was less frequently found in esophagus cancer (0~16%)[3], suggesting EGFR pathway blockade might bring therapeutic benefit to those patients with EGFR activation.

Materials and methods

Tumor tissues: Esophageal tumor samples from 43 treatment-naive patients were collected from surgical resection from Shanghai Bosnaph Network of Common Human Tumor Tissue (supported by SMTIC, Grant No. 12022295100), including 34 bullous tumors and 9 fresh specimens. Freshly harvested tissues were snap frozen in liquid nitrogen for DNA extraction and sequencing; 3. Prepared FPE sections for pathological analysis.

EGFR IHC staining was performed using the EGFPRx (Dako) and the whole section was carefully examined. The staining intensity was scored using a four-tier system. The percentage of tumor cells with positive staining was revised and a final score was calculated. The categorical score was determined by the intensity score of the largest percentage of tumor cells. Categorical score >2 was regarded as EGFR high expression.

EGFR gene amplification: determined by real-time PCR and FISH.

Tumor Volume (mm3)

Conclusions

• High expression of EGFR was frequently found in Chinese esophageal cancer.

• EGFR inhibition resulted in patient anti-tumor effect in multiple patient derived esophageal cancer models carrying EGFR amplifications and/or high expression, suggesting that anti-EGFR agents might bring clinical benefits to esophageal cancer patients with abnormal EGFR activation.

• Abrupt FGF signaling might lead to resistance to EGFR inhibitors.

References


